The Governance Role of Investor Communications: Evidence from a Field Experiment

November 2025

Abstract

This study examines whether retail investor communications can discipline corporate misbehavior. We conducted a field experiment targeting U.S. listed firms exhibiting substantial discretionary accruals, alleging excessive earnings management through private investor relations emails and public social media posts. Firms receiving email communications significantly reduced earnings management compared to the control group. Conversely, social media communications alone had no significant impact. Intriguingly, explicitly referencing social media posts within private emails significantly amplified the treatment effect. These findings underscore the governance potential of retail investors and challenge the traditional view that corporate oversight is the exclusive domain of institutional investors and blockholders.

JEL Classification: G30, C93, D83

Keywords: Earnings management, corporate misconduct, corporate governance, field experiment, investor relations, social media

1. Introduction

Corporate governance has traditionally been dominated by institutional investors and large blockholders, with retail investors widely perceived as too fragmented to exert meaningful influence. Yet despite constituting a numerical majority and possessing equal legal rights to transparency and managerial accountability, retail investors' governance role remains largely underexplored.[1] Recent technological advancements, particularly the proliferation of low-cost communication channels such as public social media platforms and private investor relations (IR) emails/hotlines, have empowered dispersed shareholders to directly voice concerns to management or broadcast them publicly (Antweiler & Frank, 2004; Blankespoor, 2018). This study challenges the conventional wisdom by examining whether such communication enables retail investors to effectively discipline management. Critically, we test whether this disciplinary power exists even when the communication originates from an individual investor lacking an established reputation or significant stake.

Our analysis draws on Hirschman's (1970) seminal framework of 'voice' as an alternative to 'exit,' whereby shareholders influence corporate behavior by expressing concerns. Levit (2019) formalizes this concept as 'soft shareholder activism,' demonstrating that investor communications can function as a viable governance mechanism. These frameworks imply that investor influence hinges on the credibility of their expressed concerns and management's perception of these communications as consequential.[2] We test the boundaries of this consequential perception: can a simple message from a single, un-credentialed investor be perceived as credible enough to trigger a response?

We specifically test whether investor communications – private, public, or their interaction – constrain corporate earnings management. Private communications, such as emails or telephone calls, allow shareholders to raise concerns directly with management, potentially eliciting corrective actions while avoiding public scrutiny. In contrast, public platforms, such as social media, leverage visibility to amplify grievances, imposing reputational or regulatory pressures. Critically, these channels may operate interactively. As Bowley *et al.* (2023) observe, investors often combine private and public engagement, for

[1] The literature on shareholder activism has focused almost exclusively on formal mechanisms such as market exit and proxy voting employed by institutional investors and blockholders (Hirschman, 1970; Levit, 2019; Brav *et al.*, 2022), largely neglecting the governance role of other stakeholders, particularly retail investors.

[2] Resonating with this notion, Brav *et al.* (2022) show that retail investors participating in votes penalize poorly performing managers. Cao *et al.* (2025) further document that a quasi-official investor representing minority shareholders, despite holding just a one-lot (100-share) stake, can significantly increase independent directors' dissenting votes.

example, by initiating concerns privately and escalating them publicly if the issues remain unresolved. Against this backdrop, our study investigates whether these communication strategies, individually or jointly, can effectively reduce corporate earnings management.

To answer this question, we conduct a large-scale field experiment involving U.S. public firms that engage in aggressive earnings management. Field experiments are widely regarded as the gold standard for causal inference (Floyd & List, 2016; Dimson *et al.*, 2021). By randomly assigning treatments in real-world settings, they address selection bias and endogeneity concerns, capturing authentic managerial responses and ensuring both internal validity and practical relevance.

We focus on earnings management as our outcome of interest for three reasons. First, it is a pervasive and costly form of corporate misconduct that distorts resource allocation and heightens regulatory risks (Cohen *et al.*, 2008; Franz *et al.*, 2014). Second, it can be continuously measured using publicly disclosed financial statements, enabling precise tracking of treatment effects (Healy & Wahlen, 1999). Third, since earnings management is covert, observing its reduction following investor scrutiny would provide direct evidence of effective treatment and governance impact. Following Kothari *et al.* (2005), we construct discretionary accruals as a proxy for earnings management, with higher values indicating greater likelihood of earnings management and potential misconduct.

Our experiment begins with U.S. public firms exhibiting substantial discretionary accruals, identified as those in the top third of their industry. We then randomly assign these firms to a control group and four treatment groups, where we expressed concerns about their potential earnings management via private IR emails, public social media posts, or combinations thereof. We ultimately evaluate whether firms in the treatment groups reduce earnings management relative to the control group in the subsequent period.

The four treatments vary by communication mode and intensity. In the first group (T1), we express concerns about firms' potential engagement in earnings management by sending emails (private communications: IR email). In the second group (T2), we convey the concerns by posting on social media (public communications: social media). For firms in the third group (T3), we express the concerns by sending both emails and social media posts (combined communications: IR email + social media). The fourth group (T4) parallels the third group, except that we additionally include a quotation in the email about the social media communications (interactive communications: IR email + social media + quotation). We did nothing for firms in the control group (C).

The experiment ran from July 1, 2021, to January 31, 2022, encompassing a seven-month timeframe and involving biweekly communications over fourteen rounds. We used Twitter for public messages and Gmail, Outlook, and Hotmail for private emails.[3] Relevant data was meticulously recorded after each communication round.

We first test whether private and public channels independently mitigate earnings management by comparing the T1 and T2 groups, respectively, to the control group. We then assess the combined effect by analysing firms receiving both communications (T3) relative to the control group. We hypothesize that the combined treatment is stronger than either channel alone – provided both are effective and transmit unique disciplinary pressures. Finally, we test whether integrating the two channels amplify the governance effect. In the interactive communication treatment (T4), we explicitly reference the social media activity within the private emails, piercing the boundary between private and public communications. This interactive approach may intensify the perceived threat of reputational exposure, serving as a wake-up call that increases managerial responsiveness to investor concerns. We therefore hypothesize that this group exhibit the most pronounced reduction in earnings management reduction relative to all other groups.

Our results demonstrate that private IR email communications significantly reduce earnings management. Firms in the email treatment group (T1) exhibit a 6% reduction in the decile rank of earnings management relative to the control group, which is both statistically and economically meaningful. However, public social media communications alone (T2) yield no statistically significant effect. This evidence suggests that private communications possess superior disciplinary efficacy over public ones in mitigating corporate misconduct.

Contrary to our expectation of an enhanced effect from combined communications, firms receiving both email and social media communications (T3) do not exhibit any additional reduction in earnings management compared to those only receiving email treatment (T1). However, intriguingly, adding an element in the email to inform firms about the social media communications enhances the treatment effects. Specifically, the treatment effect for the interactive group (T4) is about 67% higher than that of the combined group (T3). The results indicate that the limited treatment effects of social media communications are likely due to firms' limited attention to public voices (Hirshleifer *et al.*, 2009). Notably, the treatment effects are stronger for firms that appoint a specific executive in charge of IR function, which validates

[3] Twitter was acquired by Elon Musk in October 2022 and renamed X. We continue to refer to it as Twitter in this study, as our experiment was conducted before the acquisition.

our experiment design. Our findings are robust to controls for firm characteristics, the exclusion of the quarter when the experiment just commenced, alternative estimation models, and alternative measures of earnings management.

Interestingly, the disciplinary effects of our interactive treatment (T4) persist post-experiment, whereas the effects of standalone private (T1) and combined (T3) channels decay rapidly. The results suggest that informing firms about the public communications prolongs the treatment effects of private IR emails, highlighting the unique role of bridging private and public communication channels.

We further find that the treatment effects are more pronounced when firms more intensively engage in earnings management and are disciplined by weaker governance before the experiment. The treatment effects also increase with firms' financial distress, the prevalence of external CEO appointments, and CEOs' mobility. The evidence is consistent with prior studies on the incentives for earnings management and support our treatments' influence on firms' decision-making (e.g., Dechow *et al.*, 2010).

Finally, we show that earnings become more informative for firms in the interactive treatment group (T4) after the experiment commenced, indicating an improvement in earnings quality as a result of investor communications. However, we do not find a significant change in other firm operating activities such as investment activities and selling, general, and administrative expenditures, suggesting that our results are less likely to be driven by other confounding factors and further validating our experiment design.

This study contributes to the existing literature in several ways. First, we challenge the traditional view that individual investors are too fragmented to influence corporate decisions. While corporate governance has long been viewed as the domain of institutional investors and blockholders (Shleifer & Vishny, 1986; Shleifer & Vishny, 1997), we provide causal evidence that individual investors are likely to discipline managerial misconduct through communications. This finding complements recent studies on retail investor engagement (Boehmer *et al.*, 2021; Brav *et al.*, 2022; Cao *et al.*, 2025) and demonstrates that dispersed shareholders, despite their limited stakes, can exert meaningful influence on firms' behaviors.

Second, we move beyond the dominant focus in the literature on formal governance structures and traditional activism mechanisms—such as market exit and proxy voting (Hirschman, 1970; Brav *et al.*, 2022)—by introducing communication-based engagement as a novel governance mechanism. Specifically, we examine how direct private messages to management, public disclosures via social media, and their interaction affect corporate earnings

management. This fresh angle expands the scope of shareholder oversight and highlights the potential of non-voting voice mechanisms to discipline corporate misconduct.

Third, our study resolves a critical tension in digital governance. While prior work links social media penetration to reduced misconduct (Heese & Pacelli, 2024) and shows that negative posts can influence firm actions (Ang *et al.*, 2021), we demonstrate that these effects hinge on managerial attention. Our experiment finds that public social media posts alone fail to constrain earnings management. The disciplinary effect only becomes potent when a private IR email references the public post, making the threat of scrutiny credible and immediate. This finding offers important implications for investors seeking effective engagement strategies and for policymakers aiming to enhance corporate accountability through transparency and technology.

Fourth, methodologically, we contribute to the growing field of experimental corporate finance (Belnap, 2023; Wong *et al.*, 2024; Gassen & Muhn, 2025) by implementing a large-scale randomized trial to evaluate the impact of retail investor communication on financial misconduct. We leverage the widespread availability of low-cost communication technologies accessible to retail investors to test their disciplinary role on corporate earnings management, which has traditionally been difficult to identify. This experimental approach addresses endogeneity and provides a template for future studies examining how retail investors can shape firm behavior.

The remainder of the paper proceeds as follows: Section 2 reviews the literature and presents hypotheses; Section 3 details the experiment and data; Section 4 reports main results; Section 5 examines treatment heterogeneity; Section 6 offers additional analyses; and Section 7 concludes.

2. Literature and hypotheses

2.1. Literature background

Earnings management is a pervasive form of corporate misconduct involving the manipulation of financial reports, misleading stakeholders (Healy & Wahlen, 1999). Such behavior undermines the reliability of financial information and can lead to resource misallocation and market inefficiencies (Kothari *et al.*, 2005; Cohen *et al.*, 2008; Franz *et al.*, 2014). Prior research finds that strong corporate governance can deter earnings manipulation: firms with vigilant executives engage in less earnings management (Bergstresser & Philippon, 2006; Demerjian *et al.*, 2013; Ali & Zhang, 2015), and effective board oversight or creditor monitoring similarly curtail manipulative reporting (Beasley, 1996; Klein, 2002). External

monitors such as financial analysts, auditors, and regulators also constrain earnings management (Burgstahler *et al.*, 2006; Armstrong *et al.*, 2010).

More recently, studies have begun to explore how direct engagement by individual investors can enhance transparency and discipline management. Bowley *et al.* (2023) review shareholder engagement mechanisms and highlight that both public online platforms and private behind-the-scenes dialogue have emerged as important tools for investors to safeguard their interests. New communication technologies such as shareholder forums and interactive Q&A platforms facilitate broader shareholder participation and have been linked to improved market outcomes like higher liquidity and more informative stock prices (Antweiler & Frank, 2004; Blankespoor, 2018; Lee & Zhong, 2022).

Within this context, investor relations (IR) departments provide a direct private communication channel between firms and their shareholders. A well-developed IR function enhances transparency and accountability (Bushee & Miller, 2012; Chapman *et al.*, 2019). Private communications—such as emails, phone calls, or meetings—allow shareholders to directly convey concerns to management or boards, enabling adaptive responses without immediate market exposures. For example, in a field experiment, Wang *et al.* (2025) show that alerts about potential expropriation delivered through IR emails and calls prompt firms to raise dividend payouts. Likewise, Buntaine *et al.* (2024) find that private phone appeals about excessive emissions significantly curtail firms' subsequent pollution. Levit (2019) theoretically demonstrates that credible, privately communicated activist threats can be a powerful governance tool. However, despite the appearance of functional IR programs, investors often encounter significant barriers when attempting to report concerns, casting doubt on whether hotlines and email channels genuinely respond to allegations of misconduct (Firth *et al.*, 2019; Soltes, 2020).

Public communications, by contrast, harness the power of publicity. Social media and online forums allow retail investors to voice concerns openly, invoking reputational and regulatory pressures. Investors increasingly rely on these platforms for information on corporate behavior (Dure, 2021). Dong *et al.* (2018a) report that spikes in online discussions often precede fraud detection; and Heese and Pacelli (2024) document that greater social-media penetration lowers misconduct rates. Even retail investors can exert collective pressure through public posts. For example, Ang *et al.* (2021) show that negative posts on stock message boards can prompt companies to abandon controversial acquisition plans. Yet public channel influence can be fragile in saturated information environments. Individual posts are often ignored unless they gain critical visibility (Hirshleifer et al., 2009). Moreover, even when managers notice

online communication, they may discount it, knowing that online users face strong incentives to exaggerate or misstate information (Levit, 2019).

In sum, traditionally, studies of corporate misconduct have focused on formal governance mechanisms. However, investor communications have emerged as a meaningful, albeit unconventional, tool of shareholder oversight. Existing theoretical work explores the governance role of investor-firm communication and the conditions that influence its effectiveness (Levit, 2019; Soltes, 2020; Kakhbod *et al.*, 2023), yet direct empirical tests remain scarce.

Importantly, no prior research has systematically investigated how private and public communication channels interact. As investors increasingly "mix and match" engagement strategies (Bowley *et al.*, 2023), it becomes essential to understand whether combining these channels yields additive governance benefits or if one substitutes for the other.

Moreover, identifying a causal effect of investor communications on corporate misconduct poses a challenge. Communication choices and outcomes may be jointly driven by unobserved factors, raising endogeneity concerns (Dimson *et al.*, 2021). Indeed, most prior evidence on this topic is correlational rather than causal. To address this gap, we adopt a field experiment approach. Randomized field experiments have recently gained traction in accounting and finance as a means to establish causality in corporate finance and reporting contexts (Belnap, 2023; Gassen & Muhn, 2025). They offer a way to isolate the impact of an intervention by neutralizing confounding influences (Floyd & List, 2016; Noussair, 2022).

2.2. Hypothesis

Building on the literature above, we develop four hypotheses (H1–H4) regarding how private and public investor communications might influence corporate misconduct. The context is a field experiment in which firms with aggressive earnings management are “accused” of potential misconduct through different communication channels. We posit that an investor’s *private accusation* (via an email to the firm’s IR department) or a *public accusation* (via a social media post) may force managers to reduce earnings management. We further conjecture that using both channels together can reinforce this pressure, especially when management is made aware of the public exposure.

Private, direct engagement is expected to alert managers that investors are monitoring the firm closely and have detected potential misconduct. This mirrors the concept of behind-the-scenes shareholder activism achieving governance improvements (McCahery *et al.*, 2016). Such "voice" can discipline management by signaling external scrutiny (Hirschman, 1970;

Levit, 2019). Knowing that a concerned investor has voiced alarm internally, managers may fear escalation (e.g. involvement of more powerful shareholders or directors) and choose to curb any opportunistic accounting to preempt further trouble. Resonating with this view, prior research finds that institutional investors' private interventions often lead to corrective actions by firms (Cheng *et al.*, 2010). Thus, we expect private accusations to deter misconduct:

H1 (Private communication effect): A private investor communication directed to the firm – specifically, an accusation of misconduct sent through IR emails – will lead to a significant reduction in the firm's subsequent earnings management, relative to no communication.

Public communications, in contrast, leverage reputational and media forces. A public misconduct allegation can trigger investor backlash, damage the firm's image, and invite regulatory scrutiny (Feroz *et al.*, 1991; Karpoff *et al.*, 2009). Anticipating such outcomes, managers may preemptively adjust their reporting practices to avoid negative exposure. The disciplinary effect of social media has been well documented (Dong *et al.*, 2018b; Enikolopov *et al.*, 2018; Dube & Zhu, 2021). For example, Heese and Pacelli (2024) find that increased social media activity leads to reduced earnings management, as firms respond to the growing risks of detection and reputational harm. Even without formal authority, a vocal investor base on social networks can quickly spread negative news, putting de facto pressure on management (Robertson *et al.*, 2023). Accordingly, we hypothesize:

H2 (Public communication effect): A public investor communication – an accusation of misconduct disseminated on a social media platform – will lead to a significant reduction in the firm's subsequent earnings management, relative to no communication.

The foregoing hypotheses consider each communication channel in isolation, but investors are not confined to a single approach. In practice, concerned shareholders often engage through both private and public means. Each channel offers distinct advantages: private communications capture management's attention in a direct and controlled setting, while public communications exert reputational pressure through broader exposure. If both mechanisms independently deter misconduct, their combined effect should be *additive*—more pronounced than either one alone.

Moreover, these channels may also interact synergistically. Investors frequently "mix and match" engagement strategies to reinforce their message. For example, a shareholder may start with private dialogue and escalate publicly if ignored, or vice versa. This mirrors institutional activism, where engagement often transitions from private negotiation to public campaigning (Brav *et al.*, 2008). If both channels are effective and reinforce one another, their

combined use should lead to stronger governance outcomes. If not, the joint impact may be no greater than either method used alone. Thus, we propose:

H3 (Combined communication effect): Combining private and public communications will reduce earnings management more than using either channel alone.

Even when combining channels, how they are coordinated matters. Private communications (e.g., via IR emails) effectively capture firms' attention, enabling investors to voice concerns directly. However, their impact may be limited when originating from individual investors with low perceived power (Shleifer & Vishny, 1986). Public communications (e.g., via social media), on the other hand, subject firms to broader scrutiny and can mobilize collective investor responses. Yet, their effectiveness may be diluted by the noisy nature of online discourse and the challenge of limited managerial attention in an information-saturated environment (Hirshleifer *et al.*, 2009). In such settings, firms may overlook individual social media posts or fail to process emerging public sentiment.

A particularly potent strategy is to explicitly reference public communication within a private message. For example, an investor raising a concern in a private email might also mention that the issue has been discussed publicly on social media. This tactic ensures that management cannot easily dismiss or ignore the concern, as it underscores that the issue is already in the public domain. Similarly, highlighting the public dimension in a private setting signals to the firm that the concern is credible, traceable to an actual stakeholder, and visible to a wider audience. This interactive approach intensifies the pressure on management to act, bridging the gap between private engagement and public accountability. Accordingly, we formulate our fourth hypothesis:

H4 (Interactive communication effect): Combining private and public communications in an interactive manner—by explicitly referencing the concurrent social media accusation within the private email—will reduce earnings management more than combining the two channels without such cross-referencing.

3. Experimental design

To explore the hypotheses, we conduct a field experiment to assess the treatment effects of investor communications on earnings management practices among U.S. public companies. Our approach begins by identifying firms characterized by high discretionary accruals, a marker suggesting a greater likelihood of engaging in earnings management. We then randomly allocate these firms to a control group and four distinct treatment groups. Subsequently, we use IR emails and social media platforms to engage with firms in the treatment groups, articulating

concerns regarding their abnormally high levels of earnings management. Finally, we examine the changes in earnings management among the control and treatment groups in the subsequent period. The experiment timeline and layout are depicted in Figure 1. We provide further details in the subsequent subsections.[4]

[Insert Figure 1 about here]

3.1. Experimental sample

3.1.1. Experimental period

The experiment took place from July 1, 2021, to January 31, 2022, spanning a duration of seven months. This experiment period was chosen to ensure that it covers the entire process of announcing at least one quarterly report for each firm—from the beginning of the fiscal quarter, through the preparation of the quarterly report, to the announcement of the report itself. If our treatments matter and influence firms' reporting policies, their effects would manifest in the firms' announced reports.

3.1.2. Experimental subjects

Our study focuses on U.S. public firms up to June 22, 2021. We remove firms that were either delisted, suspended by the NYSE, AMEX, or NASDAQ, or listed after 2020. We also exclude firms operating within the financial services sector (SIC 6000-6999) and the public sector (SIC 4900-4949) because they are subject to different regulations and have distinct disclosure practices (Fang *et al.*, 2015). Additionally, we exclude companies with incomplete data necessary for calculating accruals for the four quarters preceding June 22, 2021.

We require that each Fama-French 48 industry to have more than 30 observations to ensure a sufficient sample size for estimating accruals. Lastly, to enable contact with firms via IR email, we exclude those with missing or invalid IR email contact information. The final initial sample include 2,655 firms. The filtering process is detailed in Panel A of Table 1.

[Insert Table 1 about here]

We sort these 2,655 firms based on the average level of earnings management in the most recent four quarters as of June 22, 2021, in each Fama-French industry, and identify those with values in the top one-third as the final sample for the experiment. Specifically, we follow the methodology of Kothari *et al.* (2005) and first estimate discretionary accruals using the following model:

[4] We obtained human ethics approval from our university to conduct the experimental exercise in this project.

$$TA_{i,t} = \alpha_0 + \alpha_1(1/ASSET_{i,t-1}) + \alpha_1 \Delta SALES_{i,t} + \alpha_1 PPE_{i,t} + \alpha_1 ROA_{i,t} + \varepsilon_{i,t}, \quad (1)$$

where the dependent variable, $TA_{i,t}$, represents total accruals for firm *i* in year *t*. It is calculated as the change in non-cash current assets minus the change in current liabilities (excluding the current portion of long-term debt), minus depreciation and amortization, all scaled by lagged total assets. $1/ASSET_{i,t-1}$ is the reciprocal of lagged total assets. $\Delta SALES_{i,t}$ is the change in sales scaled by lagged total assets, $PPE_{i,t}$ is net property, plant, and equipment scaled by lagged total assets, and $ROA_{i,t}$ is net income scaled by total assets. We winsorize all variables at the 1% level.

We run industry-level regressions for each fiscal year-quarter. The absolute values of the residuals from the model represent the measure of discretionary accruals or earnings management (*EM*). The quarterly values of *EM* are then aggregated to calculate firm-level values ($\overline{EM}$), obtained by averaging *EM* over the four most recent quarters preceding the commencement of the experiment. In cases where a firm's fiscal year concludes between January and May, the relevant four quarters span from the second quarter of 2020 to the first quarter of 2021. If the fiscal year ends between June and December, the four quarters range from the first quarter of 2020 to the fourth quarter of 2020.

We target firms with $\overline{EM}$ in the top one-third of the initial sample. This eventually provides us with 877 firms that enter the experiment.

3.2. Treatment and treatment assignment

We randomly divide these 877 firms into five groups, with approximately the same number of firms in each group. Among these, four groups serve as treatment groups. We use IR emails and social media to communicate concerns regarding firms' earnings management practices. Specifically, first, we contact firms in the first treatment group (T1) by IR email, expressing concerns regarding the firms' earnings management practices (private communications: IR email). The email specifies the name of a firm and its average discretionary accruals (i.e., $\overline{EM}$) over the recent four quarters, relative to its peers in the same industry. The main contents of the email are as follows:

"We are writing this email to express our concerns about the quality of your earnings reports. Recent quarterly reports indicate that ABC's average discretionary accruals (i.e., accruals adjusted for the company's performance, size, and other firm characteristics) exceed those of 90% of other firms within the same industry. This substantial deviation could

potentially suggest earnings manipulation. Would you be able to shed some light on this issue for us, please? Thank you." (ABC is the target company's name)

Second, we publish social media posts for firms in the second treatment group (T2), articulating concerns about the firms' earnings management practices (public communications: social media). The post mentions the firm's stock tag and its position regarding average discretionary accruals relative to its peers:

"*The average discretionary accruals (i.e., accruals adjusted for the firm's performance, size, etc.) for $ticker over the recent four quarters surpass those of 90% of other firms in the industry. An elevated value often signifies an increased possibility of earnings manipulation*." ($ticker is the company trading ticker)

Third, we send emails and publish social media posts simultaneously for firms in the third treatment group (T3) (combined communications: IR email + social media). The content format for T3 is the same as that used for T1 and T2 where standalone communications are made.

Fourth, we mirror the approach of T3 for firms in the fourth treatment group (T4), but also include a quotation in the email about the social media communications (interactive communications: IR email + social media + quotation). The quotation informs the firm about the discussion of its earnings management practices on social media platforms. It includes a statement referring to the public discussion and a screenshot of the discussion:

"*Additionally, we have noted relevant discussions concerning this topic on Twitter. For your reference, we've included a screenshot of the conversation below.*

[Insert the picture about here]"

We did not provide any treatment for firms in the final group, which serves as the control group (C). We examine the treatment effects by comparing the changes in earnings management between the treatment groups and this control group after the experiment commenced. The full contents of the initial IR emails and social media posts are available in Internet Appendix 1.

We assess the randomization validity of our sample assignment by comparing ex-ante *EM* and firm characteristics across the five groups. Specifically, we compute the average *EM*, firm size (*Size*, log (total assets)), financial leverage (*Leverage*, long-term debts/total assets), valuation (*B/M*, book value of total assets/market value of equity), and operating performance (*ROA*, net income/total assets) for the four quarters preceding the commencement of the experiment.

Panel B of Table 1 presents these statistics. *EM* and the four firm characteristics are statistically similar across the five groups. The *p*-value of the difference test reported in the last column indicates that none of the matrices show significant differences, confirming the validity of the randomization procedure.[5]

3.3. Experimental execution

3.3.1. Investor communication platforms

To contact firms by IR email, we have opted for three widely used email platforms: Gmail, Outlook, and Hotmail. Our approach involves the random selection of one of these platforms. In the event of any email delivery failures, we adopt a proactive strategy by randomly adopting one of the remaining platforms. This enables us to resend the IR emails and ensure effective communication.

For communication on social media, we have chosen Twitter, which is a globally recognized social networking platform. It empowers users to compose messages with a character limit of 280. Notably, it supports the usage of "hashtags" to link to specific companies (e.g., $AAPL is linked to the page of Apple Inc.). This distinctive feature serves as a valuable means for investors to conveniently share and exchange insights while focusing on specific stocks of interest.

3.3.2. Sending emails and social media posts

We created accounts on Twitter and the three email platforms using fictional names. This use of newly created, unknown accounts with fictitious names is a deliberate and crucial feature of our experimental design. It is intended to mimic a typical, fragmented retail investor who, by definition, lacks the pre-existing reputation, established relationships, or significant voting power of an institutional blockholder. A key goal of this study is to test whether even a simple communication that any individual investor could launch—one without a known reputation—is able to effectively discipline management. Finding an effect under these conditions provides a strong test of our hypotheses.

Each account sends emails or posts targeted exclusively to one of the treatment groups. We use these accounts to communicate concerns about firms' earnings management practices at two-week intervals, resulting in a total of fourteen rounds of communications. This periodic

[5] We also compare all pairwise differences across the five groups and find no significant differences in any dimension of their ex-ante characteristics.

engagement is designed to increase the treatment intensity and thereby enhance the power of the experiment.

To enhance engagement and avoid redundancy, we ensure that each social media post is uniquely phrased. For emails, the content format is consistent for all related firms but is rephrased from one round to the next. Moreover, as the experiment proceeds and firms announce their quarterly earnings, we update our email and social media post contents by recomputing the average EM over the most recent quarters (i.e., updating $\overline{EM}$) and also adjusting the position of a firm's earnings management level relative to its peers. We stop contacting a firm if the firm's $\overline{EM}$ is no longer in the top one-third of its industry.

3.1. Data collection

We tracked firms' email replies over the following month. Additionally, we monitored various metrics of the social media posts, including the number of reads, likes, retweets or reshares, and comments or replies, one day after each post. We concluded the experiment by the end of January 2022. We excluded firms that were delisted or suspended from listing during the experiment period and those with missing financial information necessary to calculate earnings management for four quarters following the commencement of the experiment. The final sample consists of 856 unique firms, with 169, 172, 174, 169, and 172 firms assigned to groups C, T1, T2, T3, and T4, respectively (see Panel A of Table 1).

Panels C and D of Table 1 present our outreach efforts. Panel C presents statistics for IR emails. We received a total of 190 email replies across all email treatment groups, with 96 for T1, 49 for T3, and 45 for T4. The average response rate is about 2.6% (i.e., (190/14) ×1/(172+169+172)). Each firm replied to 0.4 emails. The average number of days for firms to reply to the emails is one day. There are 101,293 words in all replies, or about 523 words sent by each firm.

Panel D presents statistics for social media posts. Our posts garnered 291,844 reads, 243 likes, 367 retweets or reshares, and 153 comments or replies in total. Each firm, on average, received 565 reads, 0.5 likes, 0.7 retweets or reshares, and 0.4 comments or replies.

Examples of IR emails and social media posts for each treatment group are provided in Internet Appendix 2.

3.4. Estimation model

We use a panel data of eight quarters, namely four quarters before and four quarters after the experiment commenced, and employ a difference-in-differences (DiD) approach to examine whether treatment firms experience a reduction in earnings management relative to control firms after the experiment commenced. The model is as follows:

$$EMRank_{i,t} = \beta_0 + \beta_1 Treat_i \times Post_t + x_{i,t} + \delta_i + \emptyset_t + \varepsilon_{i,t}, \quad (2)$$

where i indexes a firm and t indexes a quarter. The dependent variable is the measure of quarterly earnings management. We adhere to the same model outlined in Equation (1) to compute *EM*. Drawing from insights from previous studies (Demerjian *et al.*, 2013; El Diri *et al.*, 2020), we use the decile rank of *EM* to mitigate the influence of extreme observations and enhance comparability, denoted as *EMRank*.

Treat denotes our treatment indicators, which include *T1C*, *T2C*, *T3C*, and *T4C*. They take the value of 1 if a firm is assigned into the treatment group T1, T2, T3, and T4, respectively, and 0 if it is assigned into the control group C. *Post* equals 1 if the quarterly earnings are announced after June 30, 2021, and 0 otherwise.

$x_{i,t}$ denotes a set of control variables comprising *Size*, *Leverage*, *B/M*, and *ROA* that are introduced previously. δ_i encompasses firm fixed effects, while $\emptyset_t$ accounts for time (year-quarter) fixed effects. The standalone variables $Treat_i$ and $Post_t$ and are absorbed by the fixed effects.

We estimate Equation (2) by pooling one of the four treatment groups and the control group. β_1 is the DiD estimate, gauging the difference in the *EMRank* change post the experiment commenced between the respective treatment and control groups. Additionally, we pool all treatment and control groups and estimate the following full model:

$$EMRank_{i,t} = \beta_0 + \gamma_1 T1_i \times Post_t + \gamma_1 T2_i \times Post_t + \gamma_1 T3_i \times Post_t + \gamma_1 T4_i \times Post_t + x_{i,t} + \delta_i + \emptyset_t + \varepsilon_{i,t}, \quad (3)$$

where *T1*, *T2*, *T3*, and *T4* are treatment indicators, which take the value of 1 if a firm is assigned into the treatment groups T1, T2, T3, and T4, respectively, and 0 otherwise.

We estimate Equations (2) and (3) by running Poisson regressions because a recent study by Cohn, Liu, and Wardlaw (2022) shows that the Poisson model is the correct model for modelling count-based outcome variables. A significant coefficient on the respective treatment indicator would indicate significant treatment effects. The detailed definitions of variables and their respective data sources are provided in Internet Appendix 3.

Table 2 presents the summary statistics of the variables. Because the regression sample retains eight quarters of data for each firm in both the treatment and control groups, the number of observations in Table 2 exceeds the number of unique firms reported in Table 1. The full sample, used for regressions that include all five groups, contains 6,681 firm-quarter observations. For regressions comparing each treatment group individually to the control group, the sample size ranges from 2,654 to 2,669 observations, depending on the number of firms included.

[Insert Tables 2 about here]

4. Main results

4.1. Graphic evidence

Before presenting the regression estimates, we first provide graphical evidence by comparing the kernel density of abnormal earnings management across groups before and after the experiment. Specifically, we obtain residuals by regressing quarterly *EM* on firm characteristics (*Size*, *Leverage*, *B/M*, and *ROA*), firm fixed effects, and year-quarter fixed effects within each group. We then compute the average residuals over the four quarters before and after the experiment's commencement to measure abnormal earnings management.

Figure 2 displays the results, with the x-axis representing the level of abnormal earnings management and the y-axis showing the kernel density. The dotted line represents the distribution before the experiment, and the solid line represents the distribution after the experiment began.

[Insert Figure 2 about here]

We find that the density curves for group C exhibit no significant changes before and after the experiment, confirming the control group's validity. In contrast, the density curves for the treatment groups generally shift leftward following the experiment. Among these, the T2 group shows only minimal movement, suggesting that social media posts alone appear not to significantly affect firms' earnings management practices. By comparison, the T1 and T3 groups exhibit moderate leftward shifts, indicating that email communications may help mitigate earnings management. The T4 group shows the most pronounced leftward shift, implying that referencing social media communications within emails substantially strengthens the mitigation effect.

Figure 3 focuses on firms with effective engagement during the experiment. The strength of treatment effects likely depends on how effectively communications reach and engage firms. If mitigation effects are truly driven by our engagement, they should be more

pronounced among firms that actively responded. We classify firms as having effective engagement if they meet either of the following criteria: 1) firms in groups T1, T3, and T4 that replied to at least one email, or 2) firms in groups T2, T3, and T4 whose social media posts received above-median total reads or at least one like, comment, or share. We re-plot the kernel density of abnormal earnings management based on these firms.

[Insert Figure 3 about here]

Consistent with expectations, the density curves for groups T1, T3, and especially T4—where social media posts are referenced in emails—shift noticeably leftward compared to Figure 2, indicating stronger reductions in earnings management. These results suggest that more effective engagement enhances the treatment effects. In contrast, the density curve for group T2 remains largely unchanged, indicating that social media communications alone do not tend to significantly influence earnings management, even when they capture investor attention. This finding suggests that the absence of treatment effects from social media posts may not result from poor engagement with the platform.

4.2. Baseline regression

We provide results estimated with Poisson regressions as specified in Equations (2) and (3). The results are reported in Table 3. Panel A presents the results in the full sample. Columns (1) to (4) report the estimates of Equation (2). Column (1) shows the results when the treatment group is T1 and the control group is C. We find that the coefficient on *T1C*× *Post* is -0.064, significant at the 10% level. This suggests that firms subjected to IR email communications significantly reduce earnings management after the experiment begins, relative to the control group, supporting H1. The result also has economic significance. The rank of *EM* for firms in T1 after the experiment commencement is reduced by 6% ($1 - e^{-0.064}$) compared to firms in C.

[Insert Table 3 about here]

Column (2) reports the estimates when the treatment group is T2. We find that the coefficient on *T2C*× *Post* is negative but statistically insignificant. This implies that social media communications have no significant effect on firms' earnings management. H2 is thus not supported.

Column (3) presents the estimates when treatment firms receive both IR email and social email communications (T3). The coefficient on *T3C*× *Post* is -0.06, significant at the 10% level. Interestingly, the magnitude of this coefficient is similar to that for group T1. This result suggests that adding social media communications does not provide an incremental

treatment effect, consistent with the insignificant effect of the social media treatment shown in column (2). As a result, H3 is not supported.

The results for the treatment with a quotation in the email about the social media communications (T4) are presented in column (4). The coefficient on *T4C*× *Post* is -0.103, highly significant at the 1% level. The results are consistent with Figure 2 and suggest that informing firms via IR email about the public communication in the social media platform can significantly enhance the mitigation effect, supporting H4. Specifically, the reduction in the rank of *EM* for T4 compared to C is 10% ($1 - e^{-0.103}$). After accounting for the 6% reduction attributable to T1, the incremental reduction from including the quotation in the email amounts to 4%, representing a 67% improvement in treatment effects.

The estimates of Equation (3) are reported in column (5) where all five groups are pooled together, and four treatment indicators are included in the same model. The results mirror those when treatment groups are analyzed individually. Specifically, the coefficients on *T1C*×*Post* and *T3C*×*Post* are significantly negative and similar in magnitude. The coefficient on *T4C*×*Post* is significantly negative, with a magnitude 67% (0.10/0.06) larger than that on either *T1C*×*Post* or *T3C*×*Post*. The coefficient on *T2C*×*Post* remains insignificant. The persistent results suggest that the effects of each treatment are relatively independent, consistent with the randomization nature of our samples.

Our experimental exercise rests on the function of firms' IR program, which serves as a communication conduit between outside investors and firms' decision-making body. The basic responsibility of an IR function is to communicate with the investment community and shape the company narrative (Brown *et al.*, 2019). Prior studies show that firms' IR functions play an essential role in facilitating the assimilation of firm information, resolving disputes and uncertainties, and ultimately enhancing firm valuation (Chapman *et al.*, 2019; Karolyi *et al.*, 2020).

To substantiate our treatment effects, we examine the impact of firms' IR function dedication on our treatment effects. We expect that a dedicated IR function is more likely to establish and maintain direct, ongoing engagement with shareholders (e.g., track email and monitor sentiment on social media), improving the delivery of investor communications and thereby strengthening our treatment effects.

To conduct the subsample test, we follow Chapman *et al.* (2019) and use the presence of an in-house IR officer (IRO) on the firm's earnings conference call as a proxy for a dedicated IR function. Specifically, we identify IR officers from earnings conference call transcripts in 2020. An IR officer is a manager whose title does not include words indicative of either the

CEO or CFO but does include at least one of these words: 'IR,' 'investor relations,' or 'investor.' We create a variable, *IRO*, which takes the value of 1 if an IR officer can be identified on a firm's earnings conference call transcripts, and 0 otherwise. We portion our sample into two subsamples: firms with a dedicated IR function (*IRO*=1) and firms without a dedicated IR function (*IRO*=0). We re-estimate Equations (2) and (3) within these subsamples.

The results are reported in Panel B of Table 3. As expected, the treatment effects concentrate on firms with a dedicated IR function. The coefficient on *T4C* × *Post* in the subsample of *IRO*=1 is negative, significant at the 1% level, while it is insignificant in the subsample of *IRO*=0. Similarly, in the full model, the coefficients on *T4* × *Post* and *T3* × *Post* are significantly negative (the coefficient on *T1* × *Post* is also marginally significant), while all coefficients in the subsample of *IRO*=0 are insignificant. The results suggest that our treatment effects are more pronounced in firms with more dedicated IR functions, supporting our experimental design.

Overall, the graphical and regression evidence indicates that IR email communications significantly mitigate earnings management. Social media communications alone have no significant effect. However, referencing social media communications within IR emails significantly enhances the overall disciplinary impact of investor communications.

4.3. Dynamic effects

To elucidate the evolution of treatment effects around the experiment, we proceed to explore the change in earnings management in each period before and after the experiment commenced. To this end, we extend our analysis by implementing a dynamic DID model:

$$EMRank_{i,t} = \beta_0 + \sum_{n=-3}^{3+}(\beta_{1,n} Treat_i \times Postn_t) + x_{i,t} + \delta_i + \emptyset_t + \varepsilon_{i,t}, \quad (4)$$

where *Postn* (*n* = -3, -2, and -1) indicates the *n*th quarterly earnings announced before the experiment commenced on June 30, 2021; *Post1* and *Post2* indicate the first and the second quarters after the experiment commenced, respectively. *Post3+* indicates the third and beyond quarters after the experiment commenced. The indicator for the fourth quarter before the experiment (*Post-4*) serves as the base and is omitted. We run the Poisson regression for each treatment individually by pooling the respective treatment group with the control group.

The results are reported in Table 4. We find that all coefficients *Treat* × $Postn$ (n = -3, -2, and -1) exhibit insignificance, suggesting no significant differences in earnings management between treatment and control firms prior to the experiment. This supports the parallel assumption of the DiD approach and lends credence to the validity of our experimental design.

[Insert Table 4 about here]

Moving to the period when the experiment commenced (n =1, 2, and 3+), we find that the coefficients on *Treat* × *Post1* in all treatment groups are insignificantly different from zero, indicating that treatment effects do not manifest in the first quarter after the experiment commenced. This is understandable because the earnings announced in this quarter have already been finalized before our experiment commenced, making it less likely to be influenced by the experiment.

The coefficients on *Treat* × *Post2* are significantly negative for the treatment groups T1, T3, and T4, but insignificant for T2. These results are consistent with prior analyses, indicating that treatment effects associated with IR email communications are significant, while those related to social media communications alone are not.

Importantly, the coefficient on *Treat* × *Post3+* is significantly negative for the treatment group T4, while the coefficients become insignificant for other treatment groups. This finding is interesting as our experiment ended in January 2022, about two quarters after the experiment commenced, and the persistent significant earnings management mitigation effects for T4 beyond the second quarter suggests that adding the quotation of social media communication in the email can prolong the treatment effect, further confirming the unique role of informing firms about public communications on social media.

Overall, the dynamic model evidence indicates that the treatment effect of solely sending emails appears to be short-term, while the effect is prolonged and becomes more persistent when it includes a component that refers to public communications on social media platforms.

4.4. Robustness

We conduct several analyses to assess the robustness of our baseline results. First, we re-estimate Equations (2) and (3) without including control variables. This address concerns that our findings might be driven by the specific selection of controls. The results are reported in Panel A of Table 5. Across all columns, the coefficient estimates remain nearly identical in magnitude and statistical significance to those reported in the baseline regression with controls (Panel A of Table 3). For instance, the coefficient on *T4C* × *Post* remains highly significant in both specifications: –0.103 (t = –2.93) with controls and –0.103 (t = –2.92) without controls. These results demonstrate that our main findings are not sensitive to the inclusion of control variables, reinforcing the validity of the treatment effects and supporting the experimental design's credibility.

[Insert Table 5 about here]

Second, we repeat our estimation by excluding the first quarter post-experiment commencement because the fiscal quarter end of this quarter is before our experiment began, and the earnings announced had already been finalized, leaving little room for our treatment to influence firms' disclosure practices. This is consistent with the results of the dynamic model analysis, where we find insignificant coefficients for *Treat* × *Post1*. To mitigate the concern that including the starting period of the experiment may bias our estimates, we repeat our baseline model without this period. The results are reported in Panel B. We find that the result pattern remains unchanged, and the coefficients pertaining to treatment groups T1, T3, and T4 continue to be significantly negative.

Third, while Cohn *et al.* (2022) recommend using Poisson regressions to model count-based outcome variables (e.g., the number of patents granted and the number of employees), the decile rank is not a typical count-based. To bolster confidence in our results, we re-estimate our model using ordinary linear regression (OLS). The results are reported in Panel C. The treatment effects of T1, T3, and T4 remain significant for both individual and full models. Notably, the magnitude of the treatment effects of T4 is approximately 57% (0.55/0.35) larger than that of T1 and T3, largely consistent with the Poisson estimates shown in Table 3. This suggests that the estimates under Poisson and OLS are consistent.

Moreover, we run OLS regressions and repeat our analyses using *EM*, the continuous variable of earnings management, as the dependent variable. We also measure earnings management using alternative models such as the modified Jones model (Dechow *et al.*, 1995) and the cash flow model (Dechow & Dichev, 2002). In all alternative specifications, we find consistent results: the treatment effects of T4 are significant, whereas those for T2 are insignificant. The treatment effects for T1 and T3 have expected signs but sometimes are lack of statistical significance.

Overall, the results suggest that the treatment effects of T4 is most pronounced, consistent with our previous findings.

5. Heterogeneity tests

To better understand the disciplinary effects of investor communications, this section examines how the treatment effects vary with firms' earnings management intensity, governance strength, and incentive to manipulate earnings.

5.1. Earnings management intensity

Investor communications may trigger shareholder collectivism and cause lawsuits and image damage (Levit, 2019). Such costs are higher for firms that are more intensively engaging in earnings management or other corporate misconduct because they are more likely to be caught and subjected to punitive actions. As a result, the disciplinary effects of investor communications should be more pronounced for firms that more intensively engage in earnings management before our experiment commenced. We test this prediction in this subsection.

We adopt two metrics to measure firms' ex-ante engagement in earnings management. The first measure is the employment of Big 4 auditors. Companies audited by the internationally renowned Big 4 firms, including Ernst & Young, Deloitte & Touche, KPMG, and PricewaterhouseCoopers, are subject to more stringent and professional auditing services, leaving firms less space to manipulate their earnings and reporting. Specifically, we create a variable, *Big4*, which takes the value of 1 if a firm hires a Big 4 auditor in 2020, and 0 otherwise.

The second measure is auditing fees. Auditors need to charge higher audit fees for auditing firms with low earnings quality and more likely to engage in earnings management because earnings management increases auditors' legal liability and audit complexity (Abbott *et al.*, 2006; Schelleman & Knechel, 2010; Krishnan *et al.*, 2013). We create a variable, *Auditfee*, which takes the value of 1 if audit fees scaled by total assets for a firm in 2020 are greater than its industry median, and 0 otherwise.

We repeat our baseline analysis in subsamples partitioned by these two indicators. The results are reported in Table 6. We find that the treatment effects concentrate on firms hiring non-Big 4 auditors and paying higher auditing fees. Specifically, the coefficient on *T4C* × *Post* in the subsample of *Big4*=1 is indistinguishable from 0. Conversely, the coefficient on *T4C* × *Post* in the subsample of *Big4*=0 is -0.168, significant at the 1% level. Similarly, the coefficients on *T4C* × *Post* in the subsamples of *Auditfee*=1 are significantly negative, with a magnitude much larger than in the subsamples of *Auditfee*=0. The results are confirmed in the full model, as shown in the last two columns.

However, the treatment effects of solely sending emails or social media posts are reduced or insignificant for both subsamples. The results suggest that earnings management intensity mainly intersects with the treatment of adding public communications in emails. This is logical as firms worry about the punitive costs of their earnings management when they notice public discussion of their practices on social media.

[Insert Table 6 about here]

5.2. Governance strength

Firms are more likely to engage in earnings management when they are subject to weak governance (Shleifer & Vishny, 1997), leaving more space for investor communications to step in to fill the governance void and potentially correct or mitigate these practices. Consequently, we expect our treatment effects to increase with firms' governance weakness.

To conduct the test, we adopt two measures of corporate governance. The first measure is the percentage of independent directors (*IndDir*), which assesses a firm's internal governance strength. *IndDir* takes the value of 1 if the percentage of independent directors for a firm in 2020 is greater than the median in its industry, and 0 otherwise. The second measure is analyst coverage (*Analyst*), which assesses a firm's external governance strength. *Analyst* takes the value of 1 if the number of analysts covering a firm in 2020 exceeds the median in its industry, and 0 otherwise. Firms with fewer independent directors and less analyst coverage are believed to face weaker governance (Shleifer & Vishny, 1997).

We partition our sample into subsamples based on these two variables and repeat our baseline models. The results are reported in Table 7. We find that our treatment effects are more pronounced in firms with weaker governance. As shown in columns (1) and (2), the coefficients on *T4C* × *Post* for the subsamples of *IndDir*=0 and *Analyst*=0 are negative and significant at the 1% level, while the coefficient is insignificant for the subsample of *IndDir*=1 and weakly significant for the subsample of *Analyst*=1.

The results are confirmed in the full model, as shown in columns (3) and (4). The treatment effects for the subsample of *Analyst*=0 mirror the pattern of the baseline results. None of the treatment effects are significant for the subsamples of *IndDir*=1 and *Analyst*=1. The results suggest that investor communications have the potential to substitute for traditional governance mechanisms in mitigating firms' manipulative behaviors.

[Insert Table 7 about here]

5.3. Incentives of manipulating earnings

Firms' earnings management is also influenced by their financial health conditions and CEOs' career concerns. Prior studies show that financially distressed firms often use earnings management for purposes such as contractual negotiations and concealing financial distress (DeAngelo *et al.*, 1994; Burgstahler & Dichev, 1997). Moreover, due to the higher pressure of promotion, and CEOs hired from outside rather than being promoted from within are more likely to resort to earnings management (Francis *et al.*, 2008; Ali & Zhang, 2015).

Additionally, mobility and outside opportunities influence CEOs' decisions on earnings management (Gao *et al.*, 2018). CEOs with greater mobility and outside opportunities may have greater incentives to partake in earnings management to enhance their short-term financial results and thereby improve their attractiveness to other potential employers. As a result, we expect the treatment effects of investor communications to increase with firms' financial distress, the prevalence of external CEO appointments, and CEOs' mobility.

We construct variables to conduct the test. First, we use Zmijewski's (1984) X-score to measure firms' financial distress risk.[6] We create an indicator, *Distress*, which takes the value of 1 if a firm's X-score is positive, and 0 otherwise. Second, we gauge the prevalence of external CEO appointments by creating *Outside*, which is 1 if the CEO of a firm is hired from outside the firm, and 0 otherwise (see Gao *et al.*, 2018). Lastly, we use the adoption of the Inevitable Disclosure Doctrine (IDD) law in firms' locations to measure CEOs' mobility and outside opportunities. IDD prohibits employees with valuable trade secrets from working for another firm if they would inevitably disclose the current employer's trade secrets, which provides a way for firms to restrict the mobility and outside opportunities of their employees (Na, 2020; Gu *et al.*, 2022). We create a variable, *IDD*, which takes the value of 1 if the headquarters of a firm is in a state where the IDD law is in effect, and 0 otherwise.

We conduct a subsample analysis based on these indicators. The results are presented in Table 8. Panel A shows the results for financial distress. The treatment effect of T4 is significant in the subsample of distressed firms (*Distress*=1) but not in the subsample of non-distressed firms (*Distress*=0). The treatment effects of other groups are insignificant. This suggests that firms' financial distress risk affects our treatment effects only when firms are informed about public communications in social media. This is reasonable as firms have intensified incentives to address investor communications when they realize such communications are exposed to the public, which may escalate the negative impact of financial distress.

Panels B-C present the results for CEO career concerns. The pattern of results for the subsamples of CEOs hired from outside (*Outside*=1), and CEOs with greater mobility and outside opportunities (*IDD*=0) mirror those of the baseline results: the treatment effects of T4, T1, and T3 are significant, especially for T4, but that of T2 is insignificant. The treatment

[6] Zmijewski X-score is computed as follows: X= -4.336 - 4.513 × (net income / total assets) + 5.679 × (total liabilities / total assets) + 0.004 × (current assets / current liabilities). Based on Zmijewski's model, if X < 0 or negative, the company is healthy or has no potential for bankruptcy; if X > 0 or positive, the company is unhealthy or has the potential for bankruptcy.

effects for the subsamples of CEOs promoted from within (*Outside*=0), and CEOs with restricted mobility and outside opportunities (*IDD*=1) are insignificant for all treatment groups.

The results suggest that CEOs' career concerns affect the treatment effects of both solely sending emails and quoting public communications in emails, which are different from the effects of financial distress. This distinction is intuitive. Individuals engaged in misconduct are likely to become cautious and alert when they realize their actions have been detected, regardless of the communication's format, due to the potential career risks of exposure. By contrast, managers respond to financial distress only when the communication is perceived as public, given that public scrutiny could impair the firm's ability to raise funds and resolve financial challenges.

[Insert Table 8 about here]

6. Additional analyses

6.1. Informativeness of reported earnings

Earnings management reduces the informativeness of reported earnings. Prior studies find evidence of muted market responses to earnings news when firms manage earnings (DeFond & Park, 2001; Bartov *et al.*, 2002). To the extent that investor communications mitigate earnings management, we explore the ramifications of the treatment effects by examining whether the informativeness of earnings news is improved for treatment firms post the experiment commenced.

We conduct the test using the association between earnings news and the change in price (i.e., the earnings response coefficient [ERC]) around firms' quarterly earnings announcements. The model is specified as follows:

$$CAR_{i,t} = \theta_0 + \theta_1 UE_{i,t} + \theta_2 UE_{i,t} \times Post_t + x_{i,t} + \delta_i + \emptyset_t + \varepsilon_{i,t}, \quad (5)$$

where *CAR* is a firm's cumulative market-adjusted return computed from day -1 to day 2 relative to the firm's quarterly earnings announcement date (day 0) in a quarter. *UE* is a measure of earrings news, which is the decile rank of unexpected earnings (announced earnings per share [EPS] – consensus estimates of EPS by financial analysts, scaled by the firm's stock price at the end of the fiscal quarter). θ_1 is the ERC estimate. We run the model for each group during our sample periods (i.e., four quarters before and after the experiment commenced) and see whether ERC is enhanced for treatment firms post the experiment commenced, that is, whether θ_2 is significantly positive.

The results are reported in Table 9. The coefficients on the standalone *UE* are significantly positive across all models, consistent with a positive market reaction to favorable earnings news. Notably, the coefficient on *UE* × *Post* for the treatment group T4 is significantly positive (0.005, *t*-value = 1.96), with a magnitude exceeding that of *UE* alone (0.003, *t*-value = 1.92). This indicates that the ERC more than doubles for firms in the T4 group after the experiment commenced (0.008 = 0.005 + 0.003).

In contrast, we do not find significant coefficients on *UE* × *Post* for the control group or the other treatment groups. These results suggest that the informativeness of reported earnings improves significantly only when investor communications via emails are combined with an element informing firms about communications on social media. The increased ERC observed in the T4 group likely reflects a persistent improvement in earnings quality, consistent with a prolonged mitigation of earnings management documented previously.

Overall, the evidence indicates that our experimental intervention has a significant effect on the pricing of earnings announcements.

[Insert Table 9 about here]

6.2. Other firm activities as placebo tests

Lastly, we conduct placebo tests to examine whether our treatment exercises cause the changes in other dimensions of firm activities. Prior studies show that firms manage earnings through real activities in addition to accrual-based activities (Roychowdhury, 2006; Zang, 2012). For instance, Roychowdhury (2006) finds that firms employ multiple real earnings management methods to meet financial reporting benchmarks and avoid reporting annual losses. Recent studies indicate a trade-off between these types of activities. For example, Terry *et al.* (2023) demonstrate that the reduced flexibility in misreporting leads to managers' reliance on value-destroying investment distortions, such as cutting investments in R&D and advertising expenditures. Given these mixed findings, we investigate the impact of our treatments on firms' operating activities other than accrual management.

We follow Terry *et al.* (2023) and focus on the two types of real operating activities: investment activities (*Capex*, capital expenditures/total assets), and selling, general, and administrative expenditures (*SG&A*, selling, general, and administrative expenses/total sales). We substitute these two variables for the dependent variables of Equations (2) and (3).

The results are reported in Table 10. We find none of the treatments are associated with significant changes in *Capex* and *SG&A*, as expected, given the mixed relationship between accruals-based and real operating activities and that our treatments are not specifically designed

for firms' real investment and SG&A activities. The lack of significant results suggests our findings may not be driven by other confounding factors, further supporting the validity of our experimental design.

[Insert Table 10 about here]

7. Conclusion

This study investigates the governance role of investor communications in curbing corporate misconduct through a field experiment where we send emails and post in social media to express concerns about firms' intensive engagement of earnings management.

The results reveal that IR email communications significantly mitigate earnings management, while social media communications alone do not have a substantial effect. However, when social media communications are referenced in IR emails, the mitigation effect is notably enhanced, indicating that combining public and private communication channels increases the effectiveness of investor oversight. This suggests that the integration of public communications within private communications acts as a wake-up call for firms, compelling them to address potential misconduct due to heightened investor scrutiny.

The treatment effects are more pronounced for firms with greater earnings management intensity and weaker governance, underscoring the importance of investor communications in supplementing traditional governance mechanisms. The treatment effects are also stronger for firms with higher financial distress and CEOs with greater career concerns, indicating that the treatment effects manifests by influencing firms' incentive of manipulating earrings. The robustness checks and supplementary analyses confirm the validity of the experiment design and the persistence of the treatment effects.

Overall, our study provides valuable insights into the disciplining power of investor communications and highlights the potential for enhancing corporate governance through active investor engagement. What makes these findings particularly noteworthy is that these disciplinary effects were achieved using simple, low-cost communications from accounts without any established reputation. Our results demonstrate that even a single, unknown retail investor, mimicking the fragmented nature of most individual shareholders, can function as a meaningful governance mechanism when their "voice" is amplified by referencing public scrutiny.

Reference

Abbott, L.J., Parker, S., Peters, G.F., 2006. Earnings management, litigation risk, and asymmetric audit fee responses. Auditing: A Journal of Practice & Theory 25, 85-98

Ali, A., Zhang, W., 2015. CEO tenure and earnings management. Journal of Accounting and Economics 59, 60-79

Ang, J.S., Hsu, C., Tang, D., Wu, C., 2021. The role of social media in corporate governance. The Accounting Review 96, 1-32

Antweiler, W., Frank, M.Z., 2004. Is all that talk just noise? The information content of internet stock message boards. The Journal of Finance 59, 1259-1294

Armstrong, C.S., Guay, W.R., Weber, J.P., 2010. The role of information and financial reporting in corporate governance and debt contracting. Journal of Accounting and Economics 50, 179-234

Bartov, E., Givoly, D., Hayn, C., 2002. The rewards to meeting or beating earnings expectations. Journal of Accounting and Economics 33, 173-204

Beasley, M.S., 1996. An empirical analysis of the relation between the board of director composition and financial statement fraud. The Accounting Review, 443-465

Belnap, A., 2023. The effect of intermediary coverage on disclosure: Evidence from a randomized field experiment. Journal of Accounting and Economics 75, 101522

Bergstresser, D., Philippon, T., 2006. CEO incentives and earnings management. Journal of Financial Economics 80, 511-529

Blankespoor, E., 2018. Firm communication and investor response: A framework and discussion integrating social media. Accounting, Organizations and Society 68, 80-87

Boehmer, E., Jones, C.M., Zhang, X., Zhang, X., 2021. Tracking retail investor activity. The Journal of Finance 76, 2249-2305

Bowley, T., Hill, J.G., Kourabas, S., 2023. Shareholder engagement inside and outside the shareholder meeting.

Brav, A., Cain, M., Zytnick, J., 2022. Retail shareholder participation in the proxy process: Monitoring, engagement, and voting. Journal of Financial Economics 144, 492-522

Brav, A., Jiang, W., Partnoy, F., Thomas, R., 2008. Hedge fund activism, corporate governance, and firm performance. The Journal of Finance 63, 1729-1775

Brown, L.D., Call, A.C., Clement, M.B., Sharp, N.Y., 2019. Managing the narrative: Investor relations officers and corporate disclosure. Journal of Accounting and Economics 67, 58-79

Buntaine, M.T., Greenstone, M., He, G., Liu, M., Wang, S., Zhang, B., 2024. Does the squeaky wheel get more grease? The direct and indirect effects of citizen participation on environmental governance in China. American Economic Review 114, 815-850

Burgstahler, D., Dichev, I., 1997. Earnings management to avoid earnings decreases and losses. Journal of Accounting and Economics 24, 99-126

Burgstahler, D.C., Hail, L., Leuz, C., 2006. The importance of reporting incentives: Earnings management in European private and public firms. The Accounting Review 81, 983-1016

Bushee, B.J., Miller, G.S., 2012. Investor relations, firm visibility, and investor following. The Accounting Review 87, 867-897

Cao, F., Xuan, Y., Yuan, R., Zou, H., 2025. Governance by one-lot shares. Journal of Financial and Quantitative Analysis 60, 874-909

Chapman, K.L., Miller, G.S., White, H.D., 2019. Investor relations and information assimilation. The Accounting Review 94, 105-131

Cheng, C.A., Huang, H.H., Li, Y., Lobo, G., 2010. Institutional monitoring through shareholder litigation. Journal of Financial Economics 95, 356-383

Cohen, D.A., Dey, A., Lys, T.Z., 2008. Real and accrual‐based earnings management in the pre‐and post‐Sarbanes‐Oxley periods. The Accounting Review 83, 757-787

Cohn, J.B., Liu, Z., Wardlaw, M.I., 2022. Count (and count-like) data in finance. Journal of Financial Economics 146, 529-551

DeAngelo, H., DeAngelo, L., Skinner, D.J., 1994. Accounting choice in troubled companies. Journal of Accounting and Economics 17, 113-143

Dechow, P., Ge, W., Schrand, C., 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. Journal of Accounting and Economics 50, 344-401
Dechow, P.M., Dichev, I.D., 2002. The quality of accruals and earnings: The role of accrual estimation errors. The Accounting Review 77, 35-59
Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1995. Detecting earnings management. Accounting Review, 193-225
DeFond, M.L., Park, C.W., 2001. The reversal of abnormal accruals and the market valuation of earnings surprises. The Accounting Review 76, 375-404
Demerjian, P.R., Lev, B., Lewis, M.F., McVay, S.E., 2013. Managerial ability and earnings quality. The Accounting Review 88, 463-498
Dimson, E., Karakaş, O., Li, X., 2021. Coordinated engagements. European Corporate Governance Institute–Finance Working Paper No. 721
Dong, W., Han, H., Ke, Y., Chan, K.C., 2018a. Social trust and corporate misconduct: Evidence from China. Journal of Business Ethics 151, 539-562
Dong, W., Liao, S., Zhang, Z., 2018b. Leveraging financial social media data for corporate fraud detection. Journal of Management Information Systems 35, 461-487
Dube, S., Zhu, C., 2021. The disciplinary effect of social media: Evidence from firms' responses to Glassdoor reviews. Journal of Accounting Research 59, 1783-1825
Dure, E., 2021. Social media's influence on the investing community. JP Morgan Wealth Management. Available online: https://www. chase. com/personal/investments/learning-and-insights/article/social-medias-influence-on-the-investing-community (accessed on 25 July 2023)
El Diri, M., Lambrinoudakis, C., Alhadab, M., 2020. Corporate governance and earnings management in concentrated markets. Journal of Business Research 108, 291-306
Enikolopov, R., Petrova, M., Sonin, K., 2018. Social media and corruption. American Economic Journal: Applied Economics 10, 150-174
Fang, V.W., Huang, A.H., Karpoff, J.M., 2015. Short selling and earnings management: A controlled experiment. Journal of Finance 71, 1251-1294
Feroz, E.H., Park, K., Pastena, V.S., 1991. The financial and market effects of the SEC's accounting and auditing enforcement releases. Journal of Accounting Research 29, 107-142
Firth, M., Lin, C., Wong, S.M.-l., Zhao, X., 2019. Hello, is anybody there? Corporate accessibility for outside shareholders as a signal of agency problems. Review of Accounting Studies 24, 1317-1358
Floyd, E., List, J.A., 2016. Using field experiments in accounting and finance. Journal of Accounting Research 54, 437-475
Francis, J., Nanda, D., Olsson, P., 2008. Voluntary disclosure, earnings quality, and cost of capital. Journal of Accounting Research 46, 53-99
Franz, D.R., HassabElnaby, H.R., Lobo, G.J., 2014. Impact of proximity to debt covenant violation on earnings management. Review of Accounting Studies 19, 473-505
Gao, H., Zhang, H., Zhang, J., 2018. Employee turnover likelihood and earnings management: Evidence from the inevitable disclosure doctrine. Review of Accounting Studies 23, 1424-1470
Gassen, J., Muhn, M., 2025. Financial transparency of private firms: Evidence from a randomized field experiment. Journal of Accounting Research 63, 413-460
Gu, L., Huang, R., Mao, Y., Tian, X., 2022. How does human capital matter? Evidence from venture capital. Journal of Financial and Quantitative Analysis 57, 2063-2094
Healy, P.M., Wahlen, J.M., 1999. A review of the earnings management literature and its implications for standard setting. Accounting Horizons 13, 365-383
Heese, J., Pacelli, J., 2024. The monitoring role of social media. Review of Accounting Studies 29, 1666-1706
Hirschman, A.O., 1970. Exit, voice, and loyalty: Responses to decline in firms, organizations, and states. Harvard University Press.
Hirshleifer, D., Lim, S.S., Teoh, S.H., 2009. Driven to distraction: Extraneous events and underreaction to earnings news. The Journal of Finance 64, 2289-2325
Kakhbod, A., Loginova, U., Malenko, A., Malenko, N., 2023. Advising the management: A theory of shareholder engagement. The Review of Financial Studies 36, 1319-1363

Karolyi, G.A., Kim, D., Liao, R., 2020. The theory and practice of investor relations: A global perspective. Management Science 66, 4746-4771
Karpoff, J.M., Lee, D.S., Martin, G.S., 2009. The cost to firms of cooking the books. Journal of Financial and Quantitative Analysis 43, 581
Klein, A., 2002. Audit committee, board of director characteristics, and earnings management. Journal of Accounting and Economics 33, 375-400
Kothari, S.P., Leone, A.J., Wasley, C.E., 2005. Performance matched discretionary accrual measures. Journal of Accounting and Economics 39, 163-197
Krishnan, G.V., Sun, L., Wang, Q., Yang, R., 2013. Client risk management: A pecking order analysis of auditor response to upward earnings management risk. Auditing: A Journal of Practice & Theory 32, 147-169
Lee, C.M., Zhong, Q., 2022. Shall we talk? The role of interactive investor platforms in corporate communication. Journal of Accounting and Economics 74, 101524
Levit, D., 2019. Soft shareholder activism. The Review of Financial Studies 32, 2775-2808
McCahery, J.A., Sautner, Z., Starks, L.T., 2016. Behind the scenes: The corporate governance preferences of institutional investors. The Journal of Finance 71, 2905-2932
Na, K., 2020. CEOs' outside opportunities and relative performance evaluation: Evidence from a natural experiment. Journal of Financial Economics 137, 679-700
Noussair, C., 2022. Current and possible future research directions in experimental finance. Handbook of Experimental Finance, 12-16
Robertson, C.E., Pröllochs, N., Schwarzenegger, K., Pärnamets, P., Van Bavel, J.J., Feuerriegel, S., 2023. Negativity drives online news consumption. Nature Human Behaviour 7, 812-822
Roychowdhury, S., 2006. Earnings management through real activities manipulation. Journal of Accounting and Economics 42, 335-370
Schelleman, C., Knechel, W.R., 2010. Short-term accruals and the pricing and production of audit services. Auditing: A Journal of Practice & Theory 29, 221-250
Shleifer, A., Vishny, R.W., 1986. Large shareholders and corporate control. Journal of Political Economy 94, 461-488
Shleifer, A., Vishny, R.W., 1997. A survey of corporate governance. The Journal of Finance 52, 737-783
Soltes, E., 2020. Paper versus practice: A field investigation of integrity hotlines. Journal of Accounting Research 58, 429-472
Terry, S.J., Whited, T.M., Zakolyukina, A.A., 2023. Information versus investment. The Review of Financial Studies 36, 1148-1191
Wang, X., Xie, J., Zhang, B., Zhao, X., 2025. Investor communication and payout policy: A field experiment. Review of Finance, forthcoming
Wong, T., Yu, G., Zhang, S., Zhang, T., 2024. Calling for transparency: Evidence from a field experiment. Journal of Accounting and Economics 77, 101604
Zang, A.Y., 2012. Evidence on the trade-off between real activities manipulation and accrual-based earnings management. The Accounting Review 87, 675-703
Zmijewski, M.E., 1984. Methodological issues related to the estimation of financial distress prediction models. Journal of Accounting Research 22, 59-82

Figure 1. Experiment timeline and layout

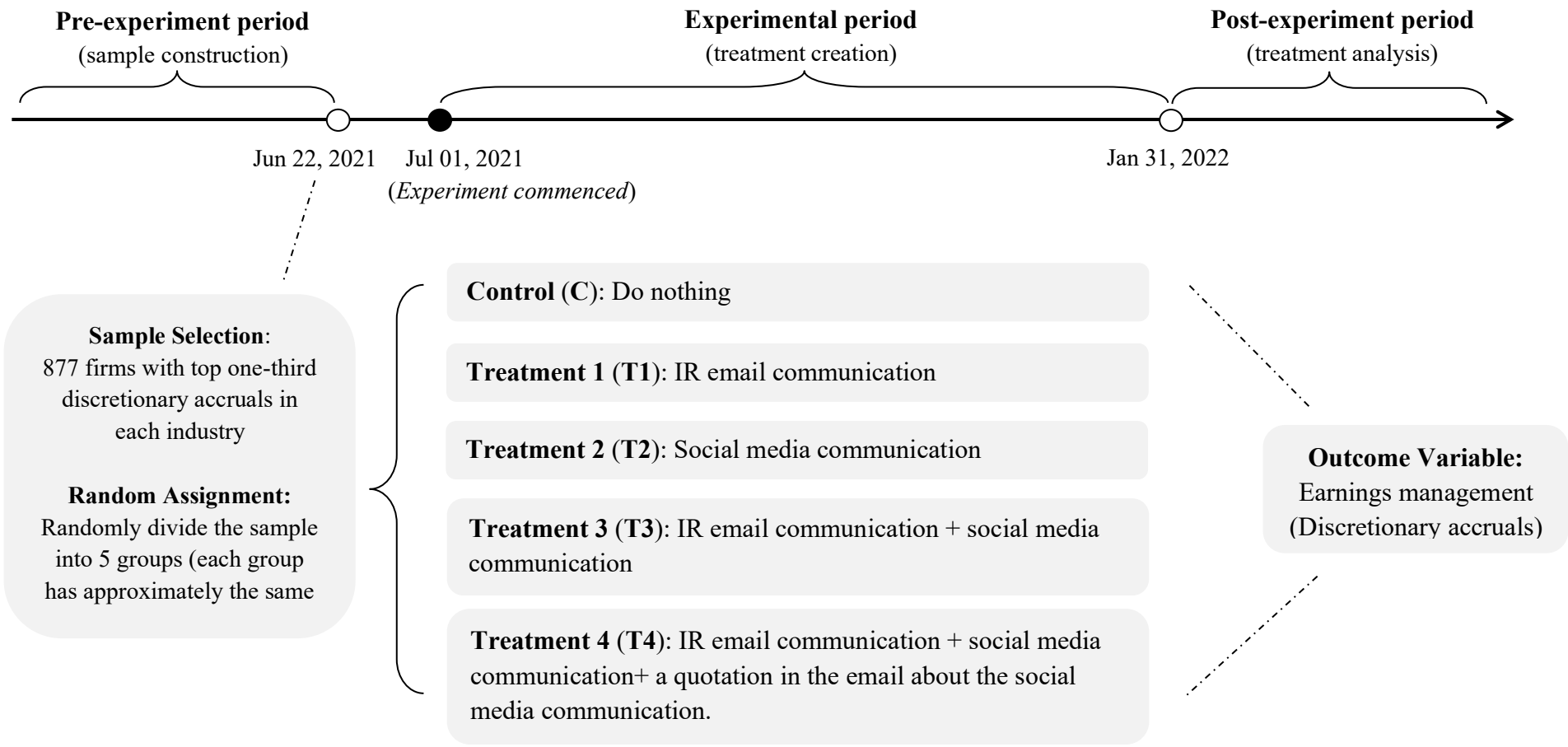


Figure 2. The distribution of earnings management before and after the experiment commenced

The figure plots the kernel density of abnormal earnings management in each group. The x-axis represents the level of abnormal earnings management, which is the residual from the model that regresses quarterly *EM* on firm characteristics (i.e., *Size*, *Leverage*, *B/M*, and *ROA*), firm fixed effects, and year-quarter fixed effects. The detailed definitions of variables are provided in Internet Appendix 3. The y-axis represents the kernel density that shows the relative frequency of abnormal earnings management. The dotted line represents the density before the experiment commenced. The solid line represents the density after the experiment commenced.

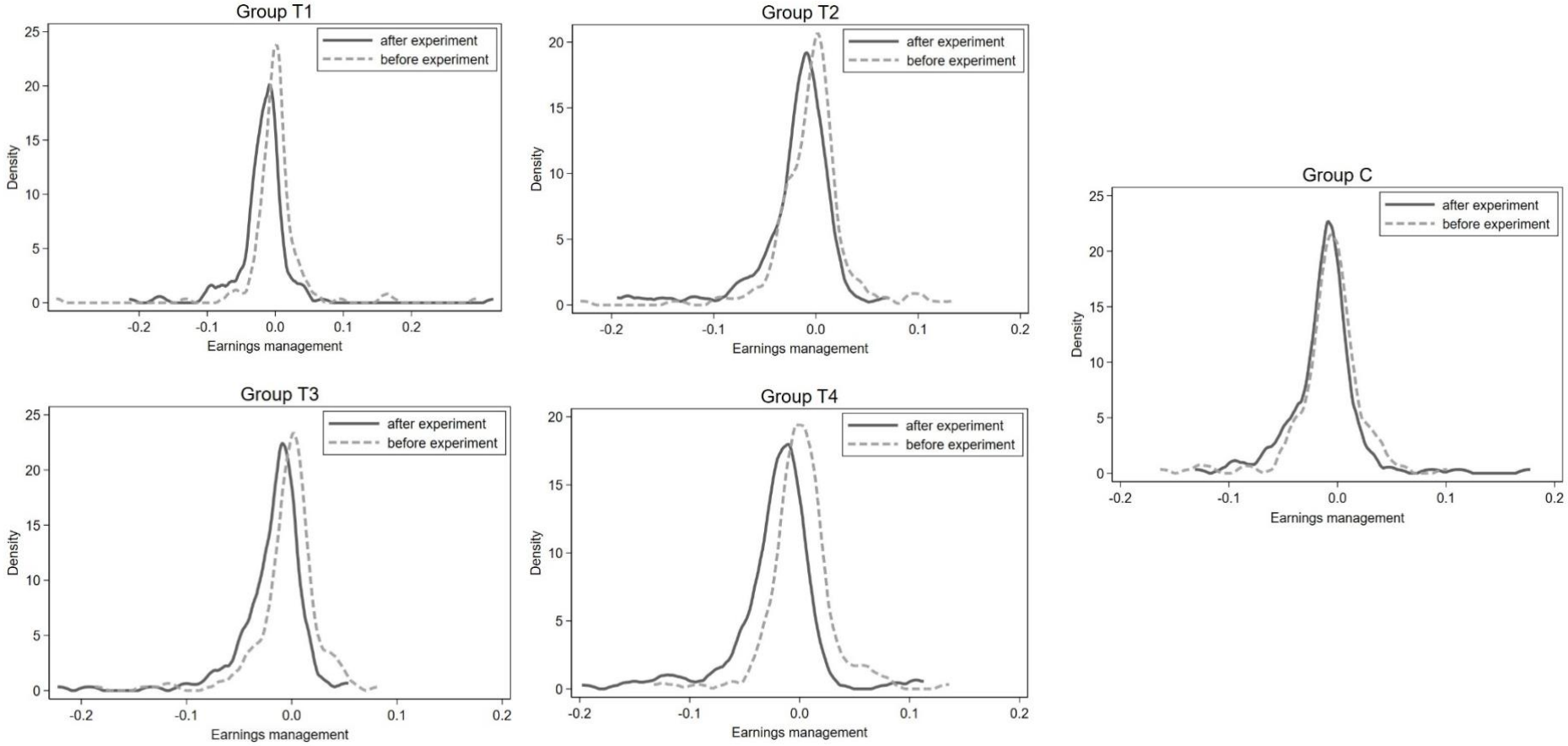


Figure 3. The distribution of earnings management before and after experiment commenced for firms with effective communication

Notes: The figure plots the kernel density of abnormal earnings management for firms with effective communication (i.e., the number of email reply for firms in groups T1, T3, and T4 is nonzero and the total number of reads is above median or the number of likes, comments, or shares for firms in groups T2 and T4 are nonzero). The x-axis represents the level of abnormal earnings management, which is the residual from the model that regresses quarterly *EM* on firm characteristics (i.e., *Size*, *Leverage*, *B/M*, and *ROA*), firm fixed effects, and year-quarter fixed effects. The detailed definitions of variables are provided in Internet Appendix 3. The y-axis represents the kernel density that shows the relative frequency of abnormal earnings management. The dotted line represents the density before the experiment commenced. The solid line represents the density after the experiment commenced.

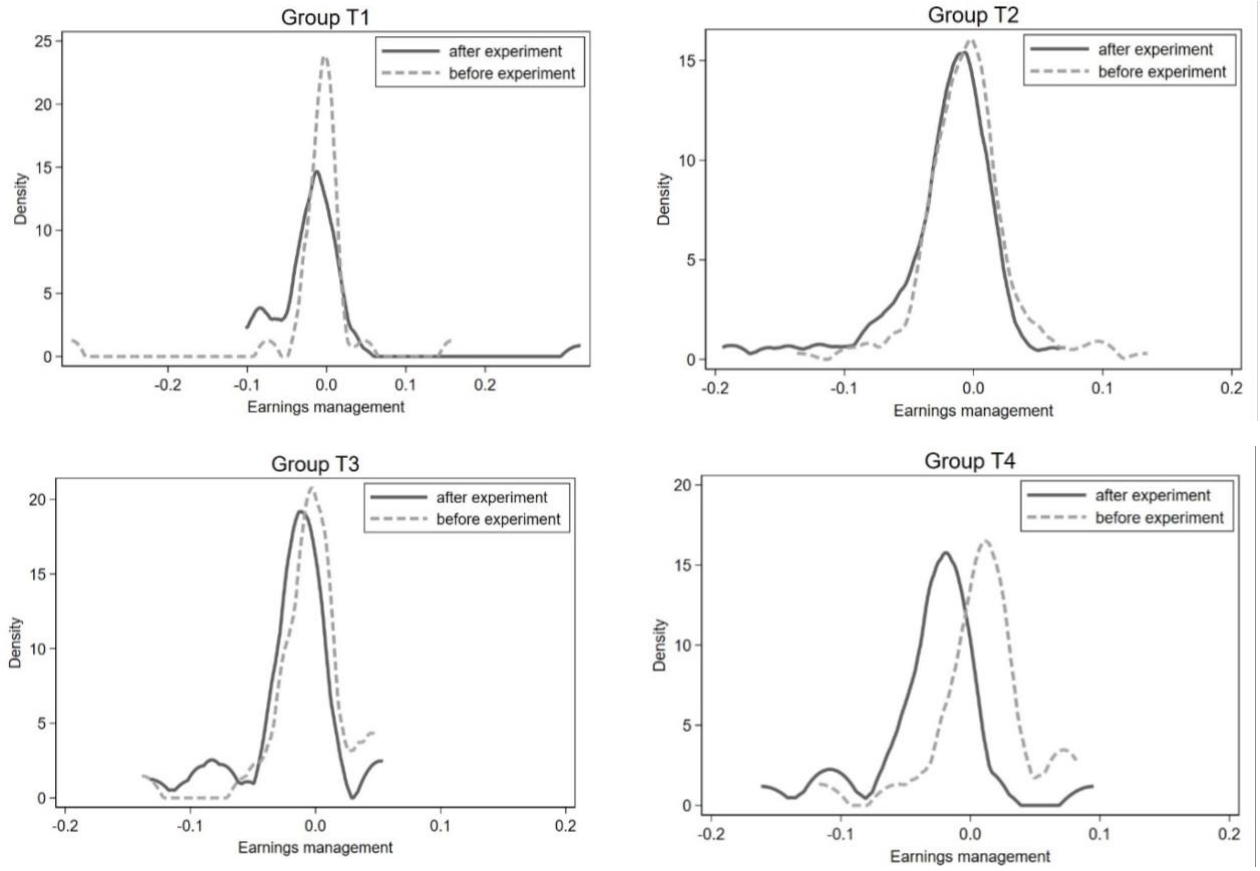


Table 1. Sample construction, balance checks, and engagement metrics

This table summarizes the sample construction process, baseline balance across experimental groups, and response volume from investor communication activities. Panel A outlines the sequential filtering steps used to construct the final experimental sample, starting from all publicly listed U.S. firms as of June 22, 2021. Panel B compares pre-treatment earnings management (*EM*) and firm characteristics between each treatment group and the control group to verify randomization validity. Firm characteristics include firm size (*Size*, the logarithm of total assets), financial leverage (*Leverage*, long-term debt divided by total assets), valuation (*B/M*, book value of assets divided by market value of equity), and operating performance (*ROA*, net income divided by total assets), all averaged over the four quarters preceding the experiment. Panel C reports IR email engagement, including the number of replies, average reply time, and word count, both in total and per firm. Panel D presents the corresponding engagement metrics from social media posts, including the number of readings, likes, reshares, and comments, aggregated and normalized per firm.

Panel A: Sample constructure

Step	Process	No. of firms
1	The initial number of firms listed in US stock markets as of Jun 22, 2021	7,825
2	Excluding firms that are delisted or suspended for listing as of Jun 22, 2021	-221
3	Excluding firms listed after year 2020	-307
4	Excluding firms with the latest fiscal quarter ending before 2020Q4	-169
5	Excluding firms in financial industries (SIC 6000–6999) and public industries (4900–4949)	-3,730
6	Excluding firms with missing financial information to calculate earnings management four quarters before June 22, 2021	-453
7	Excluding industries (Fama-French 48) with observations less than 30	-191
8	Excluding firms with no or invalid IR email contact information	-99
9	The initial sample	2,655
10	**Sample for the experiment:** **firms with top one-third average value of *EM* for the most recent four quarters as of June 22, 2021 in its industry** #. of firms in C, T1, T2, T3, and T4 sample are 176, 176, 175, 175, and 175, respectively (sum=877)	**877**
11	Excluding firms that are delisted or suspended for listing during the experiment period	-19
12	Excluding firms with missing financial information to calculate earnings management four quarters following June 22, 2021	-2
13	**Final sample for the analysis** #. of firms in C, T1, T2, T3, and T4 sample are 169, 172, 174, 169, and 172, respectively (sum=856)	**856**

Panel B: Comparison of ex-ante firm characteristics between groups

Panel B.1: T1 (#=172) vs. C (#=169)

	(1)	(2)	(3)	(4)
	T1	C	T1 - C	
Variable	Mean	Mean	Difference	P-value
EM	0.073	0.068	0.005	0.478
Size	5.742	5.656	0.086	0.711
Leverage	0.216	0.231	-0.015	0.548
B/M	1.850	2.093	-0.243	0.703
ROA	-0.059	-0.063	0.004	0.792

Panel B.2: T2 (#=174) vs. C (#=169)

	(1)	(2)	(3)	(4)
	T2	C	T2 - C	
Variable	Mean	Mean	Difference	P-value
EM	0.077	0.068	0.009	0.195
Size	5.699	5.656	0.043	0.858
Leverage	0.231	0.231	-0.001	0.978
B/M	1.909	2.093	-0.184	0.807
ROA	-0.075	-0.063	-0.012	0.421

Panel B.3: T3 (#=169) vs. C (#=169)

	(1)	(2)	(3)	(4)
	T3	C	T3 - C	
Variable	Mean	Mean	Difference	P-value
EM	0.074	0.068	0.006	0.379
Size	5.589	5.656	-0.067	0.772
Leverage	0.256	0.231	0.025	0.416
B/M	3.024	2.093	0.931	0.351
ROA	-0.058	-0.063	0.005	0.751

Panel B.4: T4 (#=172) vs. C (#=169)

	(1)	(2)	(3)	(4)
	T4	C	T4 - C	
Variable	Mean	Mean	Difference	P-value
EM	0.075	0.068	0.007	0.273
Size	5.662	5.656	0.006	0.980
Leverage	0.223	0.231	-0.008	0.744
B/M	1.682	2.093	-0.411	0.506
ROA	-0.061	-0.063	0.002	0.897

Panel C: Response volume - IR emails

C1: Total volume of all firms

Group	(1) Number of replies	(2) Reply time (day)	(3) Reply length (word)
T1	96	90	54, 073
T3	49	55	17, 407
T4	45	53	29, 813
Total	190	198	101, 293

C2: Volume per firm

Group	(1) Number of replies	(2) Reply time (day)	(3) Reply length (word)
T1	0.56	0.94	563.26
T3	0.29	1.12	344.24
T4	0.26	1.18	662.51
Average	0.37	1.08	523.34

Panel D: Response volume - Social media posts

D1: Total volume of all firms

Group	(1) Number of readings	(2) Number of likes	(3) Number of retweets or reshares	(4) Number of comments or replies
T2	123, 299	98	114	66
T3	89, 346	71	86	40
T4	79, 199	74	167	47
Total	291, 844	243	367	153

D2: Volume per firm

Group	(1) Number of readings	(2) Number of likes	(3) Number of retweets or reshares	(4) Number of comments and replies
T2	704.57	0.56	0.65	0.38
T3	528.67	0.42	0.51	0.24
T4	460.46	0.43	0.97	0.27
Average	564.57	0.47	0.71	0.30

Table 2. Summary statistics

This table presents the summary statistics for the variables used in the regression analyses. The variables are grouped into experiment-related variables, dependent variables and control variables, and other firm characteristics. For each variable, the table reports the number of observations (N), mean, standard deviation (SD), 25th percentile (P25), median, and 75th percentile (P75). Detailed variable definitions and data sources are provided in Internet Appendix 3.

Variables	N	Mean	SD	P25	Median	P75
Experiment-related variables:						
T1C	2,654	0.50	0.50	0.00	1.00	1.00
T2C	2,669	0.51	0.50	0.00	1.00	1.00
T3C	2,646	0.50	0.50	0.00	1.00	1.00
T4C	2,669	0.51	0.50	0.00	1.00	1.00
T1	6,681	0.20	0.40	0.00	0.00	0.00
T2	6,681	0.20	0.40	0.00	0.00	0.00
T3	6,681	0.20	0.40	0.00	0.00	0.00
T4	6,681	0.20	0.40	0.00	0.00	0.00
Post	6,681	0.49	0.50	0.00	0.00	1.00
Dependent and control variables:						
EM	6,681	0.06	0.09	0.02	0.04	0.07
EMRank	6,681	5.50	2.87	3.00	6.00	8.00
B/M	6,681	1.58	5.04	0.35	0.75	1.50
Leverage	6,681	0.23	0.27	0.03	0.14	0.34
ROA	6,681	-0.05	0.15	-0.08	-0.01	0.02
Size	6,681	5.77	2.19	4.07	5.50	7.39
Other variables:						
IRO	6,681	0.67	0.47	0.00	1.00	1.00
Big4	6,681	0.56	0.50	0.00	1.00	1.00
Auditfee	6,681	0.49	0.50	0.00	0.00	1.00
Analyst	6,681	0.47	0.50	0.00	0.00	1.00
IndDir	6,681	0.44	0.50	0.00	0.00	1.00
Distress	6,681	0.24	0.43	0.00	0.00	0.00
Outside	3,813	0.82	0.39	1.00	1.00	1.00
IDD	6,681	0.36	0.48	0.00	0.00	1.00
CAR	6,396	-0.01	0.13	-0.07	0.00	0.06
UE	6,396	4.50	2.85	2.00	4.00	7.00
SG&A	5,321	2.59	30.8	0.14	0.30	0.62
Capex	6,547	0.02	0.04	0.00	0.01	0.02

Table 3. Baseline results

The table reports the treatment estimates of IR email and social media communications. The dependent variable, *EMRank*, is the decile rank of *EM*. *T1C*, *T2C*, *T3C*, and *T4C*, are treatment indicators, which equals 1 if a firm is assigned into the treatment group T1, T2, T3, and T4, respectively, and 0 if it is assigned into the control group C. *T1*, *T2*, *T3*, and *T4* are treatment indicators, which equals 1 if a firm is assigned into the treatment groups T1, T2, T3, and T4, respectively, and 0 otherwise. *Post* equals 1 if the quarterly earnings are announced after June 30, 2021, and 0 otherwise. Panel A presents the results in full sample. Panel B presents subsample analyses based on the presence of a dedicated investor relations officer (*IRO*), defined as a non-CEO/CFO executive with an IR-related title identified from 2020 earnings call transcripts. Control variables include *Size*, *Leverage*, *B/M*, and *ROA*. The detailed definitions of variables are provided in Internet Appendix 3. Firm and time (year-quarter) fixed effects are included. The Poisson regression estimator is used. The *z*-statistics are shown in brackets. The significance levels at 1%, 5%, and 10% are indicated by ***, **, and *, respectively.

Panel A: Baseline regression

	(1)	(2)	(3)	(4)	(5)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Treatment variable	*Treat=T1C*	*Treat=T2C*	*Treat=T3C*	*Treat=T4C*	
Treat × Post	**-0.064***	-0.027	**-0.060***	**-0.103*****	
	(-1.81)	(-0.78)	**(-1.75)**	**(-2.93)**	
T1 × Post					**-0.063***
					(-1.80)
T2 × Post					-0.028
					(-0.81)
T3 × Post					**-0.059***
					(-1.70)
T4 × Post					**-0.102*****
					(-2.89)
Size	-0.003	0.033	0.033	-0.020	-0.010
	(-0.09)	(0.96)	(0.95)	(-0.60)	(-0.52)
Leverage	0.086*	0.126***	0.146**	0.036	0.133***
	(1.71)	(3.45)	(2.31)	(0.59)	(4.65)
B/M	-0.003	-0.004	-0.001	0.000	-0.002
	(-0.83)	(-1.34)	(-0.52)	(0.07)	(-1.34)
ROA	-0.095	-0.006	-0.058	-0.119	0.030
	(-1.37)	(-0.07)	(-0.70)	(-1.64)	(0.56)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,654	2,669	2,646	2,669	6,681
Pseudo R-squared	0.080	0.076	0.081	0.080	0.080

Panel B: The impact of dedicated IR function

	(1)	(2)	(3)	(4)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Subsample=	*IRO*=1	*IRO*=0	*IRO*=1	*IRO*=0
T4C × *Post*	**-0.126*** **	-0.047		
	(-2.88)	(-0.77)		
T1 × *Post*			-0.070	-0.044
			(-1.60)	(-0.76)
T2 × *Post*			-0.010	-0.054
			(-0.23)	(-0.95)
T3 × *Post*			**-0.093** **	0.003
			(-2.16)	(0.05)
T4 × *Post*			**-0.123*** **	-0.050
			(-2.84)	(-0.82)
Control	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	1,799	870	4,449	2,232
Pseudo R-squared	0.078	0.084	0.079	0.080

Table 4. The dynamic treatment effects

The table reports the dynamic treatment estimates of IR email and social media communications. The dependent variable, *EMRank*, is the decile rank of *EM*. *T1C*, *T2C*, *T3C*, and *T4C*, are treatment indicators, which equals 1 if a firm is assigned into the treatment group T1, T2, T3, and T4, respectively, and 0 if it is assigned into the control group C. *Post-n* (*Postn*) equals 1 for the *n*th quarterly earnings announced before (after) June 30, 2021, and 0 otherwise. *Post3+* indicates the third and beyond quarters after the experiment commenced. Control variables include *Size*, *Leverage*, *B/M*, and *ROA*. The detailed definitions of variables are provided in Internet Appendix 3. Firm and time (year-quarter) fixed effects are included. The Poisson regression estimator is used. The *z*-statistics are shown in brackets. The significance levels at 1%, 5%, and 10% are indicated by ***, **, and *, respectively.

	(1)	(2)	(3)	(4)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Treatment variable	*Treat=T1C*	*Treat=T2C*	*Treat=T3C*	*Treat=T4C*
Treat × Post-3	-0.009	0.096	0.009	-0.002
	(-0.13)	(1.40)	(0.14)	(-0.03)
Treat × Post-2	-0.067	-0.059	-0.101	-0.010
	(-1.03)	(-0.87)	(-1.55)	(-0.16)
Treat × Post-1	-0.105	0.025	-0.046	-0.042
	(-1.59)	(0.38)	(-0.72)	(-0.66)
Treat × Post1	-0.065	0.051	-0.053	-0.046
	(-0.98)	(0.75)	(-0.80)	(-0.68)
Treat × Post2	**-0.207*** **	-0.075	**-0.140** **	**-0.156** **
	(-3.00)	(-1.07)	**(-2.05)**	**(-2.26)**
Treat × Post3+	-0.080	-0.013	-0.093	**-0.134** **
	(-1.35)	(-0.22)	(-1.59)	**(-2.24)**
Control	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	2,654	2,669	2,646	2,669
Pseudo R-squared	0.081	0.076	0.081	0.080

Table 5. Robustness

The table reports the treatment estimates of IR email and social media communications based on alternative model specifications: (1) Estimating the baseline regressions without including control variables (Panel A), (2) Estimating the baseline regressions by dropping the first quarter of the experiment period (Panel B), and (3) using a linear regression model instead of the Poisson model in the baseline regressions (Panel C). The dependent variable, *EMRank*, is the decile rank of *EM*. *T1C*, *T2C*, *T3C*, and *T4C*, are treatment indicators, which equals 1 if a firm is assigned into the treatment group T1, T2, T3, and T4, respectively, and 0 if it is assigned into the control group C. *T1*, *T2*, *T3*, and *T4* are treatment indicators, which equals 1 if a firm is assigned into the treatment groups T1, T2, T3, and T4, respectively, and 0 otherwise. *Post* equals 1 if the quarterly earnings are announced after June 30, 2021, and 0 otherwise. Control variables include *Size*, *Leverage*, *B/M*, and *ROA*. The detailed definitions of variables are provided in Internet Appendix 3. Firm and time (year-quarter) fixed effects are included. The *z*-statistics are shown in brackets. The significance levels at 1%, 5%, and 10% are indicated by ***, **, and *, respectively.

Panel A: Exclude control variables

	(1)	(2)	(3)	(4)	(5)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Treatment variable	*Treat=T1C*	*Treat=T2C*	*Treat=T3C*	*Treat=T4C*	
Treat × Post	**-0.062***	-0.027	**-0.059***	**-0.103****	
	(-1.76)	(-0.77)	**(-1.71)**	**(-2.92)**	
T1 × Post					**-0.062***
					(-1.76)
T2 × Post					-0.027
					(-0.77)
T3 × Post					**-0.059***
					(-1.71)
T4 × Post					**-0.103****
					(-2.92)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,654	2,669	2,646	2,669	6,681
Pseudo R-squared	0.080	0.076	0.081	0.079	0.080

Panel B: Drop the first quarter of the experiment period

	(1)	(2)	(3)	(4)	(5)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Treatment variable	*Treat=T1C*	*Treat=T2C*	*Treat=T3C*	*Treat=T4C*	
Treat × Post	**-0.090****	-0.025	**-0.068***	**-0.112****	
	(-2.41)	(-0.68)	**(-1.84)**	**(-2.99)**	
T1 × Post					**-0.090****
					(-2.41)
T2 × Post					-0.025
					(-0.68)
T3 × Post					**-0.065***
					(-1.78)
T4 × Post					**-0.111****
					(-2.97)
Controls	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,313	2,329	2,308	2,328	5,828
Pseudo R-squared	0.088	0.080	0.088	0.085	0.085

Panel C: Linear regression model

	(1)	(2)	(3)	(4)	(5)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Treatment variable	*Treat=T1C*	*Treat=T2C*	*Treat=T3C*	*Treat=T4C*	
Treat × Post	**-0.349***	-0.165	**-0.358***	**-0.558*****	
	(-1.71)	(-0.80)	**(-1.76)**	**(-2.74)**	
T1 × Post					**-0.346***
					(-1.68)
T2 × Post					-0.170
					(-0.83)
T3 × Post					**-0.348***
					(-1.69)
T4 × Post					**-0.549*****
					(-2.67)
Controls	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,654	2,669	2,646	2,669	6,681
R-squared	0.276	0.262	0.279	0.272	0.271

Table 6. Heterogeneity tests: Earnings management intensity

This table presents the heterogeneity analysis of the treatment effects based on ex-ante earnings management intensity. The dependent variable, *EMRank*, is the decile rank of *EM*. *T4C* equals 1 if a firm is assigned into the treatment group T4 and 0 if it is assigned into the control group C. *T1*, *T2*, *T3*, and *T4* are treatment indicators, which equals 1 if a firm is assigned into the treatment groups T1, T2, T3, and T4, respectively, and 0 otherwise. *Post* equals 1 if the quarterly earnings are announced after June 30, 2021, and 0 otherwise. The sample is divided into two parts based on the measures of the ex-ante probability of earnings management *Big4* and *Auditfee*. *Big4* equals 1 if a firm hires a Big 4 auditor (i.e., Ernst & Young, Deloitte & Touche, KPMG, or PricewaterhouseCoopers) in 2020, and 0 otherwise. *Auditfee* equals 1 if the audit fees scaled by total assets for a firm in 2020 is greater than its industry median. Control variables include *Size*, *Leverage*, *B/M*, and *ROA*. The detailed definitions of variables are provided in Internet Appendix 3. Firm and time (year-quarter) fixed effects are included. The Poisson regression estimator is used. The *z*-statistics are shown in brackets. The significance levels at 1%, 5%, and 10% are indicated by ***, **, and *, respectively.

Panel A: Big 4 auditors

	(1)	(2)	(3)	(4)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Subsample=	*Big4*=1	*Big4*=0	*Big4*=1	*Big4*=0
T4C × *Post*	-0.047	**-0.168*** **		
	(-0.96)	**(-3.32)**		
T1 × *Post*			-0.060	-0.065
			(-1.23)	(-1.28)
T2 × *Post*			-0.030	-0.022
			(-0.61)	(-0.44)
T3 × *Post*			-0.057	-0.058
			(-1.20)	(-1.17)
T4 × *Post*			-0.043	**-0.168*** **
			(-0.87)	**(-3.31)**
Control	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	1,444	1,225	3,747	2,934
Pseudo R-squared	0.080	0.079	0.075	0.082

Panel B: Audit fee

	(1)	(2)	(3)	(4)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Subsample=	*Auditfee*=1	*Auditfee*=0	*Auditfee*=1	*Auditfee*=0
T4C × *Post*	**-0.130****	**-0.081***		
	(-2.38)	**(-1.77)**		
T1 × *Post*			-0.060	-0.066
			(-1.14)	(-1.40)
T2 × *Post*			-0.040	-0.022
			(-0.73)	(-0.49)
T3 × *Post*			**-0.090***	-0.031
			(-1.69)	(-0.68)
T4 × *Post*			**-0.128****	**-0.080***
			(-2.34)	**(-1.75)**
Control	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	1,225	1,444	3,249	3,432
Pseudo R-squared	0.079	0.0792	0.076	0.081

Table 7. Heterogeneity tests: Governance strength

This table presents the heterogeneity analysis of the treatment effects based on corporate governance. The dependent variable, *EMRank*, is the decile rank of *EM*. *T4C* equals 1 if a firm is assigned into the treatment group T4 and 0 if it is assigned into the control group C. *T1*, *T2*, *T3*, and *T4* are treatment indicators, which equals 1 if a firm is assigned into the treatment groups T1, T2, T3, and T4, respectively, and 0 otherwise. *Post* equals 1 if the quarterly earnings are announced after June 30, 2021, and 0 otherwise. The sample is divided into two parts based on the measures of corporate governance *IndDir* and *Analyst*. *IndDir* equals 1 if the percentage of independent directors for a firm in 2020 is greater than the median in its industry, and 0 otherwise. *Analyst* equals 1 if the number of analysts for a firm in 2020 is greater than the median in its industry, and 0 otherwise. Control variables include *Size*, *Leverage*, *B/M*, and *ROA*. The detailed definitions of variables are provided in Internet Appendix 3. Firm and time (year-quarter) fixed effects are included. The Poisson regression estimator is used. The *z*-statistics are shown in brackets. The significance levels at 1%, 5%, and 10% are indicated by ***, **, and *, respectively.

Panel A: Independent directors

	(1)	(2)	(3)	(4)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Subsample=	*IndDir*=1	*IndDir*=0	*IndDir*=1	*IndDir*=0
T4C × *Post*	-0.018	**-0.164*** **		
	(-0.32)	**(-3.51)**		
T1 × *Post*			-0.058	-0.061
			(-1.08)	(-1.31)
T2 × *Post*			-0.030	-0.024
			(-0.54)	(-0.53)
T3 × *Post*			-0.070	-0.051
			(-1.26)	(-1.14)
T4 × *Post*			-0.014	**-0.163*** **
			(-0.26)	**(-3.51)**
Control	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	1,126	1,543	2,939	3,742
Pseudo R-squared	0.079	0.083	0.078	0.084

Panel B: Analyst coverage

	(1)	(2)	(3)	(4)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Subsample=	*Analyst=1*	*Analyst=0*	*Analyst=1*	*Analyst=0*
T4C × *Post*	**-0.102***	**-0.119*** **		
	(-1.83)	**(-2.59)**		
T1 × *Post*			-0.043	**-0.078***
			(-0.76)	**(-1.76)**
T2 × *Post*			-0.059	-0.003
			(-1.05)	(-0.06)
T3 × *Post*			-0.038	**-0.074***
			(-0.69)	**(-1.66)**
T4 × *Post*			-0.087	**-0.118** **
			(-1.55)	**(-2.57)**
Control	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	1,212	1,457	3,119	3,562
Pseudo R-squared	0.076	0.081	0.077	0.080

Table 8. Heterogeneity tests: Incentives of earnings management

This table presents the heterogeneity analysis of the treatment effects based on firm financial conditions and CEO career concerns. The dependent variable, *EMRank*, is the decile rank of *EM*. *T4C* equals 1 if a firm is assigned into the treatment group T4 and 0 if it is assigned into the control group C. *T1*, *T2*, *T3*, and *T4* are treatment indicators, which equals 1 if a firm is assigned into the treatment groups T1, T2, T3, and T4, respectively, and 0 otherwise. *Post* equals 1 if the quarterly earnings are announced after June 30, 2021, and 0 otherwise. The sample is divided into two parts based on the measures of financial conditions, *Distress*, and CEO career concerns, *Outside* and *IDD*. *Distress* equals 1 if the X-score (Zmijewski, 1984) of a firm is greater than 0, and 0 otherwise. *Outside* equals 1 if the CEO of a firm was hired from outside rather than being promoted from the firm inside, and 0 otherwise. *IDD* equals 1 if the headquarters of a firm is in the state where the Inevitable Disclosure Doctrine (IDD) is in effect, and 0 otherwise. Control variables include *Size*, *Leverage*, *B/M*, and *ROA*. The detailed definitions of variables are provided in Internet Appendix 3. Firm and time (year-quarter) fixed effects are included. The Poisson regression estimator is used. The *z*-statistics are shown in brackets. The significance levels at 1%, 5%, and 10% are indicated by ***, **, and *, respectively.

Panel A: Distress risk

	(1)	(2)	(3)	(4)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Subsample=	*Distress* =1	*Distress* =0	*Distress* =1	*Distress* =0
T4C × *Post*	**-0.045*** **	-0.010		
	(-2.84)	(-1.62)		
T1 × *Post*			-0.012	-0.008
			(-0.72)	(-1.26)
T2 × *Post*			-0.021	-0.008
			(-1.26)	(-1.12)
T3 × *Post*			-0.016	-0.008
			(-0.98)	(-1.18)
T4 × *Post*			**-0.034** **	-0.010
			(-2.10)	(-1.51)
Control	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	621	2,048	1,618	5,063
Pseudo R-squared	0.390	0.255	0.306	0.277

Panel B: Outside CEO

	(1)	(2)	(3)	(4)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Subsample=	*Outside*=1	*Outside*=0	*Outside*=1	*Outside*=0
Treat × *Post*	**-0.107****	-0.124		
	(-2.14)	(-0.97)		
T1 × *Post*			**-0.098***	-0.092
			(-1.90)	(-0.82)
T2 × *Post*			-0.062	0.131
			(-1.15)	(1.02)
T3 × *Post*			**-0.098***	0.020
			(-1.95)	(0.16)
T4 × *Post*			**-0.104****	-0.186
			(-2.07)	(-1.46)
Control	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	1,316	243	3,119	694
Pseudo R-squared	0.080	0.123	0.084	0.097

Panel C: IDD

	(1)	(2)	(3)	(4)
Dependent variable	*EMRank*	*EMRank*	*EMRank*	*EMRank*
Subsample=	*IDD*=1	*IDD*=0	*IDD*=1	*IDD*=0
T4C × *Post*	-0.053	**-0.119*****		
	(-0.81)	**(-2.77)**		
T1 × *Post*			0.014	**-0.101****
			(0.23)	**(-2.32)**
T2 × *Post*			-0.017	-0.031
			(-0.24)	(-0.76)
T3 × *Post*			-0.002	**-0.081***
			(-0.03)	**(-1.94)**
T4 × *Post*			-0.050	**-0.121*****
			(-0.77)	**(-2.82)**
Control	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	907	1,762	2,434	4,247
Pseudo R-squared	0.077	0.082	0.081	0.080

Table 9. The informativeness of reported earnings

This table reports the regression results examining the impact of unexpected earnings on cumulative abnormal returns (CAR) across different experimental groups. The dependent variable, *CAR,* is cumulative market-adjusted return of a firm computed from day -1 to day 2 relative to the firm's quarterly earnings announcement date (day 0). The independent variable is *UE*, which is the decile rank of unexpected earnings (consensus estimates of earnings per share [EPS] by financial analysts minus actual EPS, scaled by the firm's stock price at the end of the fiscal quarter). *Post* equals 1 if the quarterly earnings are announced after June 30, 2021, and 0 otherwise. The samples used in columns (1)-(5) are groups C, T1, T2, T3, and T4, respectively. Control variables include *Size*, *Leverage*, *B/M*, and *ROA*. The detailed definitions of variables are provided in Internet Appendix 3. Firm and time (year-quarter) fixed effects are included. The *z*-statistics are shown in brackets. The significance levels at 1%, 5%, and 10% are indicated by ***, **, and *, respectively.

	(1)	(2)	(3)	(4)	(5)
Dependent variable	*CAR*	*CAR*	*CAR*	*CAR*	*CAR*
Sample	*C*	*T1*	*T2*	*T3*	*T4*
UE × *Post*	-0.001	0.001	-0.002	-0.001	**0.005***
	(-0.38)	(0.52)	(-0.77)	(-0.59)	**(1.96)**
UE	0.006***	0.003*	0.007***	0.005***	0.003*
	(3.32)	(1.65)	(3.73)	(2.97)	(1.92)
Controls	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	1,247	1,306	1,265	1,279	1,299
R-squared	0.211	0.180	0.186	0.218	0.156

Table 10. Other firm activities

The table reports the regression results examining the effects of IR email and social media communications on firms' selling and investment activities. Selling activities are measured by selling, general, and administrative expenses divided by total sales (*SG&A*). Investment activities are measured by capital expenditures divided by total assets (*Capex*). *T1C*, *T2C*, *T3C*, and *T4C*, are treatment indicators, which equals 1 if a firm is assigned into the treatment group T1, T2, T3, and T4, respectively, and 0 if it is assigned into the control group C. *T1*, *T2*, *T3*, and *T4* are treatment indicators, which equals1 if a firm is assigned into the treatment groups T1, T2, T3, and T4, respectively, and 0 otherwise. *Post* equals 1 if the quarterly earnings are announced after June 30, 2021, and 0 otherwise. Control variables include *Size*, *Leverage*, *B/M*, and *ROA*. The detailed definitions of variables are provided in Internet Appendix 3. Firm and time (year-quarter) fixed effects are included. The *z*-statistics are shown in brackets. The significance levels at 1%, 5%, and 10% are indicated by ***, **, and *, respectively.

Panel A: Sales expenditures

	(1)	(2)	(3)	(4)	(5)
Dependent variable	*SG&A*	*SG&A*	*SG&A*	*SG&A*	*SG&A*
Treatment variable	*Treat=T1C*	*Treat=T2C*	*Treat=T3C*	*Treat=T4C*	
T4C × Post	-0.131	2.175	3.018	-0.374	
	(-0.08)	(0.79)	(1.27)	(-0.23)	
T1 × Post					-0.198
					(-0.10)
T2 × Post					2.181
					(1.04)
T3 × Post					2.971
					(1.45)
T4 × Post					-0.382
					(-0.18)
Control	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,148	2,103	2,201	2,172	5,321
R-squared	0.428	0.420	0.524	0.430	0.484

Panel B: Capital expenditures

	(1)	(2)	(3)	(4)	(5)
Dependent variable	*Capex*	*Capex*	*Capex*	*Capex*	*Capex*
Treatment variable	*Treat=T1C*	*Treat=T2C*	*Treat=T3C*	*Treat=T4C*	
T4C × Post	-0.002	0.001	-0.000	0.001	
	(-0.99)	(0.63)	(-0.02)	(0.75)	
T1 × Post					-0.002
					(-0.92)
T2 × Post					0.001
					(0.51)
T3 × Post					0.000
					(0.07)
T4 × Post					0.001
					(0.78)
Control	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,575	2,596	2,582	2,607	6,547
R-squared	0.678	0.661	0.673	0.677	0.680

Internet Appendix

The Governance Role of Investor Communications? Evidence From a Field Experiment

Internet Appendix 1. Examples of initial IR emails and social media posts

Internet Appendix 2. Examples of IR emails and social media posts

Internet Appendix 3. Variable definitions

Internet Appendix 1. Examples of initial IR emails and social media posts

Panel A: IR email (applied to group T1, T3)

[Company name]
Dear Investor Relations Officer,

We are writing this email to express our concerns about the quality of your earnings reports. Recent quarterly reports indicate that ABC's average discretionary accruals (i.e., accruals adjusted for the company's performance, size, and other firm characteristics) exceed those of 90% of other firms within the same industry. This substantial deviation could potentially suggest earnings manipulation. Would you be able to shed some light on this issue for us, please? Thank you.

Best,
Eric

Panel B: IR email (applied to group T4)

[Company name]
Dear Investor Relations Officer,

We are writing this email to express our concerns about the quality of your earnings reports. Recent quarterly reports indicate that ABC's average discretionary accruals (i.e., accruals adjusted for the company's performance, size, and other firm characteristics) exceed those of ***90%*** *of other firms within the same industry. This substantial deviation could potentially suggest earnings manipulation. Would you be able to shed some light on this issue for us, please?*
Additionally, we have noted relevant discussions concerning this topic on Twitter. For your reference, we've included a screenshot of the conversation below.
[Insert the picture about here]
Thank you.

Best,
Eric

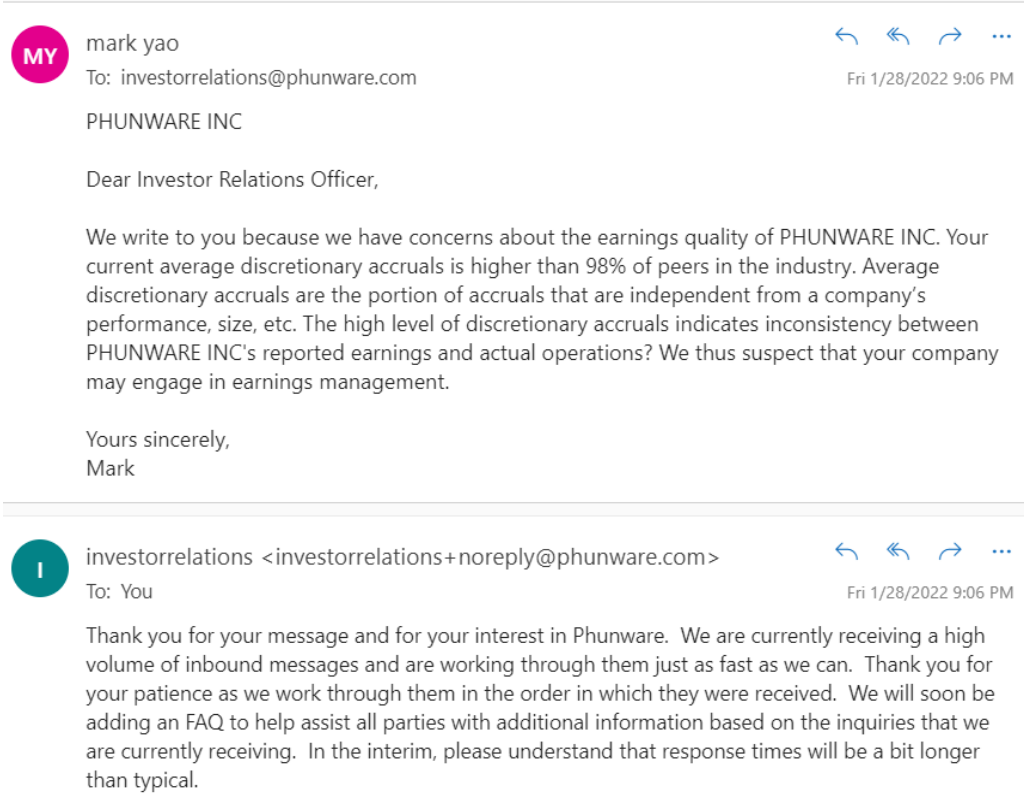
Panel C: Social media post (applied to group T2, T3, and T4)

The average discretionary accruals (i.e., accruals adjusted for the firm's performance, size, etc.) for $ticker over the recent four quarters surpass those of 90% of other firms in the industry. An elevated value often signifies an increased possibility of earnings manipulation.

Internet Appendix 2. Examples of IR emails and social media posts

Panel A: Group T1

IR email



MY

mark yao

To: investorrelations@phunware.com

Fri 1/28/2022 9:06 PM

PHUNWARE INC

Dear Investor Relations Officer,

We write to you because we have concerns about the earnings quality of PHUNWARE INC. Your current average discretionary accruals is higher than 98% of peers in the industry. Average discretionary accruals are the portion of accruals that are independent from a company's performance, size, etc. The high level of discretionary accruals indicates inconsistency between PHUNWARE INC's reported earnings and actual operations? We thus suspect that your company may engage in earnings management.

Yours sincerely,
Mark

I

investorrelations <investorrelations+noreply@phunware.com>

To: You

Fri 1/28/2022 9:06 PM

Thank you for your message and for your interest in Phunware. We are currently receiving a high volume of inbound messages and are working through them just as fast as we can. Thank you for your patience as we work through them in the order in which they were received. We will soon be adding an FAQ to help assist all parties with additional information based on the inquiries that we are currently receiving. In the interim, please understand that response times will be a bit longer than typical.

Panel B: Group T2

Social media post

kjsdo

@kjsdo1

The average discretionary accruals of $ECOR in recent quarters is higher than 78% of other firms in the industry. The company may be manipulating its earnings.

7:59 AM · Aug 9, 2021

View Tweet analytics

1 Like

Tweet your reply

Reply

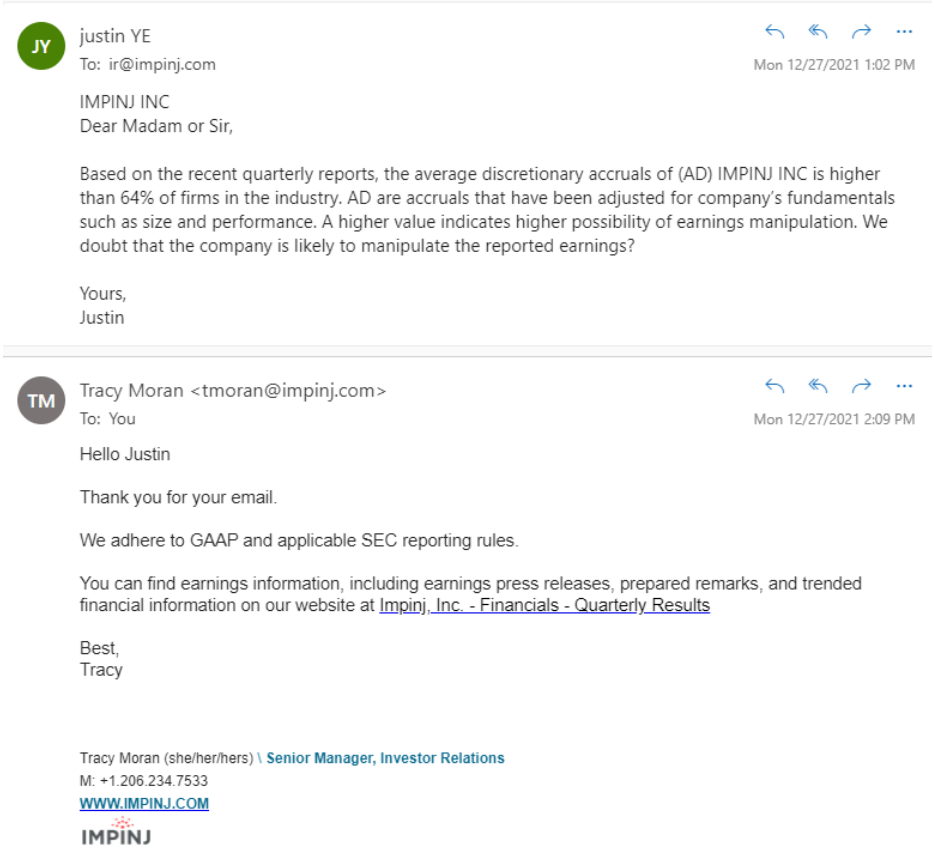
Ahmad AL-swaiti @AhmadALswaiti1 · Aug 9, 2021

Replying to @kjsdo1

Is This good for stock ?

Panel B: Group T3

IR email



JY justin YE
To: ir@impinj.com
Mon 12/27/2021 1:02 PM

IMPINJ INC
Dear Madam or Sir,

Based on the recent quarterly reports, the average discretionary accruals of (AD) IMPINJ INC is higher than 64% of firms in the industry. AD are accruals that have been adjusted for company's fundamentals such as size and performance. A higher value indicates higher possibility of earnings manipulation. We doubt that the company is likely to manipulate the reported earnings?

Yours,
Justin

TM Tracy Moran <tmoran@impinj.com>
To: You
Mon 12/27/2021 2:09 PM

Hello Justin

Thank you for your email.

We adhere to GAAP and applicable SEC reporting rules.

You can find earnings information, including earnings press releases, prepared remarks, and trended financial information on our website at Impinj, Inc. - Financials - Quarterly Results

Best,
Tracy

Tracy Moran (she/her/hers) \ Senior Manager, Investor Relations
M: +1.206.234.7533
WWW.IMPINJ.COM
IMPINJ

Social media post

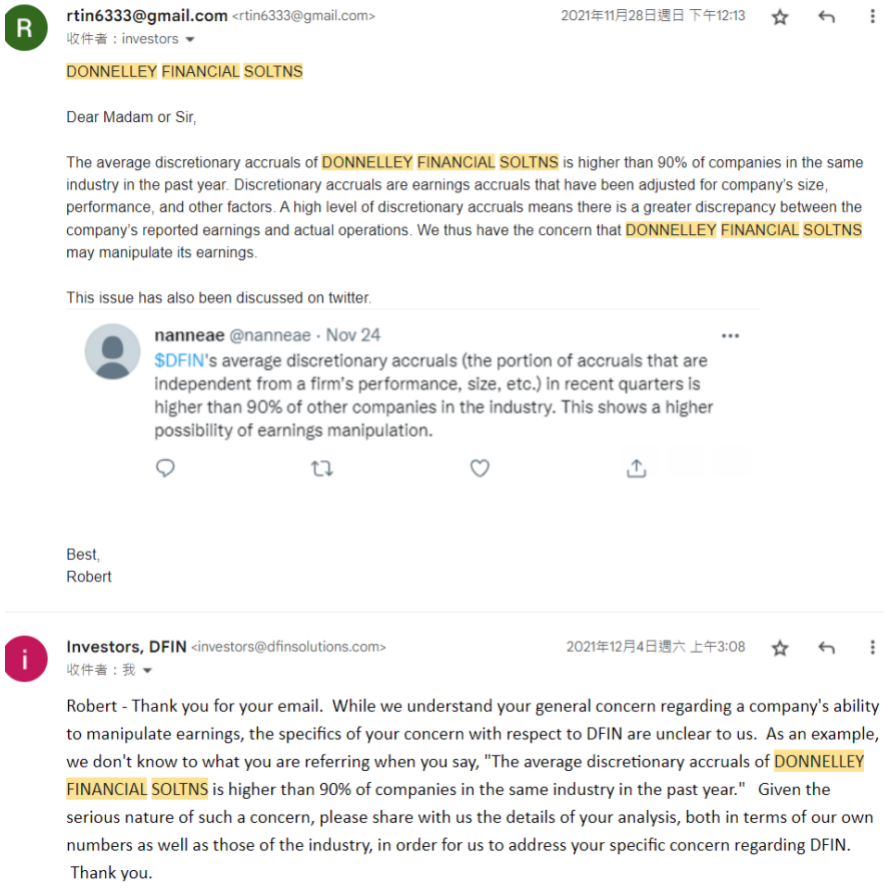
kjsdo @kjsdo1 · Aug 8, 2021
$CGRN may probably manage its earnings. In recent four quarters, the average discretionary accruals is much higher than the average of most firms in the industry.

1 0 0

Impressions 128
Engagements 5
Detail expands 3
New followers 0
Profile visits 1

Panel C: Group T4

IR email



Social media post

Internet Appendix 3. Variable definitions

Variables	Definition	Sources
Experiment-related variables:		
T1C	1 if a firm is assigned into the treatment group T1 and 0 if it is assigned into the control group C.	Manually collect
T2C	1 if a firm is assigned into the treatment group T2 and 0 if it is assigned into the control group C.	Manually collect
T3C	1 if a firm is assigned into the treatment group T3 and 0 if it is assigned into the control group C.	Manually collect
T4C	1 if a firm is assigned into the treatment group T4 and 0 if it is assigned into the control group C.	Manually collect
T1	1 if a firm is assigned into the treatment group T1 and 0 otherwise.	Manually collect
T2	1 if a firm is assigned into the treatment group T2 and 0 otherwise.	Manually collect
T3	1 if a firm is assigned into the treatment group T3 and 0 otherwise.	Manually collect
T4	1 if a firm is assigned into the treatment group T4 and 0 otherwise.	Manually collect
Post	1 if the quarterly earnings are announced after June 30, 2021, and 0 otherwise.	Manually collect
Dependent variables and control variables:		
EM	Discretionary accruals are residuals from regressing firms' total accruals (i.e., *Accruals*) on the reciprocal of total assets, the change in sales/total assets, net property, plant, and equipment/total assets, and return on assets in each industry-year wherein *Accruals* is the change in current assets minus the change in cash holdings minus the change in current liabilities plus the change in short-term debt plus depreciation, scaled by total assets. See Kothari et al. (2005).	Compustat
EMRank	Decile rank of *EM*.	Compustat
Size	Natural logarithm of total assets.	Compustat
Leverage	Total long-term debts divided by total assets.	Compustat
B/M	Book value of total assets divided by the market value of equity.	Compustat
ROA	Net income divided by total assets.	Compustat
Other variables:		
IRO	1 if an IR officer can be identified on a firm's earnings conference call transcripts in 2020, and 0 otherwise.	Fair Disclosure Wire
Big4	1 if a firm hires a Big 4 auditor (i.e., Ernst & Young, Deloitte & Touche, KPMG, or PricewaterhouseCoopers) in 2020, and 0 otherwise.	Compustat
Auditfee	1 if the audit fees scaled by total assets for a firm in 2020 is greater than its industry median, and 0 otherwise.	Audit Analytics
Analyst	1 if the number of analysts for a firm in 2020 is greater than the median in its industry, and 0 otherwise.	I/B/E/S
IndDir	1 if the percentage of independent directors for a firm in 2020 is greater than the median in its industry, and 0 otherwise.	BoardEx
Distress	1 if the Zmijewski Score (-4.336 - [4.513 * (net income / total assets)] + [5.679 * (total liabilities / total assets)] +	Compustat

	[0.004 * (current assets / current liabilities)], see Zmijewski [1984]) of a firm in 2020 is positive, and 0 otherwise.	
Outside	1 if the CEO of a firm was hired from outside rather than being promoted from the firm inside, and 0 otherwise.	BoardEx
IDD	1 if the headquarters of a firm is in the state where the Inevitable Disclosure Doctrine (IDD) is in effect, and 0 otherwise.	Klasa et al. (2018)
CAR	The cumulative abnormal return, computed based on the Capital Allocation Pricing Model (CAPM), of a firm from day -1 to day 2 relative to the firm's quarterly earnings announcement date (day 0).	Compustat & CRSP
UE	The decile rank of unexpected earnings (actual earnings per share [EPS] - consensus estimates of by financial analysts, scaled by the firm's stock price at the end of the fiscal quarter).	Compustat & CRSP
SG&A	Selling, general, and administrative expenses divided by total sales.	Compustat
Capex	Capital expenditures divided by total assets.	Compustat