

# The Anonymity Paradox: Identity Disclosure, Online Information Production, and Stock Price Efficiency

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*Finance and Economics, International Review of Economics and Finance, Managerial and Decision Economics, Renewable Energy, etc.*

# The Anonymity Paradox: Identity Disclosure, Online Information Production, and Stock Price Efficiency

**Abstract:** The internet real-name system, a major platform governance intervention aimed at enhancing accountability, may inadvertently reshape information production with significant market consequences. This study examines how a front-end real-name policy—the mandatory display of user IP-location information—influences stock price informativeness. Leveraging China’s 2022 policy enactment as a quasi-natural experiment and a difference-in-differences design with firm-quarter data from 2021 to 2023, we find that the policy significantly decreases stock price informativeness, as reflected in a significant increase in stock price synchronicity. Mechanism tests reveal that the policy suppresses user engagement on social investing platforms, reducing both overall and informative post volumes and thereby diminishing retail trading. Consequently, investors shift their information-seeking activities toward official interactive platforms, and stock prices exhibit a stronger response to unexpected earnings. Further heterogeneity analyses show that the increase in stock price synchronicity is larger among firms with weaker governance, lower information disclosure quality, and evasive responses on official investor-interaction platforms, but smaller among firms with higher observed AI-assisted communication usage. These findings suggest that firms’ pre-existing information environments and observed communication practices shape the capital-market consequences of the real-name system. We provide the first evidence on the capital-market effects of front-end real-name disclosure, highlighting a trade-off between regulatory goals and market efficiency and offering insights into the role of firms’ information communication practices in online platform governance.

**Keywords:** Platform Governance; Information Production; Stock Price Synchronicity; Real-Name System; Social Media

**JEL:** G14; G38; K24

## 1. Introduction

Institutions and trust form the bedrock of efficient markets (Zingales, 2015). In the digital age, the governance of online identity—how individuals are positioned along a spectrum from anonymity to public accountability—has become an important component of the information infrastructure underlying information dissemination and price discovery. The production, dissemination, and acquisition of information are central to stock price formation (Grossman and Stiglitz, 1980; Kelly and Ljungqvist, 2012). Information may also be incorporated into prices gradually when investors face limits in acquiring or processing relevant information (Hong et al., 2007). A central challenge in designing online identity institutions is to balance accountability against the costs that greater identity visibility may impose on expression. Evidence from settings in which individual actions become publicly observable suggests that public visibility can heighten social-image and reputational concerns (DellaVigna et al., 2016). In online settings, the public display of IP-location information may reduce perceived anonymity by increasing the visibility, identifiability, and traceability of their online behavior. Such changes may induce strategic silence or conformity and discourage the sharing of controversial or proprietary private information. At the same time, weaker identity visibility can reduce the costs of expression but may also lower the costs of rumor dissemination and strategic manipulation. This tension between anonymity and

accountability motivates the central question of this paper: when platform governance exogenously increases the visibility of users' online identities, how does the resulting change in information production affect stock price informativeness?

The growing importance of social media in financial communication brings this institutional tension into the context of capital markets, where investors exchange views and information about individual stocks. Regulators have adopted various forms of online identity disclosure to enhance accountability and improve the online information environment. By making users' geographical locations publicly visible, IP-location disclosure may increase the perceived visibility and traceability of online behavior, thereby raising the reputational costs of public expression. However, an important question remains: when identity visibility increases in informal but information-relevant channels, how does it affect information production and price discovery in capital markets? This study addresses this question by examining whether China's front-end real-name disclosure policy changes investors' incentives to produce and share information on stock forums and, in turn, affects stock price informativeness, measured by stock price synchronicity (Jiang and Lei, 2023; Wu et al., 2026).

Platform governance can shape the information environment in capital markets by affecting the incentives of users who produce and disseminate information. This study examines China's front-end real-name disclosure reform, under which major online platforms began displaying users' IP-location information, as a shock that increased the visibility and perceived traceability of users' online behavior on financial social media platforms. The public display of IP-location information may raise the reputational costs associated with posting, particularly when users expect their online behavior to become more observable to other platform participants. As a result, the policy may affect not only the volume of user participation but also the incentives to share firm-specific information. Existing research has documented that social-media content and investor sentiment are related to asset prices (Da et al., 2015; Cookson and Niessner, 2020). Less is known, however, about whether a platform-governance intervention that increases identity visibility changes the production of informal information and, consequently, stock price informativeness. This question is important because stock forums provide retail investors with a channel for exchanging views and potentially value-relevant information about listed firms. Using the implementation of IP-location disclosure on the East Money Guba forum in 2022 as a quasi-natural experiment, we employ a difference-in-differences design to examine how front-end real-name disclosure affects stock price informativeness. In doing so, the study links platform governance to information production, retail investor behavior, and price discovery in capital markets (Wu et al., 2026).

Two competing arguments predict how front-end real-name disclosure may affect the information environment of capital markets. The first, the Information Incentive Hypothesis, emphasizes the potential cost of greater identity visibility for informal information production. Acquiring and processing private information is costly, and individuals may have limited incentives to disclose such information when others can use it without bearing the same costs (Grossman and Stiglitz, 1980; Fishman and Hagerty, 1989). In online stock forums, perceived anonymity may reduce the social and reputational costs of sharing proprietary, negative, or controversial views, thereby encouraging information exchange among investors (Antweiler and Frank, 2004). By publicly displaying users' IP-location information, front-end real-name disclosure may increase the perceived visibility and traceability of online expression. Users may

consequently become less willing to post firm-specific information, particularly information that is controversial or difficult to verify. A reduction in the supply of such information may limit the incorporation of firm-specific signals into stock prices and is therefore expected to increase stock price synchronicity (Chen et al., 2014). The alternative argument, the Disciplinary Effect Hypothesis, emphasizes the potential benefit of greater identity visibility. Online anonymity may lower the costs of spreading misinformation, unsubstantiated claims, and promotional content. Such content can increase investors' information-processing costs and reduce the usefulness of online discussion forums as information sources (Blankespoor et al., 2020). By increasing the perceived reputational costs of public expression, front-end real-name disclosure may discourage low-quality or misleading content and improve the average informativeness of forum discussions. If this disciplinary effect dominates the potential reduction in valuable information production, investors may face lower information-processing costs and stock prices may incorporate firm-specific information more efficiently. Stock price synchronicity would therefore decrease (Jin and Myers, 2006). To distinguish between these competing predictions, we examine the effect of front-end real-name disclosure on stock price informativeness, using stock price synchronicity as the primary proxy. Stock price synchronicity is constructed from the  $R^2$  of a return model that captures the extent to which a firm's stock returns co-move with market and industry returns (Roll, 1988). A higher synchronicity measure is commonly interpreted as indicating that less firm-specific variation is reflected in stock returns, whereas a lower measure is associated with greater stock price informativeness (Eun et al., 2015).

The empirical analysis focuses on the East Money Stock Forum, commonly known as Guba, which provides a useful setting for examining how front-end real-name disclosure affects information production and stock price informativeness. The setting has three features that are relevant to our research question. First, China's A-share market has a large retail investor presence, and retail investors commonly use online stock forums to exchange views and obtain information about listed firms (Huang et al., 2024; Cookson et al., 2024). Second, Guba maintains a separate discussion board for each listed company, allowing us to match forum posts to individual firms and construct firm-level measures of online information production. Third, Guba began publicly displaying users' IP-location information in 2022, creating a discrete change in the visibility and perceived traceability of users' online behavior. These features allow us to examine whether firms that were more exposed to information production on Guba before the policy experienced different changes in stock price synchronicity after IP-location disclosure was introduced. The setting is particularly suited to studying the role of informal information channels because it links firm-specific online discussion to firm-level capital-market outcomes. By combining post-level data from Guba with firm-quarter financial and market data, we test whether increased identity visibility is associated with changes in information supply, retail trading, and stock price informativeness. Our identification relies on the difference-in-differences design and its associated assumptions, which we assess through parallel-trend tests and additional robustness analyses.

This study uses the introduction of IP-location disclosure on the East Money Stock Forum as a quasi-natural experiment to examine the effect of front-end real-name disclosure on stock price informativeness. Using firm-quarter data from 2021 to 2023, we implement a difference-in-differences design that compares firms with greater pre-policy exposure to Guba-based information with other listed firms. The design tests whether firms that relied more

heavily on forum discussion before the policy experienced larger changes in stock price synchronicity after the public display of IP-location information was introduced. We further examine the proposed information-production channel using measures of total posting activity and informative posting activity. The baseline estimates indicate that the coefficient on  $Treat \times Post$  is positive and statistically significant, suggesting that firms with greater pre-policy reliance on Guba experienced a larger increase in stock price synchronicity after the policy. The mechanism analyses further indicate that the policy is associated with lower total and informative posting activity on the forum. Taken together, these results are consistent with the interpretation that increased identity visibility reduced informal information production and limited the incorporation of firm-specific information into stock prices.

Guided by these findings, this study makes three contributions. First, it examines the capital-market consequences of front-end real-name disclosure. Prior research has documented the relation between social media, investor sentiment, and asset prices (Da et al., 2015; Cookson and Niessner, 2020), whereas less is known about how platform-governance interventions affect the production of informal information and stock price informativeness. By examining the public display of IP-location information on a major stock forum, this study links platform governance to information production and price discovery in capital markets. The analysis is motivated by theories of information acquisition and market efficiency (Grossman and Stiglitz, 1980) and by the role of institutions in shaping market outcomes (Zingales, 2015).

Second, the study provides evidence on the information-production channel through which front-end real-name disclosure may affect stock price informativeness. We examine changes in total posting activity, informative posting activity, and retail trading after the policy. The results are consistent with the view that increased identity visibility is associated with lower informal information supply and reduced retail trading, followed by a larger increase in stock price synchronicity among more exposed firms. We further document that investors increase their use of official interactive platforms after the policy. In addition, the earnings response coefficient increases for treated firms after the policy, indicating that stock prices exhibit a stronger response to unexpected earnings. This pattern suggests that investors may rely more heavily on formal earnings disclosures when information from informal forums becomes less available.

Third, the study identifies heterogeneity in the effects of front-end real-name disclosure across firms. The increase in stock price synchronicity is larger among firms with weaker corporate governance and lower information disclosure quality, which are likely to rely more heavily on informal information channels. The effect is also larger among firms that use evasive responses on official investor-interaction platforms, but smaller among firms with higher observed AI-assisted communication usage. These patterns suggest that the consequences of front-end real-name disclosure depend both on firms' pre-existing information environments and on their communication practices on alternative information channels. Taken together, the findings provide evidence on the trade-off between online accountability and the production of market-relevant information, with implications for platform governance and corporate investor communication.

The remainder of this paper is organized as follows. Section 2 describes the institutional background of internet real-name regulation in China and the introduction of IP-location disclosure on the East Money Stock Forum. Section 3 reviews the related literature and develops the competing hypotheses. Section 4 describes the data, sample construction, variable definitions, and empirical design. Section 5 presents the baseline results, robustness tests, mechanism

analyses, heterogeneity analyses, and additional evidence on investors' use of alternative information channels. Section 6 concludes.

## **2. Institutional Background**

As a core driver of the new technological revolution, the rapid development of the internet has had a profound impact on human society. While its characteristics of immediacy, convenience, and interactivity have propelled economic and social progress toward greater efficiency, its open, free, and anonymous nature has also given rise to a series of potential problems. Against this backdrop, countries worldwide have begun to explore the implementation of online identity regulation, through formal legislation, administrative regulation, and industry self-regulation, aiming to enhance online accountability and maintain digital order.

### **2.1 Global Practices of the Internet Real-Name System**

The internet real-name system, also conceptualized as an "online identity system," aims to unify individuals' online personas with their real-world identities. From a global perspective, these systems can be broadly categorized into two types: real-name verification systems and real-name exposure systems. The real-name verification system, also known as an indirect or back-end real-name system, only requires users to verify their true identity with the platform operator, without mandating public disclosure of this information. In contrast, the real-name exposure system, also referred to as a direct or front-end real-name system, not only requires identity verification but also obligates users to display their real name or IP address when publishing content. Overall, the vast majority of countries that have implemented an internet real-name system have adopted the indirect or back-end approach.

South Korea was the first country in the world to implement an internet real-name system. It began this process in 2002 within government departments and subsequently expanded it through a series of legislative acts, such as the Framework Act on Informatization Promotion and the Act on Promotion of Information and Communications Network Utilization and Information Protection. These laws mandated that South Korean internet users must register and verify their real names and resident registration numbers before they could post comments on various websites. In 2008, the system was implemented nationwide, covering domains such as email, online forums, video platforms, and blogs. However, in 2012, South Korea's Constitutional Court ruled that there was insufficient evidence to prove the system had achieved its intended objectives and officially abolished it. In 2014, the amendment to the Personal Information Protection Act prohibited the collection and use of resident identification numbers without legal justification. To address the ensuing inconvenience while maintaining accountability, the South Korean government introduced the "My Pin" service as an alternative identity verification tool. This service provides a randomly generated 13-digit number that residents can easily obtain from government websites or service centers, which can be widely used in place of identification numbers in both online and offline daily activities.

Beyond South Korea, other major developed nations, including the United States, the United Kingdom, and Germany, have also widely adopted some form of the internet real-name system. In the United States, to activate mobile internet services, users are required to sign a contract with the service provider and provide their Social Security Number. The U.S. CAN-SPAM Act makes it illegal to send spam emails using a false identity, a fraudulent return address, or a deceptive header. This act is often seen as the beginning of the internet real-name system in the U.S., with

subsequent laws like the Computer Security Act and the Cybersecurity Act also including real-name requirements. In the United Kingdom, internet users are required to register with their real names. Telecom operators must record users' personal information during the sign-up process, and mobile users are also mandated to register their personal details in the national database. In Germany, business operators, as well as users of email, telephone, and mobile phone, are all required to register their real names. These cross-country differences illustrate that online identity governance can range from back-end verification to more visible forms of identity-related disclosure.

## **2.2 The Evolution of China's Internet Real-Name System**

The Chinese government places great emphasis on regulating online order and governing cyberspace, advancing the internet real-name system as a key institutional priority. The implementation of this system in China dates back to 2002, when the State Council promulgated the Regulations on the Administration of Internet Access Services Business Premises, which stipulated that all customers accessing the internet in cybercafés must provide their identity cards for registration. Since this starting point, the development of China's internet real-name system has progressed through three distinct phases:

**Exploratory and Pilot Phase (2002–2011):** This phase was characterized by decentralized, domain-specific policy explorations. Various ministries and local governments introduced real-name requirements for specific areas such as IP address registration, online gaming, and Bulletin Board Systems (BBS). For instance, the Ministry of Information Industry required website IP address registration in 2005, and in the same year, the Ministry of Culture and other bodies mandated a real-name system for certain online games. At the local level, cities like Shenzhen, Hangzhou, and Beijing successively implemented real-name registration rules for QQ groups, local forums, and microblogs. The policies of this period were marked by a “fragmented and uncoordinated” approach, which provided practical experience for subsequent unified legislation.

**Legislative Expansion and Back-end Real-Name Phase (2012–2016):** This phase marked the elevation of the internet real-name system from local pilots to national, unified legislation. The key milestone was the 2012 Decision on Strengthening Network Information Protection passed by the Standing Committee of the National People's Congress, which legally established the principle of “back-end real-name” for the first time. Subsequently, the Cyberspace Administration of China (CAC) issued regulations extending real-name requirements to instant messaging tools and all internet user accounts. The passage of the Cybersecurity Law in 2016 further solidified the real-name system as a fundamental legal obligation. However, the system during this stage was predominantly “back-end real name, front-end voluntary,” and its policy effectiveness was significantly diminished in practice due to a lack of detailed implementation rules (Lee and Liu, 2016).<sup>1</sup>

**Deepening and Front-end Real-Name Phase (2017–Present):** To address persistent issues such as cyberbullying and information cocoons that continued under the “back-end real-name”

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<sup>1</sup> For example, a report in the Workers' Daily on September 11, 2016, based on an undercover investigation, revealed that the implementation of the internet real-name system was inadequate and poorly enforced. The report is available at: <https://www.chinanews.com/sh/2016/09-11/8000595.shtml>.

framework (He and Li, 2024),<sup>2</sup> regulatory policy has shifted toward “front-end real-name” implementation. The core transformation in this phase is the requirement not only for authentic back-end user information but also for the public display of certain identity-related information on the front end. Epitomized by the 2022 Provisions on the Administration of Internet User Account Information, this policy mandates the public disclosure of information on user account pages, including the operating entity, registered operating address, content production category, unified social credit code, valid contact information, and IP address location. This shift aims to strengthen direct accountability for online behavior, reflecting a continuous adaptation of governance strategies in the face of evolving online challenges.

### **2.3 The Provisions on the Administration of Internet User Account Information and Its Impact on the East Money Guba Forum**

As one of the most significant reforms in the internet real-name system management over the past decade, the Provisions on the Administration of Internet User Account Information (hereinafter referred to as “the Provisions”), released in June 2022, marks the official implementation of the “front-end real-name system.” Crucially, this reform represents a rare instance of an exogenous, platform-wide shock to user identifiability on financial social media, providing an ideal quasi-natural experiment for identifying the causal effect of anonymity loss on capital market information efficiency. Theoretically, under this system, the long-standing phenomenon of anonymous speech through virtual identities is expected to diminish, requiring users to assume direct and primary responsibility for the content they publish online (He and Li, 2024).

In terms of practical impact, the front-end real-name system has sparked widespread attention and debate. Not only have traditional media outlets like Southern Weekly published dedicated analyses on the topic<sup>3</sup>, but discussions on social media platforms such as Weibo and Zhihu have also been extensive. For example, a discussion thread on this subject on Zhihu garnered over 4,000 answers and was viewed more than 7.4 million times.<sup>4</sup> A key concern emerging from these discussions is that the front-end real-name system could lead to participants being held accountable for their speech. This may induce a “chilling effect,” where users reduce their online engagement out of a precautionary motive, thereby decreasing the overall volume of information on the internet (He and Li, 2024).

As a professional financial social media platform, the East Money Guba forum is China’s largest and most active stock forum (Hong et al., 2014; Ang et al., 2021), where retail investors engage in extensive information exchange about stocks of interest (Lee and Zhong, 2022; Huang et al., 2024). In 2022, following the Provisions, the East Money Guba forum began transitioning towards a front-end real-name system for its users.<sup>5</sup> As the initial step of this implementation, the forum started officially displaying users’ IP geolocation information on May 25, 2022. This had a

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<sup>2</sup> He and Li. The Dual Models of Legal Governance for Social Media: Back-end Real-name and Front-end Real-name. Theoretical Weekly of the People’s Court Daily, March 21, 2024.

<http://ytzy.sdccourt.gov.cn/wfzy/resource/cms/article/442628/18015789/2024032610192119231.pdf>.

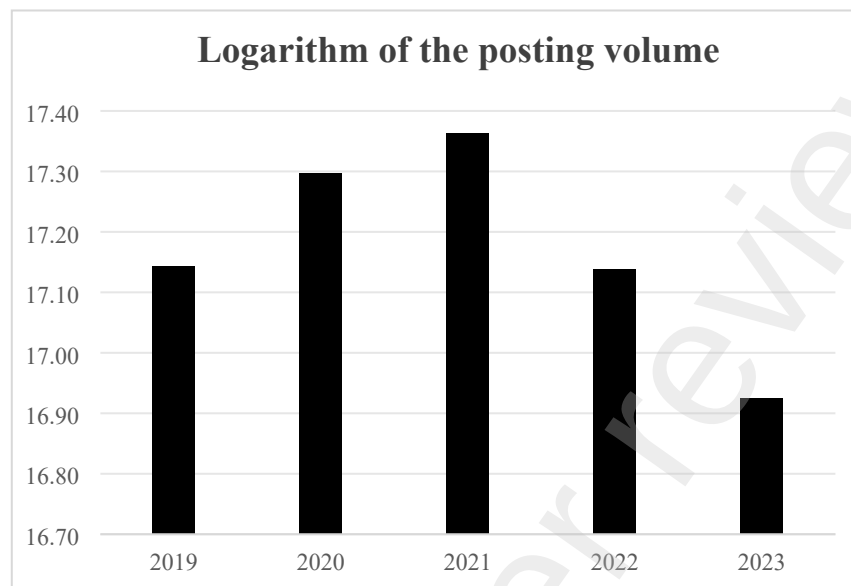
<sup>3</sup> 《Network Real-name System, from “behind the scenes” to the “front stage” amid debate》, available at <https://weibo.com/ttarticle/p/show?id=2309404963377452810317>.

<sup>4</sup> <https://www.zhihu.com/question/530803914/answer/3341217844>.

<sup>5</sup> On May 20, 2022, an investor asked Eastmoney, “Eastmoney’s stock bar is very influential, but it’s also a mix of good and bad. Recently, many online platforms have started displaying IP addresses, shouldn’t the stock bar also implement showing users’ IP addresses soon? Thank you.” The secretary of Eastmoney replied, “Dear Investor: Hello, thank you for your attention to the company. The company will manage the operations of the stock bar in accordance with relevant policies and regulatory requirements.”

See: <http://finance.sina.com.cn/stock/relnews/dongmiqa/2022-05-20/doc-imcwipik0974285.shtml>.

direct impact on user participation. Figure 1, which displays the logarithm of the annual posting volume on the forum from 2019 to 2023, shows that after reaching a peak in 2021, the posting volume experienced a significant decline.<sup>6</sup> This observation suggests that the increase in identity visibility may have contributed to lower posting activity on the East Money Guba forum.



**Figure 1 Logarithm of the posting volume on the East money Stock Bar Forum from 2019 to 2023<sup>7</sup>**

The implementation of the Provisions and its observable impact on the East Money Guba forum provide a unique institutional setting to examine the causal effect of increased user identifiability on stock price informativeness. On the one hand, the implementation of the front-end real-name system led to a significant drop in user participation on the East Money Guba platform, potentially affecting retail investors' access to information. On the other hand, the policy's primary objective was related to cybersecurity and not directly linked to the capital market, thus offering a valuable exogenous shock for empirical analysis. Furthermore, compared to previous, more principle-oriented policies, this regulation provides clear and detailed implementation guidelines, resulting in a more pronounced policy effect, as evidenced by Figure 1. Therefore, in the remainder of this article, we leverage the Q2 2022 policy shock and data from the East Money Guba forum to construct our identification strategy. This allows us to provide causal evidence on the effect of increased user identifiability on stock price informativeness.

### 3. Theoretical Analysis

#### 3.1 Literature Review

How investors select information sources is an important issue in financial economics (Blankespoor et al., 2020). Existing research suggests that institutional investors typically possess greater experience, expertise, and access to information channels, whereas retail investors often face greater constraints in collecting and analyzing information (Malmendier and Shanthikumar, 2007; Fung et al., 2024). More broadly, investors have limited information-processing capacity,

<sup>6</sup> To provide a more granular view of the changes in posting activity, Appendix Figure A1 further presents the quarterly posting volume on the East Money Guba forum in 2022. The results show a marked decline in posting volume following the second quarter of 2022, and this quarter-level evidence corroborates the trend observed in the annual data.

<sup>7</sup> Source of data: Collected and analyzed by the author.

which can slow the incorporation of value-relevant information into stock prices (Hong et al., 2007). Against this backdrop, the proliferation of Internet stock message boards has created opportunities for retail investors to exchange information and express opinions (Chen et al., 2014; Cookson and Niessner, 2020; Ang et al., 2021; Cookson et al., 2024; Guo et al., 2026). Building on the theoretical framework of Easley and O'Hara (2004), existing research suggests that these platforms can affect both the quantity and quality of information available to market participants.

Existing studies suggest that investors' engagement on Internet stock message boards reflects strategic, confirmatory, and altruistic motives (Gao et al., 2024). From a strategic perspective, investors may seek to influence the trading decisions of other participants, and possibly stock prices, by disseminating information (DeMarzo et al., 2003). Platforms such as the East Money Guba forum, which combine low participation costs with broad reach, may facilitate information diffusion and shape investor expectations (Miller and Skinner, 2015; Huang et al., 2016; Lee and Zhong, 2022). <sup>8</sup>A confirmatory motive may lead investors to post or read messages to compare others' views with their own private information (Cao et al., 2002). In addition, altruistic or whistleblowing motives may encourage individuals to disclose negative information about corporate behavior (Butler et al., 2020).

Research has reached mixed conclusions about the informational role of these platforms. On the one hand, some studies find that online stock discussions expand the information set available to investors. Retail investor posts can predict returns (Antweiler and Frank, 2004; Chen et al., 2014), contain value-relevant information (Leung and Ton, 2015), and affect corporate decisions such as mergers and acquisitions (Ang et al., 2021). On the other hand, other studies emphasize potential drawbacks, including the spread of misinformation (Ahern and Sosyura, 2015) and greater information asymmetry (Fei, 2021). These mixed findings suggest that the effects of stock message boards depend on the quality and credibility of the information exchanged, consistent with evidence that opaque information environments are associated with lower pricing efficiency (Ghent et al., 2019). A policy that changes users' incentives to produce information may therefore shift the balance between the informational benefits and costs of online stock discussions. The internet real-name system provides a setting in which to examine how changes in identity visibility affect this balance.

### 3.2 Hypothesis Development

The core question of how user identifiability shapes information flows in financial markets can be approached from two competing theoretical perspectives. The debate surrounding the internet real-name system's impact on information flows has persisted since the early days of the internet. From a corporate information environment perspective, the theoretical impact of such a system is ambiguous due to two competing viewpoints (Jardine et al., 2020).

On the one hand, the argument against the internet real-name system posits that anonymity can improve the corporate information environment. This perspective is grounded in the pivotal role anonymity plays in facilitating information production and dissemination. First, drawing from cheap talk theory (Farrell and Rabin, 1996), anonymity encourages a wider and more critical range of discourse by removing expressive inhibitions linked to social identity and professional affiliations. This reduces the perceived social cost for informed individuals to share private

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<sup>8</sup> For example, on the Nongfu Spring (09633.HK) stock forum, retail investors posted comments favoring Wahaha while criticizing Nongfu Spring. Several posts received more than 10,000 views, with the most-viewed post exceeding 40,000 views, during a period of consecutive declines in the firm's stock price.

information—particularly negative or controversial insights—thereby potentially increasing the supply of firm-specific information in the market. Second, anonymity significantly lowers the barriers to entry for information contribution. It not only attracts a broader pool of potential contributors (e.g., frontline employees, supply chain partners, industry insiders) but also shields them from professional reprisal, aiding in the uncovering and aggregation of dispersed, non-public soft information, which enriches the diversity and depth of the information ecology. Third, anonymity provides a critical protective shield for internal whistleblowers and potential critics. When firms like Zhongke Yunwang (002306.SZ) take legal action against forum users to hold them accountable for their posts, it underscores the very legal and reputational risks that anonymity seeks to mitigate; without such protection, crucial information regarding corporate governance failures or financial misconduct might never surface. Lastly, anonymous discussions can function as a form of social monitoring, triggering formal regulatory scrutiny. For instance, rumors concerning Northwest Chemical (000791.SZ) that gained traction on anonymous forums ultimately prompted inquiries from the stock exchange, compelling the firm to issue public clarifications, thereby transforming informal discussion into formal, credible information disclosure. In summary, anonymity, by lowering the cost of information production, broadening the sources of information supply, protecting high-risk informants, and activating institutionalized oversight, introduces a more diverse, timely, and potentially more truthful information flow into the corporate information environment. Based on the above theoretical reasoning, we propose the following hypothesis:

*H1a (Information Incentive Hypothesis): Ceteris paribus, front-end real-name disclosure, by increasing the visibility and perceived traceability of users' online behavior, deters the production and sharing of private information on social investing platforms. This contraction of information supply reduces the firm-specific information incorporated into stock prices, leading to an increase in stock price synchronicity.*

On the other hand, the argument in favor of the internet real-name system contends that anonymity generates significant noise, thereby deteriorating the information environment. This perspective draws on the theory that online anonymity, by lowering the cost of irresponsible speech, creates a classic “tragedy of the commons” in digital information spaces (Kollock and Smith, 1996), where individual incentives to pollute the commons with low-value content outweigh the collective benefit of a clean information environment. First, the low-constraint environment may incentivize deceptive or spam posts for personal gain, such as pump-and-dump schemes or competitive disparagement (Matias, 2019). The presence of such strategic noise not only misleads but also erodes trust in the platform as a credible information source. Second, the resultant surge in post volume, including uninformative spam, crowds out investors' limited attention and increases their costs for sifting and verification (Da et al., 2015; Blankespoor et al., 2020). This imposes a negative externality on all market participants by degrading the efficiency of information processing. Conversely, under a real-name system, the dynamics shift substantially. By making users' digital footprints traceable to a persistent identity (even if just an IP location), the system introduces a form of “soft accountability” (Fox, 2007). Users may exercise greater restraint and responsibility, as the potential reputational and social costs of spreading misinformation rise. This aligns with signaling theory, where the willingness to be identified can itself act as a costly signal of credibility (Spence, 1973). Consequently, this environment is more

likely to foster deliberate discourse and fact-checking among users, potentially leading to more credible contributions and a higher signal-to-noise ratio. Thus, the real-name system can act as a pro-social regulatory mechanism that reshapes community norms and aligns individual posting incentives with collective information quality. It functions not merely as a deterrent but as an institution that cultivates a more reliable and efficient market for information. Based on this, we propose the competing hypothesis:

*H1b (Disciplinary Effect Hypothesis): Ceteris paribus, front-end real-name disclosure, by increasing the identifiability and accountability of users, suppresses noise and low-quality content (e.g., misinformation and spam) on social investment platforms. This purification of the information environment improves the signal-to-noise ratio, leading to a decrease in stock price synchronicity.*

## 4. Research Methods

### 4.1 data and sample

The internet real-name system policy examined in this study, namely the Provisions on the Administration of Internet User Account Information, was officially issued on June 27, 2022. Accordingly, our sample comprises Chinese A-share listed companies observed from 2021 to 2023, with data structured at the firm-quarter level. Following established practices in the literature, we apply the following screening procedures to construct the final sample: (1) excluding firms in the financial industry due to their distinct capital structures and operating models; (2) removing firms designated as ST or \*ST to avoid the influence of financially distressed or abnormal operations; (3) excluding firms that were listed after 2021 to ensure a consistent sample period before and after the policy shock; and (4) dropping observations with missing key variables. After applying these filters, we obtain a final sample of 42,343 firm-quarter observations spanning from 2021 to 2023.

**Table 1 Sample Selection**

|                                                                              | Observations |
|------------------------------------------------------------------------------|--------------|
| Initial firm-quarter observations for A-share listed firms from 2021 to 2023 | 47,399       |
| Less:                                                                        |              |
| Firms in the financial industry                                              | 1,514        |
| ST and *ST firms                                                             | 1,572        |
| Firms listed after 2021                                                      | 666          |
| Observations with missing data                                               | 1,304        |
| Final sample                                                                 | 42,343       |

### 4.2 research design

To identify the impact of the internet real-name system on corporate stock price informativeness, this paper employ a classic difference-in-differences (DID) model, specified as follows:

$$SYN_{i,t} = \alpha_0 + \alpha_1 Treat_i * Post_t + \alpha_2 Controls + Year-Quarter FE + Firm FE + \epsilon_{i,t} \quad (1)$$

In Equation (1), the dependent variable is stock price synchronicity (SYN), which measures the extent to which individual stock returns move with market and industry returns (Eun et al., 2015; Brockman et al., 2024). A higher SYN indicates a greater proportion of price variation

attributable to market-wide or industry-wide factors, implying less firm-specific information being incorporated into stock prices (i.e., lower stock price informativeness) (K ü l l ü et al., 2019; Cheema et al., 2023). Following Durnev et al. (2003), this paper first estimate the  $R^2$  for each stock using Equation (2). Specifically, at the firm-quarter level, this paper regress daily individual stock returns ( $r_{i,t}$ ) on the contemporaneous daily market returns ( $r_{m,t}$ ) and industry returns ( $r_{i,t}$ ) to obtain the  $R^2$  for each quarter. We then apply a logarithmic transformation to this  $R^2$  as shown in Equation (3) to ensure it approximates a normal distribution. The resulting metric, SYN, serves as our measure of stock price synchronicity.

$$r_{i,t} = \beta_0 + \beta_1 r_{m,t} + \beta_2 r_{i,t} + \epsilon_{i,t} \quad (2)$$

$$SYN_i = Ln(R_i^2 / 1 - R_i^2) \quad (3)$$

The key explanatory variable is the DID estimator (Treat\*Post). The treatment group (Treat = 1) consists of firms that were highly dependent on stock message board information before the implementation of the “Administrative Provisions on Internet User Account Information,” while the control group (Treat = 0) comprises the remaining firms. Specifically, this paper define the treatment group based on the firm size-adjusted number of stock message board posts<sup>9</sup> in the quarter immediately preceding the policy announcement (Q1 2022). Firms in the top quartile of this measure are designated as the treatment group, as they are logically more susceptible to the policy’s impact. The rest of the firms constitute the control group<sup>10</sup>. The policy shock variable (Post) is defined based on the June 2022 implementation date. It takes the value of 0 for Q2 2022 and earlier, and 1 for Q3 2022 and thereafter<sup>11</sup>.

We include a vector of control variables, detailed in Table 2, to account for other factors known to influence stock price synchronicity (Feng et al., 2024). All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers, and standard errors are clustered at the firm level to address residual correlation.

**Table 2 Main Control Variables and Their Definitions**

| Variable            | Symbol          | Definition                                                                                  |
|---------------------|-----------------|---------------------------------------------------------------------------------------------|
| Firm Size           | <i>SIZE</i>     | Natural logarithm of total assets (RMB) at the end of the quarter                           |
| Leverage Ratio      | <i>LEV</i>      | Total liabilities divided by total assets (%) at the end of the quarter                     |
| Profitability       | <i>ROA</i>      | Net income divided by total assets (%) for the current quarter                              |
| Operating Cash Flow | <i>CASHFLOW</i> | Net cash flow from operating activities divided by total assets (%) for the current quarter |
| Firm Age            | <i>AGE</i>      | Natural logarithm of the number of years since listing as of the end of the fiscal year     |

<sup>9</sup> = number of posts / total assets. In our robustness checks, we use different time windows and criteria to define the treatment group.

<sup>10</sup> To further address potential selection bias in the assignment of treatment and control groups, we also employ a propensity score matching difference-in-differences (PSM-DID) approach as a robustness check (Boubaker et al., 2022; Do et al., 2022; Katti et al., 2023). The results, reported in Appendix Table A8, remain qualitatively unchanged, confirming that our findings are not driven by systematic differences between the treatment and control groups prior to the policy implementation.

<sup>11</sup> Since the policy was implemented in June 2022, assigning Q2 2022 to the pre-treatment period may introduce noise. As a robustness check, we re-estimate the baseline model excluding Q2 2022 observations. The results, reported in Appendix Table A2, remain qualitatively unchanged.

|                         |                 |                                                                                                                      |
|-------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------|
| Ownership Concentration | <i>TOP1</i>     | Proportion of shares held by the largest shareholder (%) at the end of the fiscal year                               |
| Ownership Type          | <i>SOE</i>      | Equals 1 if the firm is state-owned, and 0 otherwise (measured annually)                                             |
| Book-to-Market Ratio    | <i>BM</i>       | Total assets divided by market capitalization (times) at the end of the quarter                                      |
| Turnover Rate           | <i>TURNOVER</i> | Average daily turnover rate (%) over the current quarter                                                             |
| Analyst Coverage        | <i>COVERAGE</i> | Natural logarithm of the number of analysts covering the stock during the fiscal year                                |
| Auditor Firm            | <i>BIG4</i>     | Equals 1 if audited by a Big Four accounting firm during the fiscal year, and 0 otherwise                            |
| Industry Total Assets   | <i>INSIZE</i>   | Natural logarithm of the sum of total assets (RMB) of all listed firms in the industry at the end of the fiscal year |
| Industry Total Firms    | <i>INNUM</i>    | Natural logarithm of the number of listed firms in the industry at the end of the fiscal year                        |

### 4.3 descriptive statistics

Table 3 presents the descriptive statistics for the main variables. The mean stock price synchronicity (SYN) is -1.015, with a standard deviation of 1.148, indicating substantial cross-sectional variation. The slightly higher values of SYN in our sample compared to some prior studies can be attributed to our use of high-frequency daily data for estimation. The distributions of all control variables are within reasonable ranges and consistent with common practices in the Chinese capital market literature.

**Table 3 Descriptive Statistics**

| Variables | Obs.   | Mean    | SD      | Min.    | p25     | Median  | p75     | Max.    |
|-----------|--------|---------|---------|---------|---------|---------|---------|---------|
| SYN       | 42,343 | -1.0152 | 1.1484  | -4.6383 | -1.6701 | -0.8825 | -0.1994 | 1.1360  |
| SIZE      | 42,343 | 22.5050 | 1.3498  | 19.4278 | 21.5434 | 22.3063 | 23.2783 | 27.2523 |
| LEV       | 42,343 | 0.4344  | 0.2000  | 0.0486  | 0.2798  | 0.4287  | 0.5765  | 0.9615  |
| ROA       | 42,343 | 0.0211  | 0.0434  | -0.1618 | 0.0034  | 0.0167  | 0.0390  | 0.1729  |
| CASHFLOW  | 42,343 | 0.0188  | 0.0582  | -0.1589 | -0.0131 | 0.0146  | 0.0484  | 0.2060  |
| AGE       | 42,343 | 2.4289  | 0.7004  | 0.6931  | 1.9459  | 2.4849  | 3.0910  | 3.4012  |
| TOP1      | 42,343 | 31.9067 | 14.5397 | 7.5534  | 20.8575 | 29.6864 | 41.1638 | 72.6376 |
| SOE       | 42,343 | 0.3241  | 0.4680  | 0.0000  | 0.0000  | 0.0000  | 1.0000  | 1.0000  |
| BM        | 42,343 | 0.6422  | 0.2635  | 0.1175  | 0.4442  | 0.6330  | 0.8284  | 1.2370  |
| TURNOVER  | 42,343 | 2.4356  | 1.9419  | 0.2644  | 1.0697  | 1.8556  | 3.1648  | 9.8813  |
| COVERAGE  | 42,343 | 1.0774  | 1.1784  | 0.0000  | 0.0000  | 0.6931  | 2.0794  | 3.7612  |
| BIG4      | 42,343 | 0.0653  | 0.2471  | 0.0000  | 0.0000  | 0.0000  | 0.0000  | 1.0000  |
| INSIZE    | 42,343 | 30.4315 | 1.3212  | 25.6484 | 29.5272 | 31.1263 | 31.2613 | 31.3523 |
| INNUM     | 42,343 | 7.0396  | 1.5737  | 2.8904  | 5.3181  | 8.0621  | 8.1356  | 8.1917  |

## 5. Empirical Results

### 5.1 Baseline Results

Table 4 presents the baseline regression results. Columns (1) through (3) report estimates from a difference-in-differences (DID) specification, progressively including firm-level and industry-level control variables to ensure robustness. The coefficient on the DID estimator (Treat\*Post) is positive and statistically significant at the 1% level across all specifications. In the most stringent model (Column 3) which includes the full set of controls, the coefficient is 0.2079. This result indicates that, following the implementation of the internet real-name system, firms in the treatment group experienced a significant increase in stock price synchronicity compared to the control group. The estimated effect is also economically meaningful: the coefficient implies an increase in synchronicity of approximately 20.1%, suggesting a substantial deterioration in the incorporation of firm-specific information into stock prices<sup>12</sup>.

**Table 4 Baseline Results**

|            | SYN                   |                        |                        |
|------------|-----------------------|------------------------|------------------------|
|            | (1)                   | (2)                    | (3)                    |
| Treat*Post | 0.1505***<br>(0.0233) | 0.2077***<br>(0.0231)  | 0.2081***<br>(0.0231)  |
| SIZE       |                       | -0.5963***<br>(0.0487) | -0.5950***<br>(0.0487) |
| LEV        |                       | 0.2475**<br>(0.1108)   | 0.2460**<br>(0.1108)   |
| ROA        |                       | 0.2824<br>(0.1804)     | 0.2798<br>(0.1804)     |
| CASHFLOW   |                       | 0.1637<br>(0.1241)     | 0.1647<br>(0.1240)     |
| AGE        |                       | 0.2705***<br>(0.0807)  | 0.2708***<br>(0.0807)  |
| TOP1       |                       | -0.0055**<br>(0.0023)  | -0.0055**<br>(0.0023)  |
| SOE        |                       | -0.1094<br>(0.1070)    | -0.1091<br>(0.1070)    |
| BM         |                       | 1.9615***<br>(0.0765)  | 1.9613***<br>(0.0765)  |
| TURNOVER   |                       | -0.0463***<br>(0.0047) | -0.0464***<br>(0.0047) |
| COVERAGE   |                       | 0.0819***<br>(0.0144)  | 0.0818***<br>(0.0144)  |
| BIG4       |                       | -0.0716<br>(0.1071)    | -0.0719<br>(0.1072)    |
| INSIZE     |                       |                        | -0.0210<br>(0.0549)    |
| INNUM      |                       |                        | 0.0299<br>(0.0568)     |

<sup>12</sup> We also verify the robustness of our results using monthly returns to compute stock price synchronicity, which mitigates potential temporal aggregation bias inherent in quarterly measures. The results remain consistent (see Table A5).

|                 |                        |                        |                        |
|-----------------|------------------------|------------------------|------------------------|
| Constant        | -1.0335***<br>(0.0028) | 10.5871***<br>(1.0570) | 10.9873***<br>(1.6864) |
| Year-Quarter FE | Y                      | Y                      | Y                      |
| Firm FE         | Y                      | Y                      | Y                      |
| N               | 42,343                 | 42,343                 | 42,343                 |
| R <sup>2</sup>  | 0.5044                 | 0.5250                 | 0.5250                 |

Notes: Standard errors are clustered at the firm level for all model estimations in this study. In the tables, \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. This note applies to all tables presented in the paper.

The parallel trends assumption is essential for the validity of the difference-in-differences estimation. Following established literature (Lin and Ni, 2022; Li et al., 2025), Figure 2 presents the results of the parallel trends test, using the quarter prior to the policy implementation as the baseline period. The results indicate two main findings. First, prior to the policy, there was no statistically significant difference in stock price synchronicity between the treatment and control groups, which satisfies the parallel trends assumption. Second, following the policy enactment, the difference between the two groups turned positive and statistically significant, confirming that the internet real-name system indeed increased stock price synchronicity. Overall, the findings in Figure 2 support the validity of the parallel trends assumption, thereby reinforcing the reliability of our DID estimates.

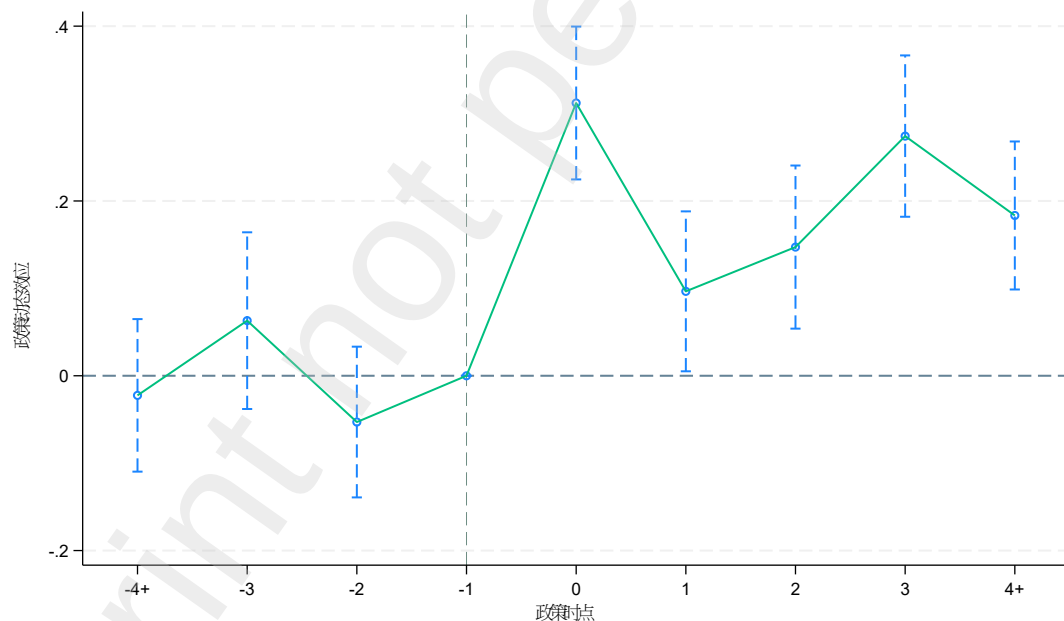


Figure 2 Parallel Trends Test<sup>13</sup>

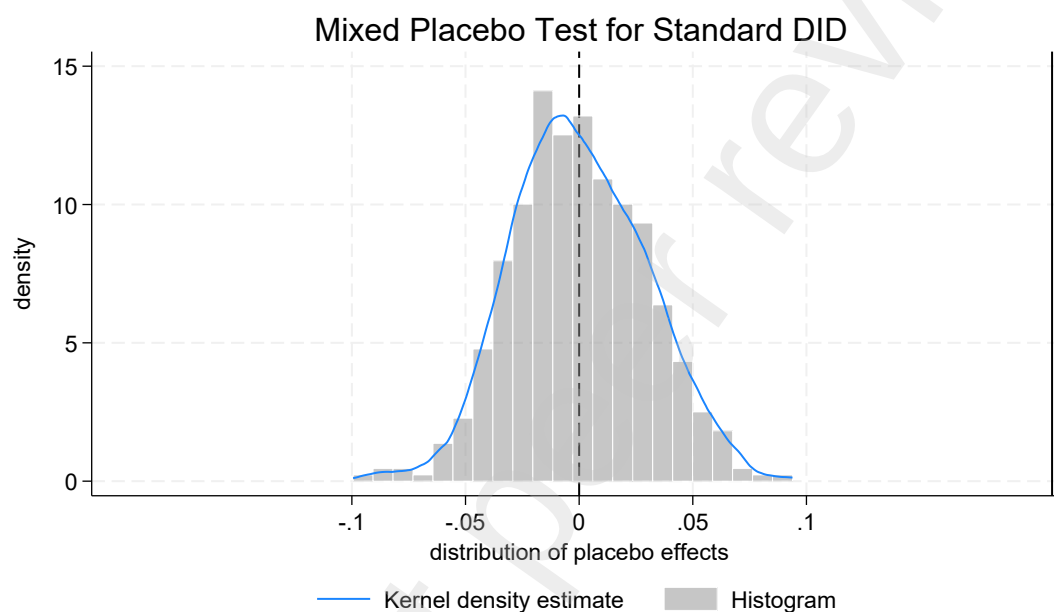
## 5.2 Robustness Checks<sup>14</sup>

### 5.2.1 Placebo Test

<sup>13</sup> To complement the graphical evidence, we also tabulate the full set of coefficient estimates in Table A1, which provides formal statistical tests for each pre- and post-treatment period.

<sup>14</sup> As a robustness check, we control for more granular fixed effects (Size-Decile\*Year-Quarter and Industry\*Year-Quarter) to account for time-varying heterogeneity within size and industry groups. The results remain robust (Table A3).

To ensure the robustness of our findings, we conduct a placebo test following the randomization procedure commonly adopted in prior literature (Gao et al., 2025). Specifically, we randomly assign the treatment status (i.e., which firms are designated as “treated”) and the timing of the policy shock to the sample firms, and construct a placebo difference-in-differences estimator based on this random assignment. This procedure is repeated 500 times, with the baseline model re-estimated in each iteration. Figure 3 plots the distribution of the coefficients obtained from these 500 randomizations. As shown, the randomly generated coefficients are normally distributed around zero and are clearly distinguishable from the actual estimated coefficient from our baseline regression. This result suggests that our main findings are unlikely to be driven by unobserved confounders or random chance<sup>15</sup>.



**Figure 3 Placebo Test**

### 5.2.2 Alternative Variable Specification

To ensure the robustness of our findings, we first employ two alternative measures for our dependent variable, stock price synchronicity. Following Morek et al. (2000), we calculate synchronicity (SYN1) using the  $R^2$  from a simple market model,  $R_{i,t} = \beta_0 + \beta_1 R_{m,t} + \epsilon_{i,t}$ . Additionally, based on Piotroski and Roulstone (2004), we compute synchronicity (SYN2) using the  $R^2$  from a regression that incorporates lagged returns:  $R_{i,w,t} = \beta_0 + \beta_1 R_{M,w,t} + \beta_2 R_{M,w-1,t} + \beta_3 R_{I,w,t} + \beta_4 R_{I,w-1,t} + \epsilon_{i,w,t}$ . The results are presented in Table 5. As shown, regardless of which measure of stock price synchronicity is used, the coefficient of our variable of interest, the DID estimator (Treat\*Post), remains positive and statistically significant, confirming the robustness of our main results<sup>16</sup>.

**Table 5 Robustness to Alternative Dependent Variables**

|  | SYN1 | SYN2 |
|--|------|------|
|  |      |      |

<sup>15</sup> In addition to the mixed placebo test, we also conduct an in-time placebo test (Figure A2) and an in-space placebo test (Figure A3) in the Appendix. The results of both tests are consistent with our baseline findings.

<sup>16</sup> To further ensure that our conclusions are not sensitive to the choice of dependent variable, we also replace stock price synchronicity with *VPIN* (Volume-Synchronized Probability of Informed Trading) as an alternative proxy for the market information environment. The results are reported in Appendix Table A4.

|                 | (1)                    | (2)                    |
|-----------------|------------------------|------------------------|
| Treat*Post      | 0.3565***<br>(0.0323)  | 0.1706***<br>(0.0198)  |
| SIZE            | -1.0535***<br>(0.0728) | -0.5175***<br>(0.0399) |
| LEV             | 0.4461***<br>(0.1558)  | 0.2009**<br>(0.0901)   |
| ROA             | -0.3829<br>(0.2506)    | 0.3004**<br>(0.1530)   |
| CASHFLOW        | -0.1806<br>(0.1677)    | 0.1571<br>(0.1067)     |
| AGE             | -0.2992***<br>(0.1057) | 0.2714***<br>(0.0681)  |
| TOP1            | -0.0076**<br>(0.0036)  | -0.0040**<br>(0.0019)  |
| SOE             | -0.1075<br>(0.1357)    | -0.0945<br>(0.0859)    |
| BM              | 2.6467***<br>(0.1047)  | 1.7898***<br>(0.0643)  |
| TURNOVER        | -0.0894***<br>(0.0060) | -0.0412***<br>(0.0040) |
| COVERAGE        | 0.1303***<br>(0.0188)  | 0.0659***<br>(0.0122)  |
| BIG4            | -0.1743<br>(0.1376)    | -0.0552<br>(0.0964)    |
| INSIZE          | -0.1317*<br>(0.0675)   | -0.0141<br>(0.0486)    |
| INNUM           | 0.1375*<br>(0.0709)    | 0.0232<br>(0.0500)     |
| Constant        | 23.9054***<br>(2.2158) | 9.3599***<br>(1.4581)  |
| Year-Quarter FE | Y                      | Y                      |
| Firm FE         | Y                      | Y                      |
| N               | 42,343                 | 42,343                 |
| R <sup>2</sup>  | 0.4350                 | 0.5308                 |

Next, we consider alternative definitions of the treatment group from four perspectives. First, we use the median value of post volume as the grouping threshold (see Column 1 of Table 6). Second, we define the treatment group based on the standardized number of Guba posts, adjusted by total assets, over the six months preceding the policy (Column 2). Third, we apply the same measure but calculated over the full year prior to the policy (Column 3). Fourth, we use the number of posts standardized by market capitalization in the quarter before the policy as the grouping criterion (Column 4). Overall, regardless of how the treatment group is defined, the coefficient on the DID estimator (Treat\*Post) remains positive and statistically significant at the

1% level, further substantiating the robustness of our findings<sup>17</sup>.

**Table 6 Robustness to Alternative Definitions of the Treatment Group<sup>18</sup>**

|                 | SYN                    |                        |                        |                        |
|-----------------|------------------------|------------------------|------------------------|------------------------|
|                 | (1)                    | (2)                    | (3)                    | (4)                    |
| Treat*Post      | 0.1868***<br>(0.0200)  | 0.1900***<br>(0.0227)  | 0.1167***<br>(0.0231)  | 0.2428***<br>(0.0231)  |
| SIZE            | -0.5889***<br>(0.0486) | -0.5924***<br>(0.0491) | -0.5914***<br>(0.0491) | -0.5740***<br>(0.0486) |
| LEV             | 0.2338**<br>(0.1109)   | 0.2449**<br>(0.1108)   | 0.2467**<br>(0.1110)   | 0.2308**<br>(0.1108)   |
| ROA             | 0.2808<br>(0.1807)     | 0.2824<br>(0.1807)     | 0.2559<br>(0.1806)     | 0.2743<br>(0.1812)     |
| CASHFLOW        | 0.1688<br>(0.1242)     | 0.1725<br>(0.1244)     | 0.1648<br>(0.1244)     | 0.1704<br>(0.1240)     |
| AGE             | 0.1969**<br>(0.0812)   | 0.2764***<br>(0.0806)  | 0.2614***<br>(0.0809)  | 0.2514***<br>(0.0808)  |
| TOP1            | -0.0055**<br>(0.0023)  | -0.0053**<br>(0.0023)  | -0.0054**<br>(0.0023)  | -0.0055**<br>(0.0023)  |
| SOE             | -0.1145<br>(0.1052)    | -0.1051<br>(0.1076)    | -0.0998<br>(0.1073)    | -0.1037<br>(0.1084)    |
| BM              | 1.9664***<br>(0.0766)  | 1.9537***<br>(0.0765)  | 1.9398***<br>(0.0763)  | 1.9795***<br>(0.0766)  |
| TURNOVER        | -0.0461***<br>(0.0047) | -0.0456***<br>(0.0047) | -0.0442***<br>(0.0047) | -0.0479***<br>(0.0047) |
| COVERAGE        | 0.0828***<br>(0.0143)  | 0.0807***<br>(0.0143)  | 0.0805***<br>(0.0143)  | 0.0812***<br>(0.0143)  |
| BIG4            | -0.0678<br>(0.1072)    | -0.0671<br>(0.1063)    | -0.0638<br>(0.1059)    | -0.0687<br>(0.1057)    |
| INSIZE          | -0.0151<br>(0.0556)    | -0.0164<br>(0.0549)    | -0.0160<br>(0.0555)    | -0.0084<br>(0.0556)    |
| INNUM           | 0.0248<br>(0.0573)     | 0.0258<br>(0.0568)     | 0.0253<br>(0.0572)     | 0.0187<br>(0.0575)     |
| Constant        | 10.8630***<br>(1.6934) | 10.7993***<br>(1.6901) | 10.8215***<br>(1.7019) | 10.2513***<br>(1.6938) |
| Year-Quarter FE | Y                      | Y                      | Y                      | Y                      |
| Firm FE         | Y                      | Y                      | Y                      | Y                      |
| N               | 42,343                 | 42,343                 | 42,343                 | 42,343                 |
| R <sup>2</sup>  | 0.5252                 | 0.5248                 | 0.5241                 | 0.5255                 |

<sup>17</sup> Considering that relative measures may not fully capture firms' actual exposure to the policy shock, we also employ the absolute number of Guba posts as an alternative grouping criterion, designating firms in the top 25% of absolute post volume as the treatment group and the remainder as the control group. The results, reported in Appendix Table A6, remain qualitatively unchanged.

<sup>18</sup> We further verify that our results are not sensitive to the functional form specification of the treatment variable by using a continuous exposure measure instead of quartile dummies. The findings remain robust (see Table A7).

### 5.3 Mechanism Analysis: The Transmission Chain from Information Supply Contraction to Market Efficiency Deterioration

This section identifies the underlying mechanisms through which the internet real-name system affects stock price synchronicity by sequentially validating a complete causal transmission chain. Specifically, by enhancing user identity visibility, the implementation of the real-name system significantly raises the reputational costs and potential legal risks for information producers posting on stock forums, thereby compressing their incentives to share private information. This reshaping of the incentive structure first manifests as a dual contraction in both the quantity and quality of information supply (Section 5.3.1). This contraction in information supply subsequently reduces the effective information available to retail investors, suppressing their trading activity (Section 5.3.2), and ultimately impedes the incorporation of firm-specific information into stock prices through trading, driving up stock price synchronicity.

#### 5.3.1 Stock Forum Participation Behavior: Dual Contraction in the Quantity and Quality of Information Supply

As discussed, a key channel through which the internet real-name system may affect stock price synchronicity is by suppressing user participation on stock forums. This suppressive effect manifests across two progressive dimensions: first, a contraction in the quantity of information supply, and second, a further deterioration in quality layered upon the quantitative decline.

##### (1) Quantity Dimension: Significant Decline in Total Posting Volume

To test this channel, we construct two measures based on the complete set of posts systematically scraped from the Guba platforms during our sample period (total posts: 121,048,303): the logarithm of the firm-quarter number of posts (LogPost) and the growth rate of firm-quarter posts (PostGrowth). The regression results using these measures as dependent variables are presented in Table 7. As shown, for both measures, the coefficient on the DID estimator (Treat\*Post) is negative and statistically significant at the 1% level. This indicates that the implementation of the internet real-name system led to a significant decrease in posting activity for the treated firms on these platforms.

**Table 7 The Internet Real-name System and Posting Activity on Stock Forums**

|            | LogPost                | PostGrowth             |
|------------|------------------------|------------------------|
|            | (1)                    | (2)                    |
| Treat*Post | -0.0865***<br>(0.0159) | -0.3077***<br>(0.0230) |
| SIZE       | 0.7407***<br>(0.0334)  | 0.3920***<br>(0.0354)  |
| LEV        | -0.6747***<br>(0.0746) | -0.2544***<br>(0.0939) |
| ROA        | -0.7420***<br>(0.1138) | -0.6770***<br>(0.1941) |
| CASHFLOW   | 0.0127<br>(0.0753)     | -0.0519<br>(0.1292)    |
| AGE        | 0.0743<br>(0.0512)     | 0.5960***<br>(0.0563)  |
| TOP1       | -0.0069***<br>(0.0014) | 0.0043**<br>(0.0019)   |

|                 |                        |                        |
|-----------------|------------------------|------------------------|
| SOE             | 0.0961**<br>(0.0466)   | -0.0379<br>(0.0723)    |
| BM              | -1.8692***<br>(0.0638) | -2.0822***<br>(0.0827) |
| TURNOVER        | 0.2230***<br>(0.0034)  | 0.1140***<br>(0.0045)  |
| COVERAGE        | -0.1084***<br>(0.0091) | -0.1184***<br>(0.0115) |
| BIG4            | 0.0970<br>(0.0724)     | 0.0207<br>(0.0658)     |
| INSIZE          | -0.0282<br>(0.0338)    | 0.0069<br>(0.0491)     |
| INNUM           | 0.0089<br>(0.0321)     | -0.0313<br>(0.0514)    |
| Constant        | -7.3833***<br>(1.0945) | -8.8565***<br>(1.3420) |
| Year-Quarter FE | Y                      | Y                      |
| Firm FE         | Y                      | Y                      |
| N               | 42,343                 | 42,343                 |
| R <sup>2</sup>  | 0.7821                 | 0.1288                 |

## (2) Quality Dimension: Disproportionate Contraction in Informative Posts

A decline in total posting volume alone is insufficient to determine the net effect of the real-name system on the information environment. A competing explanation holds that the policy primarily eliminated the large volume of noise and irrational sentiment posts on the forum—such that even with a decline in overall volume, information quality may in fact have improved, potentially contributing to a reduction in stock price synchronicity. To distinguish between these two fundamentally different mechanisms, and to adjudicate between H1a (Information Incentive Hypothesis) and H1b (Disciplinary Effect Hypothesis), we proceed to examine the quality dimension of information supply.

Existing research suggests that a lack of effective regulation on stock forums can lead to the dissemination of substantial false or biased information, generating significant “noise” or amplifying irrational sentiment (Wang et al., 2021). This could, in fact, reduce the overall information content in the market and increase stock price synchronicity. To test this competing hypothesis, we further classified the over 121 million posts to identify those containing substantive informational content. Specifically, we performed word segmentation and frequency analysis on the entire corpus, extracted the top 3,000 most frequent words, and constructed a custom dictionary based on terms related to “company prospects, products, sales, finance, innovation, management, executives, and stock price.” Using this dictionary, we algorithmically tagged all posts. Approximately 54.6 million posts were classified as informative, accounting for 45.12% of the total. Based on this classification, we constructed three new measures of informative participation: the logarithm of the firm-quarter number of informative posts, the growth rate of informative posts, and the ratio of informative posts to total posts. Table 8 presents the regression results using these measures as dependent variables.

The results in Table 8 show that the coefficient on the interaction term is negative and statistically significant at the 1% level across all three specifications. This indicates that the internet real-name system led to a significant reduction in the volume of informative posts. It is worth noting that this result does not merely reflect a mechanical reduction driven by the overall decline in posting volume—the simultaneous decline in both the number and the ratio of informative posts indicates that the policy’s suppressive effect on informationally valuable content exceeded its effect in eliminating noise. This finding substantially alleviates the concern that the policy’s primary effect was merely to curb “noise” or irrational sentiment. Instead, it suggests that the production of value-relevant, firm-specific information was disproportionately suppressed. This result is inconsistent with the prediction of H1b (Disciplinary Effect Hypothesis)—if the primary effect of the real-name system were to purify the information environment and improve information quality, the ratio of informative posts should have risen rather than fallen. By contrast, the simultaneous decline in both the volume and ratio of informative posts is highly consistent with the core prediction of H1a (Information Incentive Hypothesis): the real-name system, by raising the identity exposure risk associated with information production, disproportionately suppressed the supply of informationally valuable content rather than merely filtering low-quality noise.

**Table 8 The Internet Real-name System and the Information Content of Stock Forum Posts**

|            | LogInfPost             | InfPostGrowth          | InfPostRatio           |
|------------|------------------------|------------------------|------------------------|
|            | (1)                    | (2)                    | (3)                    |
| Treat*Post | -0.0927***<br>(0.0171) | -0.1893***<br>(0.0210) | -0.8365***<br>(0.1368) |
| SIZE       | 0.7137***<br>(0.0335)  | 0.2715***<br>(0.0303)  | 1.3018***<br>(0.2506)  |
| LEV        | -0.6408***<br>(0.0762) | -0.1476*<br>(0.0788)   | -0.4462<br>(0.5936)    |
| ROA        | -0.5981***<br>(0.1192) | -0.2998<br>(0.1862)    | 6.3681***<br>(0.8660)  |
| CASHFLOW   | -0.0064<br>(0.0803)    | -0.0204<br>(0.1156)    | -0.8853<br>(0.6561)    |
| AGE        | 0.0862*<br>(0.0511)    | 0.2311***<br>(0.0481)  | -0.1372<br>(0.5046)    |
| TOP1       | -0.0069***<br>(0.0015) | 0.0038**<br>(0.0017)   | 0.0024<br>(0.0136)     |
| SOE        | 0.0701<br>(0.0473)     | -0.0674<br>(0.0673)    | -1.2374***<br>(0.4640) |
| BM         | -1.6586***<br>(0.0645) | -1.4986***<br>(0.0694) | 0.0951<br>(0.4131)     |
| TURNOVER   | 0.2040***<br>(0.0039)  | 0.0561***<br>(0.0040)  | -0.2450***<br>(0.0297) |
| COVERAGE   | -0.0985***<br>(0.0097) | -0.0828***<br>(0.0100) | 0.5543***<br>(0.0841)  |
| BIG4       | 0.0838<br>(0.0723)     | 0.0706<br>(0.0575)     | 0.1780<br>(0.5328)     |

|                 |                        |                        |                        |
|-----------------|------------------------|------------------------|------------------------|
| INSIZE          | -0.0210<br>(0.0361)    | -0.0222<br>(0.0389)    | -0.2877<br>(0.2737)    |
| INNUM           | 0.0024<br>(0.0331)     | 0.0102<br>(0.0366)     | 0.1536<br>(0.2962)     |
| Constant        | -7.8263***<br>(1.1419) | -4.9366***<br>(1.1400) | 30.3395***<br>(8.3518) |
| Year-Quarter FE | Y                      | Y                      | Y                      |
| Firm FE         | Y                      | Y                      | Y                      |
| N               | 42,343                 | 42,343                 | 42,343                 |
| R <sup>2</sup>  | 0.7545                 | 0.1861                 | 0.6920                 |

### 5.3.2 Retail Investor Trading Behavior: Trading Contraction Induced by Impaired Information Access

Building on the findings above, the dual contraction in information supply across both quantity and quality directly raises the cost for retail investors of acquiring firm-specific information through stock forums. According to Blankespoor et al. (2020), the accessibility of an information channel shapes investors' trading decisions: when the effective supply of an informal channel contracts, investors who rely on it face higher acquisition costs and consequently trade less on private information. Because stock forums are predominantly used by small and medium-sized investors, this cost channel should bind most tightly on retail investors, making them the group most directly affected by the internet real-name system. Retail trading therefore provides an outcome-based test of this prediction: it captures retail investors' active attention and participation in stock markets (Hou et al., 2025; Guo et al., 2026; Mengoli and Pattitoni, 2026). Contrary to the view that retail trading is predominantly noise-driven, retail attention is allocated toward value-relevant information and contributes to price discovery (Mengoli and Pattitoni, 2026). To test whether the real-name system suppresses retail trading specifically, we obtain firm-level stock transaction order size data from the CSMAR database. Following Lee and Radhakrishna (2000), we classify transactions with an order size below a given threshold as retail trades, and construct two measures of retail trading behavior: the logarithm of the number of retail investor transactions (LogTT) and the logarithm of the total value of retail investor transactions (LogTA). The results are presented in Table 9.

As shown, the coefficient on the DID estimator (Treat\*Post) is negative and statistically significant at least at the 5% level for both the number and the value of retail trades. This indicates that, relative to the control group, firms in the treatment group experienced a more pronounced reduction in retail investor trading following the implementation of the internet real-name system. This finding is consistent with our results on stock forum participation and further corroborates the mechanism through which the policy operates.

At this point, the complete transmission chain has received full empirical support. The real-name system, by enhancing identity visibility (policy shock), compressed both the quantity and quality of information supply on Guba (Tables 7 and 8); the contraction of information access channels in turn suppressed retail investor trading activity (Table 9); and the reduction in retail trading impeded the process through which firm-specific information is incorporated into stock prices via the price mechanism, ultimately driving up stock price synchronicity (baseline results). Each link in this chain is supported by independent empirical evidence, collectively forming the

mechanistic foundation of this paper's core findings. Taken together, the complete validation of this transmission chain supports H1a (Information Incentive Hypothesis) and constitutes empirical evidence against H1b (Disciplinary Effect Hypothesis). The net effect of the real-name system operates not through purifying the information environment to enhance market efficiency, but rather through compressing information production incentives and contracting effective information supply, ultimately impairing the informational efficiency of capital markets. This finding carries direct implications for the design of platform governance policies: identity disclosure mechanisms aimed at enhancing accountability may, while suppressing malicious manipulation, exact a greater cost by deterring the production and circulation of genuine information.

**Table 9 The Internet Real-name System and Retail Investor Trading Behavior**

|                 | LogTT                  | LogTA                  |
|-----------------|------------------------|------------------------|
|                 | (1)                    | (2)                    |
| Treat*Post      | -0.0484***<br>(0.0151) | -0.0619**<br>(0.0255)  |
| SIZE            | 0.6203***<br>(0.0283)  | 1.8685***<br>(0.0585)  |
| LEV             | -0.4480***<br>(0.0675) | -1.5909***<br>(0.1169) |
| ROA             | 0.4258***<br>(0.0981)  | 0.0599<br>(0.1786)     |
| CASHFLOW        | 0.1142*<br>(0.0689)    | 0.0575<br>(0.1184)     |
| AGE             | 0.1104**<br>(0.0471)   | 0.2162***<br>(0.0801)  |
| TOP1            | -0.0009<br>(0.0014)    | -0.0094***<br>(0.0026) |
| SOE             | -0.0128<br>(0.0506)    | -0.0249<br>(0.0736)    |
| BM              | -2.4279***<br>(0.0495) | -7.3020***<br>(0.0999) |
| TURNOVER        | 0.1871***<br>(0.0036)  | 0.4501***<br>(0.0063)  |
| COVERAGE        | 0.0446***<br>(0.0086)  | 0.0343**<br>(0.0149)   |
| BIG4            | -0.0476<br>(0.0523)    | -0.0474<br>(0.1164)    |
| INSIZE          | -0.0713**<br>(0.0324)  | -0.1411***<br>(0.0498) |
| INNUM           | 0.0343<br>(0.0327)     | 0.0654<br>(0.0506)     |
| Constant        | 11.1331***<br>(0.9799) | 9.2179***<br>(1.7037)  |
| Year-Quarter FE | Y                      | Y                      |

|                |        |        |
|----------------|--------|--------|
| Firm FE        | Y      | Y      |
| N              | 42,343 | 42,343 |
| R <sup>2</sup> | 0.8040 | 0.8516 |

## 5.4 Heterogeneity Analysis

### 5.4.1 Heterogeneity by Dependence on Informal Information Channels

Building on the baseline results, we further examine whether the effect of the internet real-name system on stock price synchronicity varies across firms, focusing on two dimensions: corporate governance quality and information disclosure quality.

From a theoretical standpoint, we expect the policy effect to be more pronounced among firms with weaker corporate governance and lower information disclosure quality. With respect to corporate governance, firms with weaker governance structures tend to have lower-quality formal information disclosure (Jin and Myers, 2006), making investors more reliant on informal information channels such as social media platforms (Blankespoor et al., 2020). The real-name system's suppression of information supply on social media therefore creates a larger information void for these firms, leading to a disproportionately greater increase in stock price synchronicity. With respect to information disclosure quality, firms with lower disclosure quality embed less firm-specific information in prices and rely more heavily on informal channels (Jin and Myers, 2006), consistent with evidence that firm-specific fundamentals are systematically priced (Hou et al., 2024). As the real-name system constrains information supply on social media, the firm-specific information embedded in stock prices of such firms decreases further, resulting in a larger increase in synchronicity. Both theoretical predictions converge on the same underlying logic: firms with lower-quality formal information channels are more dependent on informal channels (Jiang and Lei, 2023), and are thus more severely affected by the real-name system shock.

In terms of variable construction, corporate governance quality is measured using a composite governance index following Chen et al. (2012), and information disclosure quality is proxied by the KV index proposed by Kim and Verrecchia (2001). We then partition the full sample into high and low subgroups based on the annual median of each measure and re-estimate our baseline DID regression. The results are presented in Panels A and B of Table 10.

The empirical results are consistent with our theoretical predictions. First, across all subgroup regressions, the coefficient on the DID estimator (Treat\*Post) remains consistently positive and statistically significant at least at the 1% level, which is in line with our baseline findings and confirms the robustness of our main results. Second, a consistent pattern emerges across all subgroups: the coefficient on Treat\*Post is larger, with the between-group difference statistically significant among firms with weaker corporate governance and lower information disclosure quality, indicating that such firms are more adversely affected by the internet real-name system. This finding corroborates our theoretical argument that firms with lower-quality formal information channels are more heavily reliant on informal social media channels, and therefore experience a more severe deterioration in their information environment following the real-name system shock.

**Table 10 Heterogeneity by Dependence on Informal Information Channels**

|                                                |     |
|------------------------------------------------|-----|
| Panel A. Heterogeneity by Corporate Governance |     |
|                                                | SYN |

|                           | High Governance<br>(1) | Low Governance<br>(2)  |
|---------------------------|------------------------|------------------------|
| Treat*Post                | 0.1939***<br>(0.0303)  | 0.2301***<br>(0.0389)  |
| p-value for equality test | 0.060*                 |                        |
| SIZE                      | -0.5670***<br>(0.0670) | -0.5797***<br>(0.0762) |
| LEV                       | 0.2245<br>(0.1518)     | 0.1671<br>(0.1734)     |
| ROA                       | 0.3465<br>(0.2403)     | 0.0000<br>(0.2837)     |
| CASHFLOW                  | 0.2123<br>(0.1669)     | 0.1572<br>(0.1902)     |
| AGE                       | -0.0567<br>(0.1097)    | 0.5223***<br>(0.1356)  |
| TOP1                      | -0.0079**<br>(0.0035)  | -0.0020<br>(0.0033)    |
| SOE                       | 0.2381<br>(0.1711)     | -0.3855**<br>(0.1530)  |
| BM                        | 1.9974***<br>(0.1062)  | 2.0559***<br>(0.1130)  |
| TURNOVER                  | -0.0649***<br>(0.0059) | -0.0188**<br>(0.0079)  |
| COVERAGE                  | 0.0563***<br>(0.0188)  | 0.1143***<br>(0.0234)  |
| BIG4                      | -0.0087<br>(0.2512)    | -0.0876<br>(0.1257)    |
| INSIZE                    | 0.1073<br>(0.0947)     | -0.0420<br>(0.0664)    |
| INNUM                     | -0.1281<br>(0.0952)    | 0.1104<br>(0.0700)     |
| Constant                  | 8.2050***<br>(2.6935)  | 10.1725***<br>(2.2783) |
| Year-Quarter FE           | Y                      | Y                      |
| Firm FE                   | Y                      | Y                      |
| N                         | 22,342                 | 20,001                 |
| R <sup>2</sup>            | 0.5393                 | 0.5361                 |

Panel B. Heterogeneity by Information Disclosure Quality

|                           | SYN                            |                               |
|---------------------------|--------------------------------|-------------------------------|
|                           | High Disclosure Quality<br>(1) | Low Disclosure Quality<br>(2) |
| Treat*Post                | 0.1297***<br>(0.0319)          | 0.2432***<br>(0.0370)         |
| p-value for equality test | 0.000***                       |                               |

|                 |                        |                        |
|-----------------|------------------------|------------------------|
| SIZE            | -0.6050***<br>(0.0784) | -0.5991***<br>(0.0760) |
| LEV             | 0.2610<br>(0.1614)     | 0.2823<br>(0.1728)     |
| ROA             | 0.1953<br>(0.2698)     | -0.1700<br>(0.2638)    |
| CASHFLOW        | 0.1353<br>(0.1841)     | 0.0333<br>(0.1888)     |
| AGE             | 0.1182<br>(0.1388)     | 0.4934***<br>(0.1288)  |
| TOP1            | -0.0047<br>(0.0031)    | -0.0021<br>(0.0040)    |
| SOE             | -0.1871<br>(0.1506)    | -0.0264<br>(0.1265)    |
| BM              | 2.6980***<br>(0.1225)  | 1.7171***<br>(0.1047)  |
| TURNOVER        | -0.0592***<br>(0.0081) | -0.0334***<br>(0.0085) |
| COVERAGE        | 0.0611**<br>(0.0262)   | 0.0744***<br>(0.0229)  |
| BIG4            | 0.0537<br>(0.1881)     | -0.0601<br>(0.1627)    |
| INSIZE          | 0.0774<br>(0.1044)     | -0.1097<br>(0.0813)    |
| INNUM           | -0.0639<br>(0.1053)    | 0.1474<br>(0.0897)     |
| Constant        | 8.4641***<br>(3.0060)  | 12.7324***<br>(2.5204) |
| Year-Quarter FE | Y                      | Y                      |
| Firm FE         | Y                      | Y                      |
| N               | 21,174                 | 21,169                 |
| R <sup>2</sup>  | 0.5385                 | 0.5922                 |

#### 5.4.2 Heterogeneity by the Quality of Alternative Information Provision

We next examine whether the quality of firms' alternative information provision moderates the effect of the internet real-name system on stock price synchronicity. The preceding analysis shows that firms with weaker pre-existing information environments are more vulnerable to the contraction of informal information supply. However, firms may differ in their willingness and ability to provide useful information through official investor-interaction platforms. We therefore focus on two textual characteristics of firms' responses on Hudongyi: evasive communication and AI-assisted communication.

From a theoretical standpoint, evasive communication may weaken the substitutability of official interactive platforms. Expressions such as "please refer to the announcement" or "the announcement shall prevail" generally redirect investors to existing disclosures without providing

additional firm-specific information. Such responses may increase the cost of obtaining usable information and limit the ability of official platforms to compensate for the information lost from stock forums (Kim and Verrecchia, 2001; Blankespoor et al., 2020). By contrast, AI-assisted communication may enhance the substitution capacity of official interactive platforms. Firms with higher AI usage may possess stronger capabilities in interactive communication and information organization, enabling them to use Hudongyi more effectively to address investors' information needs after information supply on stock forums declines. In this sense, AI usage may help firms maintain the transmission of some firm-specific information and mitigate the adverse effect of the real-name system on stock price informativeness (Blankespoor et al., 2020; Lee and Zhong, 2022). Accordingly, we expect the adverse effect of the real-name system to be stronger among firms using more evasive communication but weaker among firms with greater AI-assisted communication.

In terms of variable construction, evasive communication is measured as the proportion of responses containing deflective expressions, such as "please refer to the announcement" or "the announcement shall prevail." Because this measure contains a substantial number of zero observations, we classify firms according to whether they used evasive expressions at least once. AI-assisted communication is measured as the proportion of Hudongyi responses containing AI-generated or AI-assisted language. Since ChatGPT was publicly released only at the end of 2022, we measure firms' AI usage using their 2023 responses and divide the sample into high- and low-AI-usage groups based on the annual median. We then re-estimate the baseline DID model for each subgroup. The results are presented in Panels A and B of Table 11.

The empirical results are consistent with our predictions. As reported in Panel A, the coefficient on Treat\*Post is significantly larger among firms that used evasive communication, and the difference between the two groups is statistically significant. This result suggests that procedural or non-informative responses weaken the substitution effect of official platforms and amplify the deterioration in stock price informativeness. In contrast, Panel B shows that the coefficient on Treat\*Post is significantly smaller among firms with higher AI usage. This finding indicates that AI usage may strengthen the ability of official interactive platforms to address investors' information needs and thereby partially mitigate the increase in stock price synchronicity. Taken together, these findings suggest that the capital-market consequences of the real-name system are shaped not only by firms' dependence on informal information channels but also by firms' communication practices and information-provision capabilities on official investor-interaction platforms. Evasive communication is associated with a stronger adverse effect, whereas greater AI usage is associated with a weaker effect.

**Table 11 Heterogeneity by the Quality of Alternative Information Provision**

| Panel A. Heterogeneity by Evasive Communication |                                      |                                 |
|-------------------------------------------------|--------------------------------------|---------------------------------|
|                                                 | SYN                                  |                                 |
|                                                 | Evasive Communication<br>Used<br>(1) | No Evasive Communication<br>(2) |
| Treat*Post                                      | 0.2735***<br>(0.0459)                | 0.1863***<br>(0.0286)           |
| p-value for equality test                       |                                      | 0.030**                         |
| SIZE                                            | -0.5881***                           | -0.6273***                      |

|                 |            |            |
|-----------------|------------|------------|
|                 | (0.0819)   | (0.0601)   |
| LEV             | 0.0966     | 0.2916**   |
|                 | (0.1953)   | (0.1385)   |
| ROA             | 0.2351     | 0.3129     |
|                 | (0.3874)   | (0.2206)   |
| CASHFLOW        | 0.5905**   | -0.0013    |
|                 | (0.2722)   | (0.1467)   |
| AGE             | 0.1700     | 0.2995***  |
|                 | (0.1655)   | (0.0954)   |
| TOP1            | -0.0034    | -0.0046*   |
|                 | (0.0042)   | (0.0027)   |
| SOE             | -0.0064    | -0.1485    |
|                 | (0.1783)   | (0.1146)   |
| BM              | 1.9544***  | 2.0420***  |
|                 | (0.1370)   | (0.0916)   |
| TURNOVER        | -0.0482*** | -0.0453*** |
|                 | (0.0083)   | (0.0058)   |
| COVERAGE        | 0.0695**   | 0.0891***  |
|                 | (0.0275)   | (0.0172)   |
| BIG4            | -0.2175    | -0.0178    |
|                 | (0.1764)   | (0.1228)   |
| INSIZE          | 0.0065     | -0.0305    |
|                 | (0.0952)   | (0.0624)   |
| INNUM           | 0.0086     | 0.0422     |
|                 | (0.1026)   | (0.0636)   |
| Constant        | 10.3928*** | 11.7400*** |
|                 | (2.8469)   | (1.9696)   |
| Year-Quarter FE | Y          | Y          |
| Firm FE         | Y          | Y          |
| N               | 12,246     | 30,097     |
| R <sup>2</sup>  | 0.6181     | 0.5432     |

Panel B. Heterogeneity by AI-Assisted Communication

|                           | SYN                    |                        |
|---------------------------|------------------------|------------------------|
|                           | High AI Usage<br>(1)   | Low AI Usage<br>(2)    |
| Treat*Post                | 0.1874***<br>(0.0307)  | 0.2502***<br>(0.0348)  |
| p-value for equality test | 0.040**                |                        |
| SIZE                      | -0.5226***<br>(0.0613) | -0.6984***<br>(0.0791) |
| LEV                       | 0.1462<br>(0.1493)     | 0.3862**<br>(0.1652)   |
| ROA                       | 0.0457<br>(0.2530)     | 0.5917**<br>(0.2758)   |

|                 |            |            |
|-----------------|------------|------------|
| CASHFLOW        | 0.2958*    | 0.0165     |
|                 | (0.1792)   | (0.1757)   |
| AGE             | 0.0920     | 0.4289***  |
|                 | (0.1131)   | (0.1144)   |
| TOP1            | -0.0022    | -0.0091*** |
|                 | (0.0034)   | (0.0029)   |
| SOE             | -0.1268    | -0.0959    |
|                 | (0.1132)   | (0.1974)   |
| BM              | 1.8337***  | 2.1299***  |
|                 | (0.1029)   | (0.1133)   |
| TURNOVER        | -0.0409*** | -0.0564*** |
|                 | (0.0060)   | (0.0077)   |
| COVERAGE        | 0.0598***  | 0.1103***  |
|                 | (0.0189)   | (0.0219)   |
| BIG4            | -0.1444    | 0.0387     |
|                 | (0.1522)   | (0.1500)   |
| INSIZE          | 0.0726     | -0.1057    |
|                 | (0.0721)   | (0.0811)   |
| INNUM           | -0.0148    | 0.0720     |
|                 | (0.0721)   | (0.0881)   |
| Constant        | 7.4226***  | 15.0034*** |
|                 | (2.1611)   | (2.6446)   |
| Year-Quarter FE | Y          | Y          |
| Firm FE         | Y          | Y          |
| N               | 21,749     | 20,594     |
| R <sup>2</sup>  | 0.5232     | 0.5271     |

## 5.5 Further Discussion

### 5.5.1 How Do Retail Investors Acquire Information? A Test of Substitution Effect

Given the documented reduction in information supply on stock forums following the implementation of the real-name system, a critical subsequent question arises: do retail investors turn to alternative channels for information acquisition? To investigate this, we focus on the official online interactive platforms operated by stock exchanges. Under the exchange's supervision, these platforms enable investors to post questions directly to listed firms and receive timely responses, establishing a "zero-distance" communication channel (Lee and Zhong, 2022; Blankespoor, 2022; Wong et al., 2024).

We posit that, faced with diminished information on stock forums, retail investors increase their use of such official interactive platforms as an informational substitute. To test this hypothesis, we obtain firm-quarter data on the number of investor questions from the CNRDS database and re-estimate our DID model using the logarithm of this number as the dependent variable. As presented in Table 12, the coefficient on Treat\*Post is positive and statistically significant across all specifications. This suggests that following the policy implementation, investors partially redirected their information-acquisition activities toward the official exchange interactive platforms.

**Table 12 The Internet Real-name System and Investor Questions on Exchange Platforms**

|                 | LogInteraction        |                        |                        |
|-----------------|-----------------------|------------------------|------------------------|
|                 | (1)                   | (2)                    | (3)                    |
| Treat*Post      | 0.1152***<br>(0.0246) | 0.0785***<br>(0.0225)  | 0.0798***<br>(0.0225)  |
| SIZE            |                       | 0.4806***<br>(0.0431)  | 0.4856***<br>(0.0427)  |
| LEV             |                       | -0.3846***<br>(0.1027) | -0.3889***<br>(0.1025) |
| ROA             |                       | -0.4451***<br>(0.1491) | -0.4536***<br>(0.1489) |
| CASHFLOW        |                       | -0.0936<br>(0.1043)    | -0.0911<br>(0.1042)    |
| AGE             |                       | 0.0512<br>(0.0804)     | 0.0525<br>(0.0802)     |
| TOP1            |                       | -0.0048**<br>(0.0023)  | -0.0048**<br>(0.0022)  |
| SOE             |                       | 0.0961<br>(0.0679)     | 0.0976<br>(0.0681)     |
| BM              |                       | -0.6555***<br>(0.0666) | -0.6567***<br>(0.0665) |
| TURNOVER        |                       | 0.1220***<br>(0.0043)  | 0.1220***<br>(0.0043)  |
| COVERAGE        |                       | -0.0378***<br>(0.0138) | -0.0380***<br>(0.0137) |
| BIG4            |                       | -0.0062<br>(0.0827)    | -0.0061<br>(0.0826)    |
| INSIZE          |                       |                        | -0.0915**<br>(0.0422)  |
| INNUM           |                       |                        | 0.1083**<br>(0.0427)   |
| Constant        | 2.8765***<br>(0.0030) | -7.5964***<br>(0.9378) | -5.6848***<br>(1.3745) |
| Year-Quarter FE | Y                     | Y                      | Y                      |
| Firm FE         | Y                     | Y                      | Y                      |
| N               | 42,343                | 42,343                 | 42,343                 |
| R <sup>2</sup>  | 0.6405                | 0.6622                 | 0.6623                 |

**5.5.2 Does Official Information Become More Important?**

The finding in Table 12 suggests that investors are substituting unofficial information channels with official ones. A further implication is that the market should place greater weight on official corporate disclosures. In corporate finance theory, earnings announcements are considered one of the most important pieces of official information, as they summarize a firm's operating and financial performance (Hirshleifer et al., 2009). To test this hypothesis, we follow prior literature

(e.g., Kothari, 2001; Jung et al., 2018) and examine whether the Earnings Response Coefficient (ERC) increases after the policy implementation.

Specifically, we estimate a triple-difference model where the dependent variable is the cumulative abnormal return (CAR), and the key explanatory variables are unexpected earnings (UE) and its interactions. CAR is calculated over three-day (CAR[-1,+1]) and five-day (CAR[-2,+2]) windows around the earnings announcement date. Following the literature, UE is measured as the change in earnings per share from the same quarter in the prior year. The results are reported in Table 13.

Table 13 provides two main findings. First, the coefficient on UE is significantly positive, consistent with theory and confirming that the market reacts positively to unexpected earnings. Second, and more central to our hypothesis, the coefficient on the triple-interaction term (Treat\*Post\*UE) is significantly positive. This indicates that the ERC is significantly larger for treated firms after the implementation of the internet real-name system. Overall, this evidence supports our conjecture: as information from unofficial channels diminishes, the market relies more heavily on official disclosures, thereby increasing their importance in price formation.

**Table 13 The Internet Real-name System and the Earnings Response Coefficient**

|                | CAR[-1,+1]             | CAR[-2,+2]             |
|----------------|------------------------|------------------------|
|                | (1)                    | (2)                    |
| Treat*Post *UE | 0.1258***<br>(0.0470)  | 0.1246**<br>(0.0567)   |
| UE             | 0.2121***<br>(0.0138)  | 0.2097***<br>(0.0164)  |
| SIZE           | -0.0396***<br>(0.0028) | -0.0521***<br>(0.0036) |
| LEV            | 0.0560***<br>(0.0067)  | 0.0689***<br>(0.0083)  |
| ROA            | -0.1057***<br>(0.0146) | -0.0876***<br>(0.0173) |
| CASHFLOW       | 0.0108<br>(0.0077)     | 0.0125<br>(0.0091)     |
| AGE            | 0.0430***<br>(0.0046)  | 0.0595***<br>(0.0053)  |
| TOP1           | 0.0003**<br>(0.0001)   | 0.0003**<br>(0.0002)   |
| SOE            | -0.0053<br>(0.0038)    | -0.0031<br>(0.0047)    |
| BM             | 0.1075***<br>(0.0048)  | 0.1493***<br>(0.0059)  |
| TURNOVER       | 0.0014***<br>(0.0003)  | 0.0016***<br>(0.0003)  |
| COVERAGE       | 0.0044***<br>(0.0008)  | 0.0056***<br>(0.0009)  |
| BIG4           | -0.0063<br>(0.0047)    | -0.0088<br>(0.0055)    |

|                 |                       |                       |
|-----------------|-----------------------|-----------------------|
| INSIZE          | -0.0034<br>(0.0024)   | -0.0035<br>(0.0031)   |
| INNUM           | 0.0048**<br>(0.0024)  | 0.0052<br>(0.0033)    |
| Constant        | 0.7499***<br>(0.0827) | 0.9566***<br>(0.1060) |
| Year-Quarter FE | Y                     | Y                     |
| Firm FE         | Y                     | Y                     |
| N               | 42,343                | 42,343                |
| R <sup>2</sup>  | 0.1377                | 0.1414                |

## 6. Conclusion and Implications

Internet governance represents a global challenge in the digital era, with nations worldwide exploring effective institutional arrangements. As a leader in the digital economy, China's emphasis on internet governance within its national modernization agenda offers valuable empirical settings for academic inquiry. This study examines the internet real-name system—a foundational regulatory intervention—by exploiting the implementation of the Provisions on the Management of Internet User Account Information as an exogenous shock to the East Money Guba forum. We investigate its impact on firm-specific stock price informativeness from a capital market perspective, addressing three core questions: How does the real-name system affect price informativeness? What channels underlie this effect? How do investors adapt their information acquisition strategies under the new regime?

Our analyses yield the following core findings. The real-name system, by raising the reputational costs of information production, contracts the supply of firm-specific information on stock forums—in both posting volume and informational content quality—which in turn suppresses retail investor trading activity and ultimately reduces the incorporation of idiosyncratic information into stock prices, leading to a significant increase in stock price synchronicity. This effect is more pronounced in firms with weaker corporate governance and poorer information disclosure quality, and evasive responses on official investor-interaction platforms, but smaller among firms with higher observed AI-assisted communication usage. In addition, as information production declines on unofficial platforms, investors shift their attention to official channels such as exchange-sponsored interactive platforms, leading to enhanced market responsiveness to corporate earnings announcements.

This study contributes to the literature in several ways. First, it provides novel evidence on the capital market effects of internet real-name systems, highlighting potential unintended consequences on information environment quality. Importantly, although the empirical setting of this paper is China, the core mechanism identified carries universal applicability in any platform governance context facing the trade-off between anonymity and accountability, offering policy implications for regulators and platform designers worldwide that transcend any specific institutional setting. Second, by documenting retail investors' substitution from informal forums to official platforms, it deepens our understanding of how market participants adapt their information acquisition strategies in response to regulatory changes. Finally, the findings offer practical insights for regulators seeking to balance internet governance with market efficiency, for listed firms in designing disclosure strategies, and for investors in navigating evolving information

ecosystems.

Future research may explore heterogeneous policy effects across different types of online platforms, as well as the impact of real-name systems on other market participants such as financial analysts and institutional investors, to further illuminate the complex relationship between internet governance and capital market functioning.

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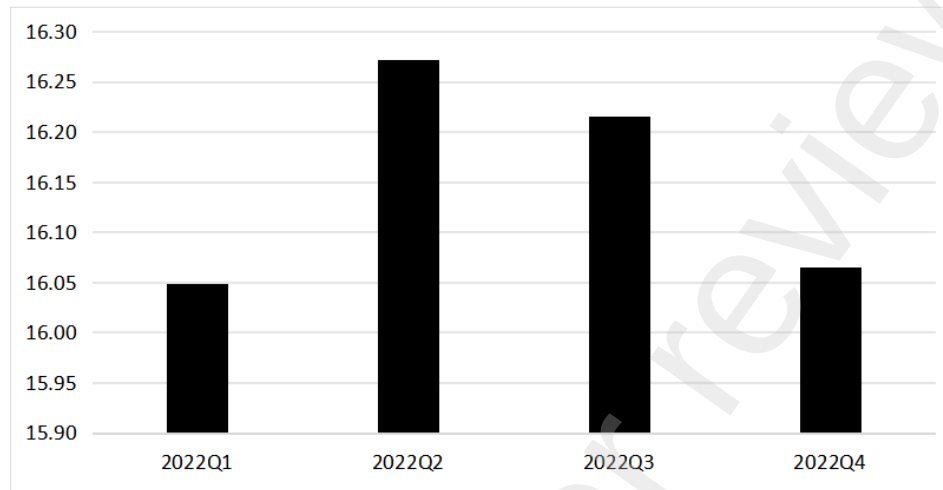
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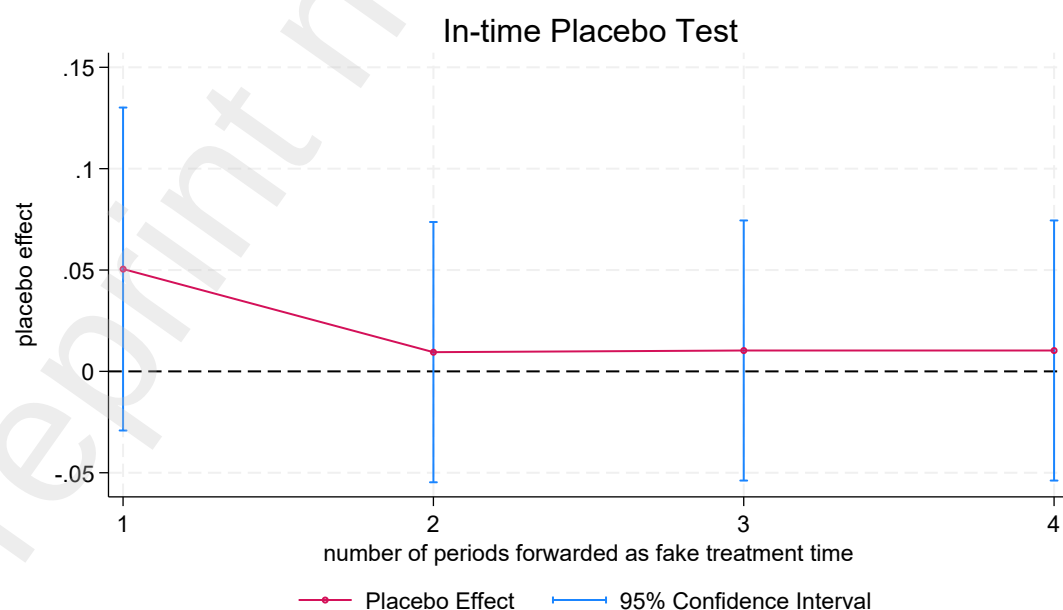
## Appendix

Figure A1 presents the quarterly posting volume of users on the East Money Guba forum in 2022. It can be observed that after reaching a peak in the second quarter, posting volume declined markedly following the implementation of the internet real-name system. This is consistent with the findings of He and Li (2024), suggesting that the internet real-name system may have led to a reduction in information content on the East Money Guba forum.



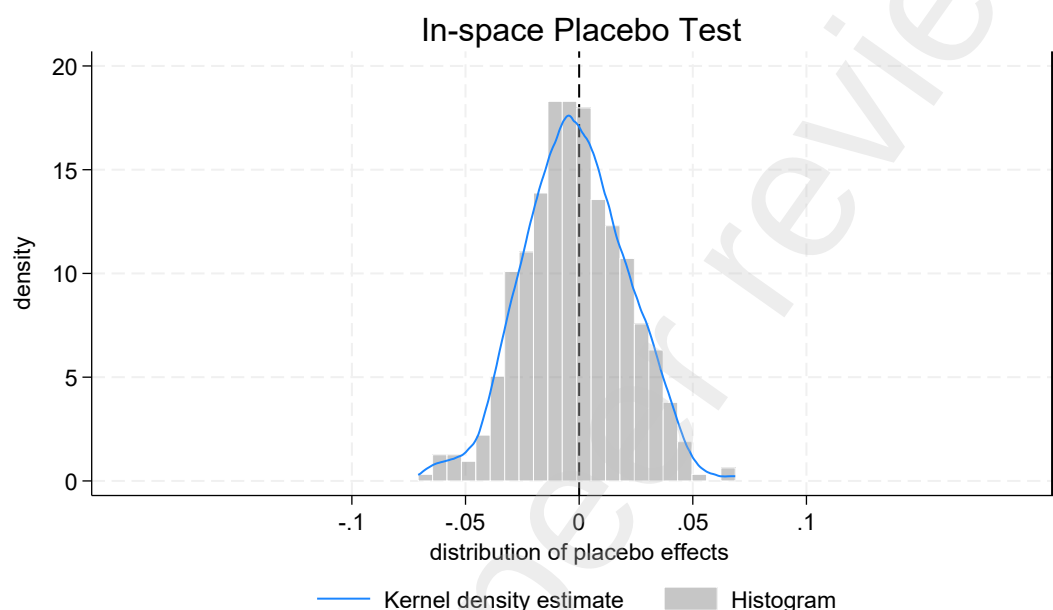
**Figure A1 Quarterly Posting Volume on the East Money Guba Forum in 2022**

To further validate our baseline findings, we conduct an in-time placebo test by reassigning the timing of the policy shock to 1 to 4 periods prior to its actual implementation, and re-estimate the baseline model under each fictitious treatment date. If our findings are genuinely driven by the actual policy shock, the placebo effects should be statistically insignificant. As shown in Appendix Figure A2, the placebo effects converge toward zero as the fictitious treatment date is moved further back, and the 95% confidence intervals all encompass zero, confirming that the placebo coefficients are statistically insignificant and supporting the robustness of our baseline results.



**Figure A2 In-time Placebo Test**

We also conduct an in-space placebo test to rule out the possibility that our findings are driven by random chance. Specifically, we randomly reassign the treatment status across firms in the sample, repeat this procedure 500 times, and re-estimate the baseline model in each iteration to obtain a distribution of placebo effects. Appendix Figure A3 plots the distribution of the 500 placebo estimates via a histogram and kernel density curve. The placebo effects are approximately normally distributed and centered around zero, providing further support for the robustness of our main findings.



**Figure A3 In-space Placebo Test**

Table A1 presents the coefficient estimates from the parallel trends test. Rather than solely relying on graphical representation, we report the full set of lead and lag coefficients to provide a more comprehensive assessment and formal statistical testing. We estimate three pre-treatment periods (Pre4+ to Pre2) and five post-treatment periods (Post0 to Post3, with Post4+ capturing all subsequent periods), with period Pre1 serving as the reference period.

As shown, all pre-treatment coefficients (Pre4+ to Pre2) are statistically insignificant, confirming the parallel trends assumption and validating our identification strategy. There is no evidence of differential trends between treatment and control groups prior to the implementation of the internet real-name system. In contrast, the post-treatment coefficients become positive and statistically significant starting immediately from Post0 (0.3125,  $p < 0.01$ ), indicating that the treatment effect materializes upon implementation and persists over time. The effect remains significant across all subsequent periods, with Post1 at 0.0969 ( $p < 0.05$ ), Post2 at 0.1473 ( $p < 0.01$ ), Post3 at 0.2748 ( $p < 0.01$ ), and Post4+ at 0.1833 ( $p < 0.01$ ). These findings reinforce our main results and demonstrate that the observed effects are not driven by pre-existing trends.

**Table A1 Parallel Trends Test: Coefficient Estimates**

|       | SYN     |
|-------|---------|
|       | (1)     |
| Pre4+ | -0.0233 |

|                 |            |
|-----------------|------------|
|                 | (0.0445)   |
| Pre3            | 0.0618     |
|                 | (0.0516)   |
| Pre2            | -0.0532    |
|                 | (0.0440)   |
| Post0           | 0.3125***  |
|                 | (0.0446)   |
| Post1           | 0.0969**   |
|                 | (0.0467)   |
| Post2           | 0.1473***  |
|                 | (0.0476)   |
| Post3           | 0.2748***  |
|                 | (0.0471)   |
| Post4+          | 0.1833***  |
|                 | (0.0432)   |
| Constant        | 10.9973*** |
|                 | (1.6909)   |
| Controls        | Y          |
| Year-Quarter FE | Y          |
| Firm FE         | Y          |
| N               | 42,343     |
| R <sup>2</sup>  | 0.5254     |

Table A2 reports the results of a robustness check in which we exclude all observations from Q2 2022 and re-estimate the baseline model. This approach addresses the concern that, since the policy was implemented in June 2022, assigning Q2 2022 to the pre-treatment period may introduce noise into our estimates. As shown, the coefficient of Treat\*Post remains positive and statistically significant, confirming that our baseline findings are not sensitive to the treatment of this transitional quarter.

**Table A2 Robustness Check: Excluding Q2 2022 Observations**

|            | SYN                   |                        |                        |
|------------|-----------------------|------------------------|------------------------|
|            | (1)                   | (2)                    | (3)                    |
| Treat*Post | 0.1321***<br>(0.0258) | 0.2018***<br>(0.0254)  | 0.2021***<br>(0.0254)  |
| SIZE       |                       | -0.5900***<br>(0.0486) | -0.5887***<br>(0.0485) |
| LEV        |                       | 0.2907**<br>(0.1141)   | 0.2890**<br>(0.1142)   |
| ROA        |                       | 0.2754<br>(0.1841)     | 0.2729<br>(0.1840)     |
| CASHFLOW   |                       | 0.1448<br>(0.1294)     | 0.1458<br>(0.1293)     |
| AGE        |                       | 0.2736***<br>(0.0816)  | 0.2739***<br>(0.0816)  |

|                 |                        |                        |                        |
|-----------------|------------------------|------------------------|------------------------|
| TOP1            |                        | -0.0060***<br>(0.0023) | -0.0060***<br>(0.0023) |
| SOE             |                        | -0.1109<br>(0.1075)    | -0.1106<br>(0.1075)    |
| BM              |                        | 1.9297***<br>(0.0789)  | 1.9296***<br>(0.0789)  |
| TURNOVER        |                        | -0.0391***<br>(0.0049) | -0.0391***<br>(0.0049) |
| COVERAGE        |                        | 0.0842***<br>(0.0148)  | 0.0841***<br>(0.0148)  |
| BIG4            |                        | -0.0605<br>(0.1098)    | -0.0607<br>(0.1099)    |
| INSIZE          |                        |                        | -0.0203<br>(0.0574)    |
| INNUM           |                        |                        | 0.0306<br>(0.0584)     |
| Constant        | -1.1013***<br>(0.0034) | 10.3643***<br>(1.0483) | 10.7390***<br>(1.7236) |
| Year-Quarter FE | Y                      | Y                      | Y                      |
| Firm FE         | Y                      | Y                      | Y                      |
| N               | 38,737                 | 38,737                 | 38,737                 |
| R <sup>2</sup>  | 0.4990                 | 0.5184                 | 0.5184                 |

Table A3 reports the regression results with additional fixed effects to address potential confounding factors. To further ensure the robustness of our findings, we augment the baseline specification by controlling for Size-Decile\*Year-Quarter and Industry\*Year-Quarter fixed effects. These stringent fixed effects account for time-varying characteristics within size groups and industries, thereby mitigating concerns that our results might be driven by size-specific or industry-specific temporal shocks. As shown, the coefficient of Treat\*Post remains positive and statistically significant, consistent with our baseline results. This confirms that our main conclusions are robust to the inclusion of more granular fixed effects controls.

**Table A3 Robustness Check: Additional Fixed Effects**

|            | SYN                    |                        |                        |
|------------|------------------------|------------------------|------------------------|
|            | (1)                    | (2)                    | (3)                    |
| Treat*Post | 0.1473***<br>(0.0261)  | 0.1908***<br>(0.0230)  | 0.1401***<br>(0.0257)  |
| SIZE       | -0.5471***<br>(0.0661) | -0.5750***<br>(0.0481) | -0.5289***<br>(0.0645) |
| LEV        | 0.1789<br>(0.1098)     | 0.2128*<br>(0.1090)    | 0.1678<br>(0.1077)     |
| ROA        | 0.2716<br>(0.1861)     | 0.3032<br>(0.1870)     | 0.2714<br>(0.1867)     |
| CASHFLOW   | 0.1662<br>(0.1248)     | 0.1818<br>(0.1243)     | 0.1993<br>(0.1229)     |

|                                |                        |                        |                        |
|--------------------------------|------------------------|------------------------|------------------------|
| AGE                            | -0.0991<br>(0.0875)    | 0.1267<br>(0.0784)     | -0.1370<br>(0.0835)    |
| TOP1                           | -0.0045**<br>(0.0023)  | -0.0056**<br>(0.0022)  | -0.0049**<br>(0.0022)  |
| SOE                            | -0.1341<br>(0.1012)    | -0.0333<br>(0.0976)    | -0.0563<br>(0.0933)    |
| BM                             | 2.0227***<br>(0.0773)  | 2.0162***<br>(0.0750)  | 2.0708***<br>(0.0756)  |
| TURNOVER                       | -0.0512***<br>(0.0047) | -0.0590***<br>(0.0047) | -0.0642***<br>(0.0047) |
| COVERAGE                       | 0.0764***<br>(0.0141)  | 0.1001***<br>(0.0137)  | 0.0958***<br>(0.0137)  |
| BIG4                           | -0.0605<br>(0.0976)    | -0.0402<br>(0.0951)    | -0.0335<br>(0.0875)    |
| INSIZE                         | -0.0300<br>(0.0564)    |                        |                        |
| INNUM                          | 0.0279<br>(0.0583)     |                        |                        |
| Constant                       | 11.0859***<br>(1.9894) | 10.4235***<br>(1.0463) | 10.0201***<br>(1.4250) |
| Size-Decile*Year-Quarter<br>FE | Y                      | N                      | Y                      |
| Industry*Year-Quarter<br>FE    | N                      | Y                      | Y                      |
| Firm FE                        | Y                      | Y                      | Y                      |
| N                              | 42,343                 | 42,331                 | 42,331                 |
| R <sup>2</sup>                 | 0.5322                 | 0.5501                 | 0.5558                 |

Table A4 reports the regression results using VPIN as the dependent variable. Following Chen et al. (2026), we employ VPIN as an alternative proxy for the degree of market information asymmetry and re-estimate the baseline model. If the implementation of the internet real-name system indeed deteriorated the market information environment, information asymmetry should increase, implying a significant rise in VPIN. As shown, the coefficient of Treat\*Post is positive and statistically significant, consistent with our baseline findings, confirming the robustness of our conclusions to the use of an alternative dependent variable.

**Table A4 Robustness Check: Alternative Dependent Variable (VPIN)**

|            | VPIN                |                        |                        |
|------------|---------------------|------------------------|------------------------|
|            | (1)                 | (2)                    | (3)                    |
| Treat*Post | 0.0010*<br>(0.0005) | 0.0023***<br>(0.0004)  | 0.0023***<br>(0.0004)  |
| SIZE       |                     | -0.0029***<br>(0.0009) | -0.0030***<br>(0.0009) |
| LEV        |                     | 0.0036*<br>(0.0020)    | 0.0036*<br>(0.0020)    |

|                 |           |            |            |
|-----------------|-----------|------------|------------|
| ROA             |           | -0.0218*** | -0.0217*** |
|                 |           | (0.0030)   | (0.0030)   |
| CASHFLOW        |           | -0.0037*   | -0.0037*   |
|                 |           | (0.0021)   | (0.0021)   |
| AGE             |           | -0.0033**  | -0.0034**  |
|                 |           | (0.0015)   | (0.0015)   |
| TOP1            |           | -0.0000    | -0.0000    |
|                 |           | (0.0000)   | (0.0000)   |
| SOE             |           | -0.0015    | -0.0015    |
|                 |           | (0.0016)   | (0.0016)   |
| BM              |           | 0.0314***  | 0.0314***  |
|                 |           | (0.0014)   | (0.0014)   |
| TURNOVER        |           | -0.0026*** | -0.0026*** |
|                 |           | (0.0001)   | (0.0001)   |
| COVERAGE        |           | -0.0005**  | -0.0005**  |
|                 |           | (0.0003)   | (0.0003)   |
| BIG4            |           | 0.0025     | 0.0025     |
|                 |           | (0.0020)   | (0.0020)   |
| INSIZE          |           |            | 0.0012     |
|                 |           |            | (0.0011)   |
| INNUM           |           |            | -0.0009    |
|                 |           |            | (0.0011)   |
| Constant        | 0.1809*** | 0.2404***  | 0.2125***  |
|                 | (0.0001)  | (0.0184)   | (0.0323)   |
| Year-Quarter FE | Y         | Y          | Y          |
| Firm FE         | Y         | Y          | Y          |
| N               | 42,343    | 42,343     | 42,343     |
| R <sup>2</sup>  | 0.5688    | 0.6196     | 0.6197     |

Table A5 reports the results of a robustness check addressing the concern that the use of quarterly returns may introduce temporal aggregation bias. Specifically, we recompute stock price synchronicity using monthly returns (SYN\_monthly) as the dependent variable and re-estimate the baseline model. The coefficient of Treat\*Post remains positive and statistically significant at the 1% level across all specifications, confirming that our baseline findings are not an artifact of temporal aggregation in the construction of the synchronicity measure.

**Table A5 Robustness Check: Alternative Synchronicity Measure Based on Monthly Returns (SYN\_monthly)**

|            | SYN_monthly           |                        |                        |
|------------|-----------------------|------------------------|------------------------|
|            | (1)                   | (2)                    | (3)                    |
| Treat*Post | 0.1006***<br>(0.0192) | 0.1477***<br>(0.0189)  | 0.1475***<br>(0.0189)  |
| SIZE       |                       | -0.4808***<br>(0.0382) | -0.4815***<br>(0.0381) |
| LEV        |                       | 0.1725**               | 0.1728**               |

|                 |            |            |            |
|-----------------|------------|------------|------------|
|                 |            | (0.0880)   | (0.0879)   |
| ROA             |            | -0.0225    | -0.0217    |
|                 |            | (0.1475)   | (0.1474)   |
| CASHFLOW        |            | 0.1787*    | 0.1787*    |
|                 |            | (0.1020)   | (0.1019)   |
| AGE             |            | 0.1770***  | 0.1768***  |
|                 |            | (0.0658)   | (0.0658)   |
| TOP1            |            | -0.0045**  | -0.0045**  |
|                 |            | (0.0018)   | (0.0018)   |
| SOE             |            | -0.0990    | -0.0993    |
|                 |            | (0.0888)   | (0.0888)   |
| BM              |            | 1.6652***  | 1.6655***  |
|                 |            | (0.0624)   | (0.0624)   |
| TURNOVER        |            | -0.0272*** | -0.0272*** |
|                 |            | (0.0036)   | (0.0036)   |
| COVERAGE        |            | 0.0390***  | 0.0390***  |
|                 |            | (0.0119)   | (0.0119)   |
| BIG4            |            | -0.1242    | -0.1245    |
|                 |            | (0.0839)   | (0.0838)   |
| INSIZE          |            |            | 0.0149     |
|                 |            |            | (0.0428)   |
| INNUM           |            |            | -0.0124    |
|                 |            |            | (0.0449)   |
| Constant        | -0.7208*** | 8.7278***  | 8.3765***  |
|                 | (0.0023)   | (0.8248)   | (1.3244)   |
| Year-Quarter FE | Y          | Y          | Y          |
| Firm FE         | Y          | Y          | Y          |
| N               | 126,930    | 126,930    | 126,930    |
| R <sup>2</sup>  | 0.3136     | 0.3244     | 0.3244     |

Table A6 reports the results of a robustness check in which the treatment group is redefined based on the absolute number of firm posts. Specifically, firms in the top 25% of absolute Guba post volume during the quarter preceding the policy implementation are designated as the treatment group ( $Treat\_1 = 1$ ), with the remaining firms serving as the control group ( $Treat\_1 = 0$ ). The results show that the coefficient of  $Treat\_1*Post$  remains positive and statistically significant, confirming that our baseline findings are robust to this alternative treatment group definition.

**Table A6 Robustness Check: Alternative Treatment Group Definition Based on Absolute Post Volume**

|              | SYN                   |                      |                      |
|--------------|-----------------------|----------------------|----------------------|
|              | (1)                   | (2)                  | (3)                  |
| Treat_1*Post | 0.0911***<br>(0.0225) | 0.0526**<br>(0.0233) | 0.0528**<br>(0.0233) |
| SIZE         |                       | -0.5940***           | -0.5931***           |

|                 |            |            |            |
|-----------------|------------|------------|------------|
|                 |            | (0.0494)   | (0.0493)   |
| LEV             |            | 0.2674**   | 0.2662**   |
|                 |            | (0.1115)   | (0.1115)   |
| ROA             |            | 0.2405     | 0.2385     |
|                 |            | (0.1809)   | (0.1809)   |
| CASHFLOW        |            | 0.1550     | 0.1560     |
|                 |            | (0.1246)   | (0.1245)   |
| AGE             |            | 0.2996***  | 0.2998***  |
|                 |            | (0.0823)   | (0.0823)   |
| TOP1            |            | -0.0052**  | -0.0052**  |
|                 |            | (0.0023)   | (0.0023)   |
| SOE             |            | -0.0942    | -0.0940    |
|                 |            | (0.1088)   | (0.1088)   |
| BM              |            | 1.9194***  | 1.9194***  |
|                 |            | (0.0763)   | (0.0763)   |
| TURNOVER        |            | -0.0452*** | -0.0452*** |
|                 |            | (0.0048)   | (0.0048)   |
| COVERAGE        |            | 0.0828***  | 0.0827***  |
|                 |            | (0.0144)   | (0.0144)   |
| BIG4            |            | -0.0628    | -0.0632    |
|                 |            | (0.1064)   | (0.1064)   |
| INSIZE          |            |            | -0.0118    |
|                 |            |            | (0.0556)   |
| INNUM           |            |            | 0.0211     |
|                 |            |            | (0.0573)   |
| Constant        | -1.0263*** | 10.4846*** | 10.6742*** |
|                 | (0.0028)   | (1.0735)   | (1.7066)   |
| Year-Quarter FE | Y          | Y          | Y          |
| Firm FE         | Y          | Y          | Y          |
| N               | 42,343     | 42,343     | 42,343     |
| R <sup>2</sup>  | 0.5040     | 0.5237     | 0.5237     |

Table A7 reports the regression results using a continuous measure of exposure intensity instead of quartile dummy variables. In the baseline specification, we categorize firms into quartiles based on their exposure to the internet real-name system and employ dummy variables to capture differential treatment effects. To ensure that our findings are not sensitive to this discretization, we re-estimate the model using the continuous exposure variable directly. This approach leverages the full variation in treatment intensity rather than grouping firms into discrete categories. As shown, the coefficient of  $Treat \times Post$  remains positive and statistically significant, indicating that our main results are robust to the functional form of the treatment variable.

**Table A7 Robustness Check: Continuous Exposure Measure**

|                  | SYN       |           |           |
|------------------|-----------|-----------|-----------|
|                  | (1)       | (2)       | (3)       |
| Treat_Ratio*Post | 5.5123*** | 7.9320*** | 7.9484*** |

|                 |            |            |            |
|-----------------|------------|------------|------------|
|                 | (0.9084)   | (0.9137)   | (0.9151)   |
| SIZE            |            | -0.6009*** | -0.5994*** |
|                 |            | (0.0493)   | (0.0493)   |
| LEV             |            | 0.2432**   | 0.2417**   |
|                 |            | (0.1115)   | (0.1115)   |
| ROA             |            | 0.3065     | 0.3040     |
|                 |            | (0.1872)   | (0.1871)   |
| CASHFLOW        |            | 0.1645     | 0.1654     |
|                 |            | (0.1260)   | (0.1259)   |
| AGE             |            | 0.2840***  | 0.2843***  |
|                 |            | (0.0808)   | (0.0808)   |
| TOP1            |            | -0.0054**  | -0.0054**  |
|                 |            | (0.0023)   | (0.0023)   |
| SOE             |            | -0.1101    | -0.1097    |
|                 |            | (0.1073)   | (0.1073)   |
| BM              |            | 1.9606***  | 1.9604***  |
|                 |            | (0.0764)   | (0.0764)   |
| TURNOVER        |            | -0.0465*** | -0.0465*** |
|                 |            | (0.0047)   | (0.0047)   |
| COVERAGE        |            | 0.0813***  | 0.0812***  |
|                 |            | (0.0143)   | (0.0143)   |
| BIG4            |            | -0.0622    | -0.0623    |
|                 |            | (0.1059)   | (0.1059)   |
| INSIZE          |            |            | -0.0239    |
|                 |            |            | (0.0545)   |
| INNUM           |            |            | 0.0323     |
|                 |            |            | (0.0565)   |
| Constant        | -1.0359*** | 10.6488*** | 11.1162*** |
|                 | (0.0034)   | (1.0716)   | (1.6874)   |
| Year-Quarter FE | Y          | Y          | Y          |
| Firm FE         | Y          | Y          | Y          |
| N               | 42,343     | 42,343     | 42,343     |
| R <sup>2</sup>  | 0.5044     | 0.5250     | 0.5250     |

Table A8 reports the results of the PSM-DID robustness check. To address potential selection bias, we match treatment and control firms based on the control variables used in the baseline regression. We employ three alternative matching algorithms: one-to-one nearest neighbor matching, kernel matching, and radius matching. Across all three matching methods, the coefficient of Treat\*Post remains positive and statistically significant at the 1% level, confirming that our baseline findings are robust to the correction of potential selection bias between the treatment and control groups.

**Table A8 Robustness Check: Propensity Score Matching DID (PSM-DID)**

|  | (1)                  | (2)             | (3)             |
|--|----------------------|-----------------|-----------------|
|  | 1:1 Nearest Neighbor | Kernel Matching | Radius Matching |

|                 | Matching               |                        |                        |
|-----------------|------------------------|------------------------|------------------------|
| Treat*Post      | 0.1081***<br>(0.0405)  | 0.2220***<br>(0.0233)  | 0.2101***<br>(0.0233)  |
| SIZE            | -0.7086***<br>(0.0798) | -0.6133***<br>(0.0493) | -0.5982***<br>(0.0488) |
| LEV             | 0.0784<br>(0.1888)     | 0.2649**<br>(0.1139)   | 0.2504**<br>(0.1126)   |
| ROA             | 0.4050<br>(0.3176)     | 0.3503*<br>(0.1820)    | 0.2739<br>(0.1809)     |
| CASHFLOW        | 0.4028*<br>(0.2388)    | 0.1372<br>(0.1253)     | 0.1463<br>(0.1246)     |
| AGE             | -0.0135<br>(0.1628)    | 0.2648***<br>(0.0809)  | 0.2750***<br>(0.0809)  |
| TOP1            | 0.0087*<br>(0.0045)    | -0.0049**<br>(0.0023)  | -0.0054**<br>(0.0023)  |
| SOE             | -0.2514<br>(0.2074)    | -0.1208<br>(0.1122)    | -0.1055<br>(0.1087)    |
| BM              | 2.0657***<br>(0.1580)  | 1.9523***<br>(0.0768)  | 1.9611***<br>(0.0766)  |
| TURNOVER        | -0.0545***<br>(0.0079) | -0.0471***<br>(0.0047) | -0.0462***<br>(0.0048) |
| COVERAGE        | 0.0846***<br>(0.0305)  | 0.0820***<br>(0.0144)  | 0.0816***<br>(0.0144)  |
| BIG4            | -0.2279<br>(0.2744)    | -0.0551<br>(0.1085)    | -0.0541<br>(0.1082)    |
| INSIZE          | 0.0219<br>(0.1031)     | 0.0031<br>(0.0536)     | -0.0250<br>(0.0553)    |
| INNUM           | -0.0159<br>(0.1095)    | 0.0139<br>(0.0569)     | 0.0354<br>(0.0570)     |
| Constant        | 12.4456***<br>(2.8880) | 10.7914***<br>(1.6691) | 11.1311***<br>(1.7035) |
| Year-Quarter FE | Y                      | Y                      | Y                      |
| Firm FE         | Y                      | Y                      | Y                      |
| N               | 10,182                 | 41,530                 | 42,173                 |
| R <sup>2</sup>  | 0.5139                 | 0.5236                 | 0.5245                 |