Unraveling the Dividend Puzzle: A Field Experiment

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Abstract

We conduct a field experiment to test four dividend theories. We enhance managers' perception of investors' agency concerns, investors' risk preference, investors' information demand, and investors' tax status respectively in four treatment groups. We find that past payers receiving the agency-related treatment increase their dividends relative to the control group. In contrast, firms receiving the other three treatments do not significantly change dividends. The agency treatment effect is more prominent for firms with weaker governance and robust to various specifications. A post-experimental survey confirms our findings. The evidence suggests that the agency-related motive is most pertinent in explaining dividend payout.

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1. Introduction

"Dividends have long been an enigma."

— Fama and French (2001, p.4)

Paying dividends is one of the most important financial decisions made by a firm. Since Miller and Modigliani's (MM) dividend irrelevance theorem proposed 60 years ago, financial economists have developed many theories to explain why firms pay dividends. However, to date, there is no consensus on the determinants of a firm's dividend policy. This old puzzle may need a *new method of solving*. In this paper, we conduct a field experiment to test four prominent dividend theories and shed light on the dividend puzzle.

The four prominent theories in the dividend literature are agency theory, bird-in-hand theory, signaling theory, and tax clientele theory.[1] These four theories recognize various market frictions by relaxing the assumption of a frictionless market in the MM dividend irrelevance theorem. Specifically, agency theory posits that given the conflict of interest between managers and shareholders, paying dividends should reduce free cash flow and mitigate conflict by limiting value-destroying actions by managers, such as empire-building and excessive perk consumption (Easterbrook, 1984; Jensen, 1986; Zwiebel, 1996). The bird-in-hand theory for dividends suggests that investors are risk-averse and that relative to unrealized capital gains, dividends represent a safe bet and therefore low risk (Gordon, 1963; Lintner, 1964). Signaling theory proposes that dividends can help convey insiders' private information to outsiders and can therefore mitigate the information gap between corporate insiders and outsiders (Bhattacharya, 1979; Miller and Modigliani, 1961; Miller and Rock, 1985). Finally, tax clientele theory recognizes transaction costs and suggests that investors who pay a lower rate of tax on capital gains than on dividend income prefer stocks with little or no dividends (Elton and Gruber, 1970;

[1] We discuss these theories in alphabetical order by name.

Litzenberger and Ramaswamy, 1979).

Researchers have carried out numerous analyses on the four theories, but the results are mixed. Investigating the agency theory, La Porta et al. (2000) discover that enhanced shareholder protection leads to increased dividends, whereas Jordan et al. (2014) find that weaker shareholder protection (e.g., dual-class firms) results in higher dividends. Examining the bird-in-hand theory, Friend and Puckett (1964) demonstrate a positive correlation between dividends and stock prices, while Black and Scholes (1974) find no significant connection between dividend yields and stock returns. In terms of the signaling theory, Ham et al. (2020) propose that dividends offer valuable insights into a firm's future economic income, but Grullon et al. (2005) determine that dividends provide no additional information about future earnings. Lastly, in examining the tax clientele theory, Chetty and Saez (2006) observe that dividends surged after the 2003 dividend tax reduction reforms in the US, but financial executives in a survey conducted by Brav et al. (2008) reveal that the reform has a minimal impact on companies' dividend policies. In conclusion, scholars have yet to reach a consensus on these theories, which leaves the determinants of dividends as an ongoing puzzle in the field of corporate finance.[2]

One probable reason for this unresolved puzzle is the inherent difficulty in testing these dividend theories due to the endogenous nature of dividend policy. First, firms' dividend policy and the factors affecting their dividend policy decisions are determined simultaneously. Regressing dividend payment measures on observed factors based on published financial data generates biased estimates. Second, there are overlaps between theories, hypotheses, and explanations for paying dividends. It is difficult to tease out the distinct effects of different

[2] Baker and Weigand (2015) conduct a survey on firms' dividend policy and show that the results for almost all theories are mixed. They conclude that "dividend policy remains a controversial area in finance that still poses challenges to managers who are faced with making dividend policy decisions and to researchers trying to explain dividend policy" (Baker and Weigand, 2015, p. 140), which echoes the conclusion of Baker et al. (2002, p. 255) that "despite a voluminous amount of research, we still do not have all the answers to the dividend puzzle."

theories. Third, the effect of an observed factor on dividends may imply reverse causality. For example, it is not clear whether investors who prefer dividends simply choose to invest in dividend-paying stocks or whether firms cater to these investors. The continuous debate and investigation into dividend policy underscore its importance in corporate financial management and investor decision-making.

In this paper, we use a field experiment to overcome these challenges and address the dividend puzzle. The use of field experiments is considered the gold standard in terms of uncovering causal relationships (Floyd and List, 2016). Participants in field experiments are typically a representative, randomly chosen, and non-self-selected subset of the population of interest (Floyd and List, 2016; List, 2011). For example, unlike laboratory experiments in which subjects are influenced by the laboratory setting and pilot studies in which subjects are not double-blinded (Harris et al., 2021), a field experiment typically takes place in the usual environment of the subjects, who may not be aware that they are participating in an experiment.

Our experimental design is based on the understanding that corporate managers' decisions rely on the perception they have and the information they possess (e.g., the knowledge they have about their firms and investors). Agency theory lies on the assumption that managers are attuned to shareholders' agency concerns. Absent this understanding, managers would lack the motivation to disburse cash because they have little incentive to reduce expropriation if doing so is not costly.[3] The foundation of bird-in-hand theory is that managers are aware of investors' risk attitude and understand investors' preference for dividends over capital gains otherwise managers would not increase dividends to respond to investors' preference.

[3] Managers are subject to other sources of discipline, such as board of directors and market competition. We focus on the disciplinary forces from shareholders because the disciplinary mechanisms from other sources are essentially rooted in the disciplinary forces of shareholders. For example, market competition forces managers to work hard because they would be voted down by shareholders if their performance is poor.

The signaling theory is based on the premise that managers recognize the information gap between them and outside investors, or else there would be no trigger for managers to send the signal even if the information gap exists. The tax-clientele theory's basis is that managers understand investors' tax status and form conjecture about their firms' tax clientele; Absent this understanding, they would not adjust their dividend policy to cater to investors. Resting on the fundamentals of the theories, we conduct the field experiment to create exogenous changes in managers' perception of agency concerns from outside investors, investors' risk preference, the information gap with outside investors, and firms' tax clientele.

Specifically, we contact publicly listed firms by phone, email, or online investor relations (IR) platforms on a random basis during the period when the secretary of the board (SOB) is expected to propose the dividend payment plan of the firm (dividend proposal).[4] SOBs draft the dividend proposal based on their firms' current financial performance and the information they have gathered and analyzed during their communication with investors. Providing an informative message about investors' beliefs, concerns, and preferences when contacting SOBs exogenously increase managers' awareness of investors' concerns on frictions that the four dividend theories speak to, and, therefore, allows us to test the applicability of the theories.

To test agency theory, we increase managers' perceived threats from investors by informing firms of growing investor concerns about expropriation and hence an increased likelihood of shareholder activism (or increased possibility of disciplinary action). If the prediction of agency theory is evident in our test, the increased shareholder discipline should induce the treatment firms to increase dividends. To test bird-in-hand theory, we increase managers' knowledge on

[4] The SOB is a top manager of the firm and is responsible for the firm's IR policy, including communicating with investors, and is the key position that links outside investors and the decision-making body (i.e., the firm's top managers and board of directors). Most firms in our sample have one SOB and some of firms in our sample have multiple SOBs.

investors' risk preference by informing firms about investors' increased risk aversion to capital gains and preference for dividend income. If firms view paying dividends as a way to reduce investor risk aversion, the increased preference for certainty among investors should motivate the treatment firms to increase dividends.

To test signaling theory, we increase managers' perceived information gap between them and outside investors by informing firms of growing investor concerns about information opacity. As suggested by this theory, growing concerns about firms' information transparency should incentivize the treatment firms to provide information to investors by increasing dividends. To test tax clientele theory, we increase managers' information on their firms' tax clientele by informing managers about investors' awareness of the tax exemption dividend policy and growing concerns about their tax status/bracket. According to this theory, firms should be motivated to increase dividends when they realize that investors are aware of the tax exemption dividend policy and are concerned about their tax status.

We conduct our field experiment in China, which is the largest emerging market in the world. China is an ideal setting for several reasons. First, in China, there is a prevalence of market frictions such as agency costs, investor irrationality, information opacity, and transaction costs (Jiang and Kim, 2020; Piotroski and Wong, 2012). These are the very issues upon which the aforementioned four dividend theories are respectively based. As "market frictions are the key to the relevance of dividend policy" (Lease et al., 2000, p. 50), we expect the prevalence of various market frictions in China to enhance the testing power of our analysis. Second, in China, individual investors can communicate directly with the publicly listed firms through the interactive platform established by the exchanges as well as other IR channels encouraged by the regulators, including telephone and email. Lastly, Chinese listed firms share the same fiscal year-

end date, and their dividend decisions are clustered in a short period (i.e., April of each year), a uniform feature that allows us to minimize confounding factors.

The experiment was conducted in April 2021, the month in 2021 when most Chinese publicly listed firms proposed their annual dividend plans and released their annual performance. The sample includes all firms listed on the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) that submitted a dividend proposal in April 2021.[5] We randomly divide the sample of firms into 10 groups of equal size. Among these groups, eight groups are treatment groups and the remaining two are control groups. For the eight treatment groups, we use a 4×2 between-subjects design. Each firm in the first four treatment groups is informed of concerns or queries on the frictions that the focal theory speaks to (theory treatment). For example, to test signaling theory, firms receive the following message: "*I am confused about the firm's operations. Is there anything you can do to allow me to have more confidence in the firm's profitability?*"

The other four treatment groups receive the same theory treatment. The difference is that they also receive a statement that calls for the payment of dividends (theory + call treatment). For example, in the matched group in the example above, firms receive the following message: "*I am confused about the firm's operations. Is there anything you can do to allow me to have more confidence in the firm's profitability? Should the firm increase cash dividends?*" In practice, if a firm paid cash dividends in 2020 (past payers), the call statement aims to induce an increase in cash dividends. If a firm did not pay cash dividends in 2020 (non-payers), the call statement is intended to induce the payment of cash dividends. The purpose of adding the call statement is to determine whether the treatment effect, if any, is due to the treatment of the focal dividend theory

[5] This represents about 60% of all Chinese listed firms at the end of April 2021.

(theory effect) or to firms' increased awareness of dividend payments (call effect). If our treatment effect is not driven by the call effect, adding the call statement will not have an incremental effect on firms' dividends.

Our two control groups receive either a placebo treatment or no treatment. Specifically, one group receives hypothetical concerns or queries (i.e., placebo treatment). These hypothetical concerns or queries are general questions that are not directly related to a firm's dividend policy, such as "*What is the firm's main business?*" or "*Does the firm plan to expand into overseas markets?*" By comparing the theory and placebo treatment groups, we can difference away the attention effect, if any, caused by the experiment (e.g., our study may increase firms' attention to outside investors). The other control group does not receive any intervention (i.e., no treatment). Comparing this group with the theory treatment groups allows us to estimate the total treatment effect.

We collect actual dividend payments announced after the experiment and investigate whether the treatment firms have a higher propensity to pay dividends relative to the control firms.[6] We measure a firm's propensity to increase dividends based on a change in its dividend yield (dividend per share [DPS] scaled by the average stock price over the previous 12 months) before and after the experiment.

We find that past payers receiving the agency theory treatment are significantly more likely to increase their dividends than the control firms. Specifically, about 45% of the past payers that receive the agency theory treatment increase their dividend yield in 2021. This percentage is 36% for the control group. An analogous treatment effect is not found for non-payers. These results are expected because non-payers may pay no dividends for various rigid mechanisms, such as

[6] Chinese firms typically announce their annual dividend decisions at or shortly after the announcement of their annual reports.

low sensitivity to changes in earnings and hardwired managerial preferences (Michaely and Moin, 2022; Shao et al., 2010).

We find no significant difference in the propensity to increase dividends between the treatment and control firms with respect to the bird-in-hand, signaling, and tax clientele theories for both past payers and non-payers. These results suggest that agency theory wins the horse race and holds the most promise for explaining firms' dividend policy in the context of our field experiment.

To more clearly delineate the theory treatment effect, we next examine how the treatment effect varies with ex-ante firm attributes. First, we examine how the treatment effect varies with firm governance. Based on the agency theory of dividends, excess free cash flow creates agency problems, and strong governance will force firms to pay dividends to disgorge discretionary cash to prevent managers from wasting it. If our treatment leads to a potential threat of disciplinary action, forcing entrenched managers to pay dividends in response to that threat, our treatment effect should be more pronounced for firms with weaker governance or more serious agency problems ex ante than for other firms. As expected, we find that our treatment effect of agency theory is stronger in firms that tend to overpay their managers, have fewer independent directors, are followed by fewer financial analysts, and have less institutional ownership than in other firms. Likewise, we examine whether the treatment effects of the bird-in-hand, signaling, and tax clientele theories vary with firms' stock price volatility, information transparency, and investors' shareholding periods, respectively.[7] However, we find that none of these treatment effects are significant in their respective subsamples. These results suggest that agency theory fits the data better than the other three theories.

[7] According to China's 2015 Dividend Tax Reform, the tax rate on dividend income for an investor is 0 if they hold a stock for more than 1 year.

We find the treatment effect of agency theory on past payers is quite robust. First, we exclude firms that have less time to respond to our treatment. Second, we repeat our analysis using only the placebo treatment group as the control group, which differences away the effect of firms' increased attention to outside investors. Third, we use alternative definitions of dividend payments (i.e., alternative definition of dividend yield, propensity to increase dividends based on DPS, and continuous measure of dividend changes). We find that the treatment effect of agency theory remains highly significant in these settings. We still find no significant treatment effects for the other three theories, which suggests that the non-significant effects of these three theories are not due to a mismatch between our experiment's execution time and SOBs' decision window, model misspecification, or inaccurate measurement of dividend payments.

Finally, we conduct additional analyses to further confirm our main results. First, we test whether our results reflect the treatment effects of dividend theories (the theory effect) or simply investors' demand for the payment of dividends (the call effect). If our results are driven by the call effect, the treatment effect should exist only in the theory + call treatment group. However, we find that the treatment effect of agency theory exists in both the theory and theory + call treatment groups and that the results do not differ significantly in the two groups. Therefore, these results indicate that the treatment effect of agency theory is not driven by the call effect.

Second, we test how our treatment effect varies with the level of importance of the SOB in a firm. We find that the treatment effect of agency theory is more pronounced when a firm has more SOBs, when these SOBs are paid more, and when investors have fewer alternative communication channels to communicate with the firm other than through its SOBs. This evidence suggests that our treatment effect increases with the importance of the SOB in a firm and supports the role of the SOB as a coordinator between outside investors and the firm's

decision-making body on which our experimental design is based.

Third, we examine how the treatment effect varies with the use of different communication channels and the communication intensity of each channel. We find that the treatment effect of agency theory is stronger when telephone communication is used and provides more information. The results are not significant for communication via email and online IR platforms. This indicates that the delivery of our treatment effect primarily occurs through telephone communication, consistent with telephone calls typically carrying a greater sense of urgency and holding more significance as tools of communication than emails and online messaging.

Fourth, we executed a follow-up survey, contacting each firm from our sample to confirm treatment delivery, understand firms' strategies, and uncover the reasoning behind dividend increase decisions. Our findings reveal a significant correlation between the agency theory treatment groups and both receiving investors' corporate governance concerns and increasing dividends as a solution. Over half of the firms (61%) who chose to increase their dividends, in response to investors' concerns, believed that this move garnered them support on corporate governance matters. The results support the findings of our experimental design.

One may argue that our experimental exercise may provide evidence supporting firm insiders' existing beliefs, which leads to confirmation bias (see Pouget et al., 2017). For example, the manager of a firm may perceive the relevance of agency theory in dividend decisions and announce dividends when observing messages from outsiders that support this perception. We argue that if this is true, the effect of the theory + call treatment should be stronger than that of the theory treatment because the first treatment confirms managers' beliefs more thoroughly. However, our results show that the two treatment effects are indistinct.

We acknowledge that the non-significant results for the treatment firms based on the bird-

in-hand, signaling, and tax clientele theories are not sufficient to reject the importance of these theories in China. Because of budgetary constraints, we cannot conduct communication exercises with each firm in our sample with sufficient frequency and intensity. This limitation may limit the treatment delivery and thus reduce the treatment effect (weak experiment). That is, we cannot determine whether the lack of treatment effect for the three theories indeed reflects their lack of importance or is due to a weak experiment. Nevertheless, as our experimental results distinguish agency theory from the three competing theories under the same experimental environment, we can at least conclude that agency theory is the main determinant of Chinese firms' dividend policy rather than the other three theories.

Our study contributes to theories explaining the payment of dividends. Since the publication of the MM dividend irrelevance theorem (1961), many researchers have explored why firms pay dividends, and numerous theories and hypotheses have been developed and proposed. However, the findings are mixed. Conducting a field experiment to test four prominent dividend theories in the literature, we find that the agency cost motive is most pertinent in explaining firms' dividend policy. We also contribute to the studies of dividend theories by highlighting managers' awareness of the frictions that the theories speak to. Traditional literature usually assumes that managers are informed of the frictions underlying each theory and directly studies the frictions' impact on firms' dividend outcomes (e.g., Bae et al., 2021; Li et al., 2017). We show that managers' knowledge on the frictions is not perfect and improving managers' awareness of the frictions can lead to change in their dividend policy.

We also enrich the methodology in the study of dividend policy. The analytical methods used in the literature typically fall into two approaches (Frankfurter et al., 2003). One approach relies on published financial data to test various explanations for dividend policy. The other

approach is to survey financial managers to obtain primary data on dividend policy. However, these two approaches are affected by endogeneity problems in that the use of ex-post data can explain reality on the surface but not the underlying motivation and mechanism. While an increasing number of studies adopt quasi-natural experiments to overcome the endogeneity problems (e.g., Chetty and Saez, 2005), the events they use are usually relevant for a particular theory, making it difficult to evaluate multiple models at a time. We advance the methodological frontiers in the field by pioneering a novel approach to explore the competing mechanisms behind firms' dividend policy.

Our study's experimental approach could potentially be helpful to future researchers looking to conduct randomized experiments. Our design overcomes typical challenges in financial economics by leveraging a unique feature of shareholder engagement that enables information sharing with firm management (Bowley et al., 2023).[8] This approach allows us to provide causal evidence on vital questions in financial economics, inspiring others to design similar experiments.

Our study also has implications for regulators and public investors. Regulators around the world have long sought to improve investor protection, including returning profits to shareholders (e.g., by paying dividends). Based on the board reforms implemented in 40 countries, Bae et al. (2021) find that firms pay higher dividends following the reforms. Some countries such as China have implemented policies to incentivize publicly listed firms to pay dividends.[9] Despite these efforts, international evidence indicates that the fraction of firms paying dividends has declined over time (Denis and Osobov, 2008). In this study, we show that

[8] For example, field experiments necessitate corporations to randomize procedures or researchers to have an exogenous lever that impacts firms, which are rarely feasible.

[9] For example, in 2006, the China Securities Regulatory Commission (CSRC) announced that listed firms attempting to issue equity must meet a minimum dividend ratio.

communicating with firms via the IR program is likely to influence their policy decisions and increase their propensity to pay dividends.

2. Institutional background

2.1. Dividend policy and the dividend decision process in China

Choosing a dividend policy is one of the most visible financial decisions made by publicly listed firms in China. Chinese listed firms are required to review the implementation of their dividend policy and disclose the results in their periodic reports. Managers have considerable discretionary power in deciding their firm's dividend policy. For example, they can change the promised minimum level of dividends specified in the firm's articles of association after approval by the general meeting of shareholders.[10]

According to CSRC requirements, the decision to pay dividends in a typical firm in China must go through four steps: (1) a listed firm submits a preliminary dividend plan, which is proposed by the SOB; (2) the proposal is sent to the board of directors for review; (3) the proposal is submitted to the vote of the general meeting of shareholders; and (4) the firm announces the decision and implements the plan.

We interviewed several SOBs of listed firms in China to further understand the process and timing involved in choosing their dividend policy. We obtained similar information. Specifically, the SOBs interviewed explained the following: they propose the dividend plan along with other proposals around the same period each year, usually 2 weeks before the official announcement of their firm's annual financial reports; the board of directors usually holds an annual board meeting 1 week before the annual reports are announced or 1 week after the proposal is submitted by the

[10] For further discussion of dividend policy in China, please refer to Li et al. (2021) and Li et al. (2017).

SOB; at the board meeting, the directors review the firm's annual performance and various plans (including the dividend plan) and make final decisions.

The idea behind this procedure is that the dividend decision-making process hinges on the position of the SOB.[11] The SOB is familiar with the firm's governance and financial performance and has expertise in law and securities regulations. The SOB facilitates coordination between board members for effective board operations and decision-making. The SOB also manages the board's disclosure register in accordance with the disclosure requirements stipulated in market regulations. Overall, the SOB is the most knowledgeable person about the firm's finances and investors, as well as government regulations.

Studies show that a minority of informed individuals guide the group toward specific decisions (King and Cowlishaw, 2009). The SOB is the bridgehead in the dividend decision-making process and plays a key role in determining the final dividend payment plan. For our field experiment, we communicate with SOBs when they are expected to propose their firms' dividend payment plan. In China, most listed firms announce their annual reports at the end of April each year. SOBs typically submit their dividend plan around mid-April.

2.2. Investor relations policies

In 2005, the CSRC issued the "Guidelines for Investor Relations Management" (hereafter "the Guidelines"), requiring publicly listed firms to establish an IR program. The purpose of the program is to promote interactive communication between publicly listed firms and market participants to improve transparency and gain long-term market support. The SOB is responsible for a firm's IR program.

[11] According to the Corporate Law of the People's Republic of China (2005), a listed firm is required to appoint a SOB, a role similar to that of a CFO in the United States (Lu et al., 2023).

According to the Guidelines, firms must provide telephone and email contact information on their IR web page and respond to queries and concerns raised by investors and other market participants. In particular, Article 6 stipulates that firms must respond to investors' queries regarding their dividend payment policy and other information relating to their operating strategies and performance. The SOB summarizes and provides investors' opinions and information to the firm's decision-making body. For example, Article 22 of the Guidelines states that a firm should "pay continuous attention to investors' and media's opinions and suggestions, and make timely feedbacks to the firm' management team and board of directors."

As part of China's IR policies, the SZSE established an interactive platform for its listed firms and their investors called EasyIR in 2011.[12] The SHSE introduced a similar platform (sseinfo.com) for its listed firms in 2013.[13] Unlike traditional social networking platforms, which enable investors to communicate with each other, communication on EasyIR and sseinfo.com is between firms and investors.

SOBs are responsible for both platforms. When an investor raises a query on a firm's tag page, the firm is notified and must respond within 3 business days. Studies show that online IR platforms and the availability of IR email and telephone contact information play an important role in improving firms' information environment (Bowen et al., 2018; Firth et al., 2019; Firth et al., 2020; Lee and Zhong, 2022).

3. Experimental design and methodology

We conduct a field experiment by contacting publicly listed firms during the period when the SOB proposes the firm's dividend payment plan. Specifically, we use EasyIR and

[12] See http://www.csrc.gov.cn/zhejiang/xxfw/tzzsyd/201306/t20130627_229747.htm.
[13] See http://www.sse.com.cn/lawandrules/sserules/listing/stock/c/c_20150912_3985864.shtml.

sseinfo.com and firms' IR email and telephone information to contact each firm to introduce exogenous changes in managers' perception of investors' concerns about frictions that are pertinent to the four dividend theories. The introduction of the four theories is detailed in Online Appendix 1, while the theory setup of the experimental design is provided in Online Appendix 2. We examine whether firms receiving the treatments subsequently change their dividends.[14] The timeline and layout of our experiment are shown in Figure 1.

[Insert Figure 1 about here]

3.1. Experimental subjects and period

Our initial experimental subjects include all publicly listed firms on the SZSE and SHSE by March 27, 2021, as our sample period is April 2021. We choose this month because it is the time when most publicly listed firms in China propose their annual dividend plan and release their annual performance (2020 in this case). We cannot know the exact date of each firm's dividend proposal ex ante, but as suggested by the SOBs interviewed, firms usually file their proposal around the same period each year. For this reason, we assume that all firms that filed a dividend proposal in April 2020 submit their proposal in April 2021.

Our assumption is confirmed by the data. Panel A of Appendix Table 1 tabulates the distribution of actual proposal dates for all firms in 2020. We find that 3,077 firms (78% of all firms) filed a dividend proposal in April 2020. Panel B shows that of these 3,077 firms, 76.7% submitted their proposal during the last 2 weeks of April 2020. The percentage (76.7%) is almost the same in April 2021.[15] Panel C tabulates the distribution of dividend proposal dates in 2021 for firms that submitted a proposal each month of 2020. We find that of the 3,077 firms that filed

[14] We obtain approval to conduct our experimental exercise from the Institutional Review Board (IRB) of our respective institutions.
[15] When designing and starting the experiment, we cannot observe the firms' 2021 filing dates.

their proposal in April 2020, 2,497 (81%) also submitted a proposal in April 2021. This pattern indicates that there is strong seasonality in the filing month of dividend proposals.

To effectively communicate with firms, we target the period shortly before the SOBs' proposal filing dates. Specifically, we start the experiment the first week of April 2021 (the exact date is March 29, 2021), contact all firms in our sample each week, and end the experiment on May 7, 2021, thus covering 6 weeks. By contacting the firms each week, we expect one of our communications to fall in the week the SOB drafts the firm's dividend proposal.

We exclude all firms with missing return on assets (ROA) data in 2020. We also exclude B-shares and special treatment (ST) firms.[16] We further exclude all firms with a dividend proposal submitted before March 27, 2021. The sample selection procedure for our analysis is shown in Appendix Table 2. Ultimately, we obtain a sample of 2,564 unique firms for our experiment, including 1,859 past payers and 705 non-payers.

3.2. Treatment assignment

For the experiment, we contact the firms in our sample and express concerns or queries on frictions related to a given dividend theory. Specifically, to test agency theory, we inform firms that they are likely to waste corporate resources and commit wrongdoing when they have excess free cash and recommend that they take proactive actions to avoid these problems. For example, we inform them that "*a firm's managers are more likely to overinvest and overspend when the firm has too much cash. Reducing its cash holding may improve shareholder value.*" We expect our message to make firms aware of growing investor concerns about expropriation and,

[16] Chinese firms issue A-shares and B-shares. A-shares are widely available to Chinese investors and are now also available to foreign investors. B-shares are only available to foreign investors. The SHSE and SZSE issue an ST or delisting risk warning to listed firms with abnormal financial or other conditions to alert investors to risky stocks. Therefore, these firms are excluded from the experiment.

therefore, an increased likelihood of shareholder activism (or increased possibility of disciplinary action).[17]

To test bird-in-hand theory, we express concerns about the uncertainty of capital gains and highlight investors' preference for dividend income. For example, we tell firms the following: "*Relative* to *capital gains that come with share price changes and fluctuate from time to time, I like cash dividends because they give me a sense of certainty.*" We expect our message to make firms aware of investors' increased risk aversion to capital gains and their preference for dividend income.

To test signaling theory, we inform firms about the possibility of announcing actions that will allow investors to have more information about and confidence in a firm's financial aspects. For example, we ask firms the following: "*I am confused about the firm's operations. Is there anything you can do to allow me to have more confidence in the firm's profitability?*" We expect our message to make firms aware of growing investor concerns about firms' information opacity.

Finally, to test tax clientele theory, we exploit China's 2015 Dividend Tax Reform and inform firms about the new policy on dividend income. In September 2015, China implemented its Dividend Tax Reform, requiring the tax rate on dividend income for individual investors with a shareholding period greater than 1 year to be 0 (before the reform, the tax rate was 10%).[18] We inform firms about the possibility of tax exemption for investors with a shareholding period greater than 1 year. For example, we ask firms the following: "*If I hold your shares for more than a year, will I be exempt from dividend income tax?*" We expect our message to make firms realize investors' awareness of the dividend tax exemption policy and their growing concerns about their

[17] Levit (2019) shows that communication between investors and firms is an important corporate governance mechanism.

[18] The Notice of the Ministry of Finance, the State Administration of Taxation and the China Securities Regulatory Commission on Issues Concerning Differentiated Individual Income Tax Policies on Dividends of Listed Firms (Caishui No. 101, 2015), see http://www.chinatax.gov.cn/n810341/n810755/c3978994/content.html.

own tax status/bracket. We define these concerns or queries as theory treatments. Details on the treatments for the four theories are provided in Appendix Table 3.

It should be noted that the purpose of raising concerns or queries with a firm is not to call for the payment of dividends; instead, we seek to inform the firm that if the prediction of the focal dividend theory holds true, it will trigger a change in dividends (theory effect). However, contacting firms may raise their awareness of investors' concerns and influence their propensity to pay dividends (call effect). To disentangle the two effects, we also create a treatment by adding to the theory treatment a statement that calls for the payment of dividends (theory + call treatment).

There are two types of statements calling for the payment of dividends, depending on the dividends paid by a firm in the previous year, namely dividends in 2020. We call for an *increase* in dividends if a firm paid cash dividends in 2020. We call for *initiating* dividends if a firm did not pay cash dividends in 2020. Details of the theory + call treatments for the four theories are provided in the last two columns of Appendix Table 3. If our results are not driven by the call effect, adding the call statement will have no incremental effect on firms' propensity to pay dividends.

To complete our experimental design, we create a placebo treatment by raising synthetic concerns or queries. We perform the placebo treatment by raising general questions that are not related to a firm's dividend policy, such as "*What is the firm's main business?*"; "*What changes has the COVID-19 pandemic brought to the day-to-day operation of the firm?*"; and "*Does the firm plan to expand into overseas markets?*"

Based on our treatment design, we randomly divide the 2,564 sample firms into 10 groups of approximately equal size. To ensure that the 10 groups have similar patterns of dividend

payments, we randomly divide the firms in different dividend patterns into 10 groups. Specifically, we first classify the firms into four categories based on their dividend records in 2019 and 2020. These include (1) firms that paid cash dividends in both 2019 and 2020, (2) firms that paid cash dividends in 2019 but not in 2020, (3) firms that did not pay cash dividends in 2019 but paid dividends in 2020, and (4) firms that did not pay cash dividends in 2019 or 2020. Then, we rank their stocks by market value in each category.[19] Every 10th stock in each category is designated as a stock in 1 of the 10 groups.

The allocation procedure is shown in Appendix Table 4. Groups 1–8 are the treatment groups and groups 9 and 10 are the control groups. Firms in group 1 receive the theory treatment of agency theory ($Agency_{theory}$) and firms in group 2 receive the theory + call treatment of agency theory ($Agency_{theory+call}$). Firms in groups 3 and 4 receive the theory treatment ($Bird_{theory}$) and theory + call treatment ($Bird_{theory+call}$) of bird-in-hand theory, respectively. Firms in groups 5 and 6 receive the theory treatment ($Signaling_{theory}$) and theory + call treatment ($Signaling_{theory+call}$) of signaling theory, respectively. Firms in groups 7 and 8 receive the theory treatment (Tax_{theory}) and theory + call treatment ($Tax_{theory+call}$) of tax clientele theory, respectively. Firms in group 9 receive the placebo treatment ($Control_{placebo}$), and those in group 10 receive no treatment ($Control_{null}$).

3.3. Implementation and data collection

We hire research assistants (RAs) to act as potential investors and contact and communicate the treatment information to the firms in their respective groups through the channels of IR online platforms, email, and telephone. We use multiple communication channels because

[19] We use firms' market value as of the last trading day of 2020.

different firms may be reachable through different channels (see Firth et al. (2019), and therefore, using multiple channels is likely to increase the response rate.

Specifically, we send the treatment information to the firms in each group each week during our experimental period via EasyIR for firms listed on the SZSE and via sseinfo.com for those listed on the SHSE. We also send this information to the SOBs of the firms by email. The messages and emails are rephrased each week to minimize repetition and increase readability. Moreover, we send the treatment information to the firms in each group by making phone calls each week.[20] These three forms of contact do not occur on the same day each week to space out the dissemination, thus avoiding overwhelming the firms with too much information at once. Overall, each firm outside the $Control_{null}$ group receives weekly contact from our research assistants—comprising one online message, one email, and one phone call—resulting in a total of six of each method of communication throughout the experimental period. We stop contacting a firm if it announces its dividend payment plan because its dividend decision is made and can no longer be affected by our treatment.

To ensure an even distribution of effort and to avoid bias, RAs are assigned randomly to each group, and the efficacy of their contact attempts is monitored and maintained equivalently across all treatment groups. We collect firms' email and online responses. We also transcribe each phone call immediately after it ends. Analysis of the data indicates that the content of the telephone conversations, as well as the response rate and length of email and online replies, are consistent across groups, underscoring the uniformity of our communication process and the comparability of the interactions.

We end our experiment on May 7, 2021, when all of the firms in the sample issued their

[20] Once we contact a firm, we aim to reach the SOB. If unsuccessful, we request a transfer to the SOB. If the transfer fails, we pursue the next best option by connecting with someone close to the SOB's position, such as their assistant (often, this is the person who initially answer the phone).

dividend proposals. The distribution of actual filing dates is presented in Online Appendix 4. Online Appendix 5 shows examples of real posts or emails for the theory + call treatment and placebo treatment groups.

To verify the dissemination of our treatment information, we collect all messages posted during the experimental period from EasyIR and sseinfo.com. The data reveals that, on average, 1.1 posts originated from us are displayed out of a total of 14 from all market participants.[21] This means that approximately 13% of the posts on EasyIR and sseinfo.com between March 29 and May 7 in 2021 are issued by our research team. Moreover, we conduct a post-experiment survey, which is detailed later in this paper. We find that firms within a certain theory treatment group report receiving more investor queries related to the issues of that theory. The evidence suggests that our messages were effectively disseminated to the firms.

After the experiment, we collect the firms' announcements regarding their actual payment of dividends. We merge the actual dividend payment data with the financial data obtained from the China Stock Market & Accounting Research (CSMAR) database.

3.4. Estimation model

We test whether the treatment firms change their dividends relative to the control firms after the experiment based on the ATT estimator as derived in Section 2. Empirically, the model is specified as follows:

$$y_i = \beta_1 + \beta_2 Treatment_i + X_i + \boldsymbol{I} + \varepsilon_i, \qquad (1)$$

where y_i measures firm i's change in propensity to pay dividends and is measured based on a firm's actual payment of dividends announced after the experiment relative to its dividends in the

[21] While we expect a total of 6 posts originating from us, we observe an average of only 1.1 posts actually displayed on the two platforms. This discrepancy could be due to the platforms' technical issues or filtering policies that remove similar posts.

year before the experiment. Our primary variable of interest is *Dummy(ΔDivYield₁ >0)*, which equals 1 if a firm's dividend yield in 2021, $DivYield_1$ (*DPS* scaled by the average stock price in the previous 12 months), is greater than its $DivYield_1$ in 2020, and 0 otherwise (lower or no change).

For robustness, we alternatively define the dividend yield using *DPS* scaled by the stock price in the month immediately before the announcement of a firm's dividend proposal ($DivYield_2$) and create *Dummy(ΔDivYield₂ >0)*, which equals 1 if a firm's $DivYield_2$ in 2021 is greater than its $DivYield_2$ in 2020, and 0 otherwise (lower or no change). We also create *Dummy(ΔDPS >0)*, which equals 1 if a firm's *DPS* in 2021 is greater than its *DPS* in 2020, and 0 otherwise (lower or no change). Moreover, we measure a firm's change in dividend policy based on the percentage change in dividends. Specifically, we create $\Delta DivYield_1 / DivYield_1$, which is $DivYield_1$ in 2021 minus $DivYield_1$ in 2020 scaled by $DivYield_1$ in 2020, and *ΔDPS / DPS*, which is *DPS* in 2021 minus *DPS* in 2020 scaled by *DPS* in 2020.

$Treatment_i$ is the treatment indicator. It takes a value of 1 if a firm is in a treatment group and 0 if a firm is in a control group. We run the model by pooling the treatment firms of a particular theory and the control firms. For example, to estimate the treatment effect of agency theory, all of the firms in the $Agency_{theory}$ and $Agency_{theory+call}$ groups are pooled with the firms in the $Control_{placebo}$ and/or $Control_{null}$ groups. Therefore, β_2 measures the change in dividend payments for the treatment firms of a particular theory relative to the control firms after the experiment.

X is a set of control variables. Specifically, we control for firm size (*Log(TA)*), profitability (*ROA*), investment opportunities (*AssetGrowth* and *M/B*), cash holding (*Cash/TA*), financial leverage (*Leverage/TA*), stock returns (*Return*), stock volatility (*Volatility*), CEO duality

(*CEODuality*), the number of independent directors (*IndDirectors*), managerial compensation (*Log(ExePay)*), managerial ownership (*ExeOwnership*), and firm age (*FirmAge*). The detailed definitions of these variables are provided in Online Appendix 3. We also include industry fixed effects (***I***).

The summary statistics of the variables for the full sample, the subsample of past payers, and the subsample of non-payers are reported in Table 1.

[Insert Table 1 about here]

3.5. Past payers versus non-payers

We estimate Equation (1) based on past payers and non-payers separately because the factors that influence non-payers' decisions to initiate dividends may differ from those that affect payers' decisions to revise the amount of dividends paid. For example, past payers may have positive cumulative retained earnings or a high propensity to pay dividends (likelihood of paying dividends conditional on firm characteristics; see Michaely and Moin (2022). These firms are more likely to change their dividend policy in response to our treatment than other firms.

In contrast, non-payers may not pay dividends because of various rigid mechanisms. For example, they may have negative retained earnings (Denis and Osobov, 2008; Fama and French, 2001) and high earnings volatility (Michaely and Moin, 2022). In addition, they may not pay dividends because their dividend policy is not sensitive to changes in earnings. For example, Michaely and Moin (2022) show that firms' propensity to pay dividends accounts for 47% of the disappearing dividends from the 1970s to 2000s. Firms may also not pay dividends because of certain hardwired managerial attributes, such as optimism and overconfidence (Deshmukh et al., 2013), and objective perceptions rooted in managers' national culture (Shao et al., 2010). For

these reasons, these firms are less likely to response to our treatment than other firms.

Furthermore, Atmaz and Basak (2022) show that certain empirical regularities of stock markets are related to the differences between payers and non-payers. As a result, studies often discuss the dividend policy of past payers and non-payers separately. For example, Fama and French (2001) and Baker and Wurgler (2004) focus on factors that affect non-payers' decisions to initiate dividends, while Grennan (2019) focuses on factors that affect payers' decisions to revise the amount of dividends paid.

4. Main results

We conduct our analyses based on the subsamples of past payers and non-payers, as well as the full sample. We obtain the following general pattern: the treatment effect of agency theory is significant for past payers' dividend policy, while the treatment effects of the other three theories are not significant; none of the treatment effects have a significant impact on the dividend policy of non-payers. These results are consistent with our discussion of past payers and non-payers above. The treatment effect of agency theory remains significant in the full sample, suggesting that our treatment effect is generally significant regardless of the firms' past dividend records. To save space, we focus on the subsample of past payers for results elaboration.

4.1. Univariate analysis

An important assumption of our analysis is that the treatment and control firms should have similar dividend policies and other similar firm characteristics before the experiment. To verify this assumption, we test the differences between the control groups ($Control_{placebo}$ and

$Control_{null}$) and each theory treatment group.[22] The results based on past payers are reported in Panel A of Table 2.

We find that the means of *DivYield₁* and *DPS* in 2020 for each theory treatment group are not significantly different from the means of the control groups. We also find no significant differences in all other firm characteristics between the treatment and control firms.[23] These results confirm the validity of our randomization procedure.

[Insert Table 2 about here]

Next, we explore the change in dividend payments in the post-experimental period and the differences between the treatment and control groups. First, we compute the number of firms that increase their dividends in the post-experimental period. The results based on past payers are presented in Panel B of Table 2. For improved comprehension and to facilitate comparisons among groups, we have graphically represented the results in Figures 2 and 3.

[Insert Figures 2 & 3 about here]

Panel A of Figure 2 shows the fraction of firms increasing dividends (*DivYield₁*), namely the mean of (*Dummy(ΔDivYield₁ >0)*). We find that this fraction is highest for firms receiving the agency theory treatment ($Agency_{theory}$ and $Agency_{theory+call}$). Specifically, approximately 45% of the firms receiving the agency theory treatment experience an increase in *DivYield₁* in 2021. The percentage is 36% for the control firms ($Control_{placebo}$ and $Control_{null}$). The percentages are 39%, 40%, and 41% for those receiving the bird-in-hand theory, signaling theory, and tax clientele theory treatments, respectively. Panel B shows the fraction of firms that increase their dividends based on *DPS* (*Dummy(ΔDPS >0)*). The pattern remains the same as in

[22] We find similar results when the control group is either $Control_{placebo}$ or $Control_{null}$.

[23] The only exception is *M/B* when we compare the agency theory treatment and the control groups. In our regression, our model controls for *M/B* and other firm characteristics.

Panel A.

We also compute the growth rates of $DivYield_1$ ($\Delta DivYield_1 / DivYield_1$) and *DPS* ($\Delta DPS / DPS$) in the post-experimental period. The results are shown in Figure 3. The growth rate of $DivYield_1$ is -3% for the control firms. The growth rates are 12%, 8%, -2%, and 0% for firms receiving the agency theory, bird-in-hand theory, signaling theory, and tax clientele theory treatments, respectively. The growth rate of *DPS* shows a similar pattern. The results suggest that the treatment effect of agency theory is more pronounced and positive for firms' dividends relative to that of the other three theories.

Online Appendix 6 illustrates four real-life cases where the treatment effect of agency theory induces firms to increase their dividends. For example, after receiving the agency theory treatment, Shenzhen Overseas Chinese Town Company (000069) has a *DPS* of 4 yuan in 2021, which is 1 yuan higher than its DPS in 2020 (its dividend yield increases from 4.4% to 5.9%).

Panel B of Table 2 additionally presents the differences in numbers between the various treatment groups and the control groups, as well as the significance of these differences. We find that the differences in $Dummy(\Delta DivYield_1 > 0)$, $Dummy(\Delta DivYield_2 > 0)$, $Dummy(\Delta DPS > 0)$, and $\Delta DivYield_1 / DivYield_1$ between the agency theory treatment groups and the control groups are statistically significant, while the differences between the control groups and the other theory treatment groups are not significant. These results indicate that agency theory can better explain firms' dividend policy than the other three theories in the context of our field experiment.

We also perform the same difference test for the full sample and the subsample of non-payers. The results are reported in Online Appendix 7. We find a similar pattern to that reported above. Specifically, the treatment and control groups show no significant differences in $DivYield_1$ and *DPS* and other firm characteristics before the experiment (Panels A1 and B1). The

differences in *Dummy(ΔDivYield₁ >0)* and *ΔDivYield₁ / DivYield₁* between the agency theory treatment groups and the control groups are positive and statistically significant in the full sample but are not significant in the subsample of non-payers (Panels A2 and B2). We do not observe a positive and significant treatment effect for the other three theories for the full sample and the subsample of non-payers.

Overall, our evidence indicates that only agency theory can affect firms' dividend policy and that this effect is concentrated on past payers.

4.2. Baseline regression analysis

We run a logit model to estimate Equation (1). The results based on past payers are presented in Table 3. Columns (1) and (2) report the estimates for firms receiving the agency theory treatment (i.e., $Agency_{theory}$ and $Agency_{theory+call}$ groups) and the control firms (i.e., $Control_{null}$ and $Control_{placebo}$ groups).

In Column (1), the coefficient on *Treatment* is 0.388, which is statistically significant at the 1% level (t = 2.59). The magnitude of the coefficient is economically significant, indicating that receiving the treatment increases the odds ratio by 1.474 (i.e., $e^{0.388}$) relative to the control firms. This implies that if the probability of increasing dividends for firms that do not receive the treatment is 0.36 (i.e., the mean of *Dummy(ΔDivYield₁ >0)* in the control groups), this probability will increase to 0.45 for those that receive the treatment.

When we control for the full set of firm characteristics in Column (2), the coefficient on *Treatment* remains statistically significant, and its magnitude increases further (0.402, t = 2.46). This means that receiving the agency theory treatment increases the odds ratio by 1.49 (i.e., $e^{0.402}$) and the probability of increasing *DivYield₁* by about 9.6%.

Column (3) reports the results for firms receiving the bird-in-hand theory treatment and the control firms. The coefficient on *Treatment* is positive but not significant. Column (4) reports the results when firm characteristics are included as controls. The coefficient on *Treatment* remains not significant. These results suggest that the bird-in-hand theory treatment has no significant effect on firms' dividend policy.

Columns (5) and (6) report the results for firms receiving the signaling theory treatment and the control firms. The coefficients on *Treatment* are positive but not statistically significant. Columns (7) and (8) report the results for firms receiving the tax clientele theory treatment and the control firms. The coefficients on *Treatment* are also not significant. These results suggest that the signaling and tax clientele theory treatments have no effect on firms' dividend policy.

Researchers may worry that finding one in four effects significant could merely be due to the problems associated with multiple hypothesis testing (MHT)—that is, slicing a dataset into groups may by chance yield a significant result (see Harvey et al., 2016). However, this concern is unfounded. First, even after applying statistical approaches from the literature to adjust the p-value, the results based on agency theory remain significant. For instance, in Column 1 of the table, the t-value for *Treatment* is 2.59, with a corresponding p-value of 0.98%. Using the Bonferroni adjustment as discussed by Harvey, Liu, and Zhu (2016, p.17), the adjusted p-value is 3.92% (significant at the 5% level), which is the original p-value multiplied by the number of tests (in our case, it is four). Applying the same adjustment, the p-value for *Treatment* in the model with controls is 5.64%, which is still significant at conventional statistical levels.

Second, we employ a direct approach by jointly testing the four hypotheses in a full sample. These results are reported in Columns (9) and (10). Specifically, we employ the full sample and incorporate the four theory treatment indicators into the same model. Each theory treatment

indicator is set to 1 for firms that receive one of the four theory treatments and 0 for the others. Our findings indicate that only the coefficients associated with the agency theory treatment indicators are significant. Furthermore, the magnitude of coefficients for all treatment indicators is comparable to those estimated from their respective subsamples. This suggests that our estimation is robust and is not skewed by a specific sample.

[Insert Table 3 about here]

The results based on the full sample are reported in Online Appendix 8. The coefficient on *Treatment* in the agency theory model without firm controls is 0.239 (Column 1) and is statistically significant (at the 10% level). After adding the control variables, the coefficient on *Treatment* is 0.296 (Column 2), significant at the 5% level. This indicates that receiving the agency theory treatment increases the odds ratio by 1.345 (i.e., $e^{0.296}$). Similar to the results in Table 3, the coefficients on the treatment variable for the other three theories are not significant.[24]

To complete our analysis, we run the analysis using the subsample of non-payers. The results are reported in Online Appendix 9. Columns (1), (3), (5), and (7) report the results without firm controls. We find that with the exception of the tax clientele theory model (Column 7), the coefficients on *Treatment* for the other theories are not significant. When the control variables are added to the model, as shown in Columns (2), (4), (6), and (8), the coefficients on *Treatment* in all of the models are not significant. These results indicate that there is no treatment effect on non-payers.

In summary, the agency theory treatment stands out and has a positive effect on firms' dividend policy, while the other three theories have no significant effects on firms' dividend

[24] We obtain similar results when we employ the full sample and include the four theory treatment indicators into the same model.

policy. However, the treatment effect of agency theory only exists among past payers and not among non-payers. These results are consistent with our discussion of the differences between past payers and non-payers.

In all of the analyses below, we find similar patterns for the subsample of past payers, the full sample, and the subsample of non-payers. To save space, we only report the results based on the subsample of past payers.

4.3. Heterogeneous effects of the theory treatment

To substantiate our evidence supporting the treatment effect of different dividend theories, we next examine how the treatment effect varies with ex-ante firm characteristics. First, we examine whether the treatment effect of agency theory varies with firms' agency problems ex ante. According to agency theory, paying dividends reduces a firm's free cash flow and hence mitigates the problem of management entrenchment. If our treatment increases the likelihood of disciplinary action as perceived by managers (e.g., shareholder activism) and induces them to pay higher dividends, the treatment effect should be more pronounced when a firm's management is more loosely governed before the experiment (i.e., ex-ante agency problems are more serious).

Second, we examine whether the treatment effect of bird-in-hand theory varies with firms' stock price volatility. This theory shows that investors prefer dividends to capital gains because they believe that capital gains are more volatile and riskier. If our exercise makes firms aware of investors' preferences, the treatment effect will be stronger for firms with higher stock price volatility than in those with lower stock price volatility.

Third, we examine whether the treatment effect of signaling theory varies with firms' stock

performance and information transparency. Signaling theory suggests that the payment of dividends can serve as a signal to mitigate the information gap between firm insiders and outside investors and to increase stock prices. If our exercise makes firms aware of growing investor concerns about information opacity, the treatment effect should focus on firms with low transparency and poor past stock performance.

Fourth, we examine whether the treatment effect of tax clientele theory varies with investors' shareholding period. This theory posits that investors demand more dividends when the tax on dividend income decreases. If our exercise makes firms realize investors' increased awareness of China's dividend tax exemption policy, the treatment effect should be stronger when firms' average shareholding period is long than when it is short because the tax exemption policy applies to investors whose shareholding period is greater than 1 year.

To conduct these tests, we construct four measures of agency problems, including two internal governance measures (*Log(ExePay)* and *IndDirectors*) and two external governance measures (*Analyst* and *IO*). *Log(ExePay)* is the natural logarithm of the total compensation of the top three executives. *IndDirectors* is the percentage of independent directors on the board. *Analyst* is the number of financial analysts that have issued at least one forecast during the year. *IO* is the proportion of shares held by institutional investors. Firms with a high level of executive compensation, low board independence, low analyst coverage, and low institutional ownership are expected to have weak governance and are therefore more likely to be plagued by agency problems (Shleifer and Vishny, 1997).

We measure stock price volatility using *Volatility* and *CGVolatility*. *Volatility* is the standard deviation of a firm's monthly stock returns (including dividend return) in 2020. *CGVolatility* is the standard deviation of a firm's monthly capital gains yield (i.e., difference between month-end

and start-of-month prices scaled by the start-of-month price) in 2020. We measure stock price performance and information opacity using *Return* and *Dispersion*, respectively. *Return* is a firm's annual stock return (including dividend return) in 2020. *Dispersion* is the standard deviation of earnings forecasts by all financial analysts scaled by year-end stock prices in 2020. Firms' information opacity and uncertainty are high when *Dispersion* is high (Zhang, 2006). We use *Turnover* and *Tradable* as proxies for investors' shareholding period. *Turnover* is the value of shares traded scaled by total market value in 2020 (i.e., monthly average of the ratios of the value of shares traded scaled by market value). *Tradeable* is the value of total tradable shares scaled by total market value in 2020 (i.e., monthly average of the ratios of the value of total tradable shares scaled by market value). Investors' average shareholding period is expected to be longer when *Turnover* and *Tradable* are lower (Atkins and Dyl, 1997; Gaspar et al., 2005).

These 10 variables are measured using data at the end of 2020 before our experiment. We divide all firms in the same industry into two groups based on the median of each variable. We re-estimate Equation (1) using these subsamples.

[Insert Table 4 about here]

The results for the agency theory treatment are reported in Table 4. Panel A reports the results when the internal governance variables are used. We find that the treatment effect of agency theory is significant only in the high executive compensation and low board independence subsamples, suggesting that the treatment effect of agency theory is more pronounced for firms with weak internal governance. Panel B reports the results when the external governance variables are used. We find that the treatment effect of agency theory is significant only in the low analyst coverage and low institutional ownership subsamples, suggesting that the treatment effect of agency theory is stronger for firms subject to weaker

external monitoring.

The results for the treatment of the other theories are reported in Online Appendix 10. We find that the treatment effect of bird-in-hand theory on firms' dividends is not significant, even when stock price volatility is high (see Panel A), and the treatment effect of signaling theory is not significant for firms with poor past stock performance and high information opacity (see Panel B). Likewise, the treatment effect of tax clientele theory is not significant for longer shareholding periods (Panel C). These results indicate that the non-significant treatment effects of these three dividend theories are independent of firm attributes.

Overall, agency theory fits the data better in explaining firms' dividend policy.

4.4. Robustness tests

4.4.1. Time to respond to our treatment

For our treatment to be effective, an overlap between our treatment exercise and SOBs' decision window is necessary. We re-estimate our model by excluding firms for which our treatment is less likely to be effective. Online Appendix 4 shows that 289 firms announced their dividend proposals in the first week of our experiment (March 29, 2021 to April 2, 2021). It is therefore likely that these firms announced their dividend proposals before receiving our treatment or that their SOBs did not have enough time to respond to our treatment. We exclude these 289 firms and re-estimate our model.

The results for the agency theory treatment are reported in Panel A of Table 5. We find that the treatment effect of agency theory is stronger than in the baseline results reported in Table 3. The coefficient on the treatment variable in the model without firm controls increases to 0.399 (t = 2.49) and the coefficient in the model with the control variables increases to 0.445 (t = 2.54).

These results suggest that the treatment effect of agency theory is more pronounced when the SOBs have more time to respond to our treatment.

We apply the same filtering when analyzing the treatment effects of the other three theories. The results are reported in Column (1) of Online Appendix 11. We still find that the coefficients on the treatment variable for the three theories are not significant. This evidence mitigates the concern that the lack of treatment effect for these three theories is due to a mismatch between the timing of our treatment and SOBs' decision window.

[Insert Table 5 about here]

4.4.2. Using the placebo treatment group as the control group

In our previous analysis, we use both firms that receive no treatment ($Control_{null}$) and firms that receive the placebo treatment ($Control_{placebo}$) as control groups. However, the start of our experiment when we communicate with firms may increase firms' attention to outside investors and therefore influence their dividend policy, which may bias our estimates. To mitigate this concern, we re-estimate our model using only the placebo treatment group as the control group.

Because all firms in the $Control_{placebo}$ group also receive our messages, if the attention argument is true, there should be a weaker or no significant treatment effect when the treatment firms are compared with those in the $Control_{placebo}$ group. To conduct this test, we recode *Treatment* as 1 for firms in the $Agency_{theory}$ and $Agency_{theory+call}$ groups and 0 for those in the $Control_{placebo}$ group, and re-estimate Equation (1).

The results are reported in Panel B of Table 5. We find that the treatment effect of agency theory continues to be significant. Specifically, the coefficient on the treatment dummy is 0.446,

significant at the 1% level, as shown in Column (1). This suggests that the probability of increasing the dividend yield of firms receiving the agency theory treatment is likely to increase by 11% compared with those receiving the placebo treatment.[25] The magnitude of the coefficient is greater than that of the baseline results reported in Table 3. We obtain similar results when the control variables are included, as shown in Column (2).

The results for the other three theories are reported in Column (2) of Online Appendix 11. The coefficients on the treatment variable for the three theories continue to be non-significant. Therefore, the lack of treatment effect for these three theories is not due to the inappropriate choice of control group.

4.4.3. Alternative dividend measures

In our previous regressions, we use *Dummy(ΔDivYield₁ >0)* as the dependent variable. In this section, we re-estimate our model using alternative measures of the change in dividend payments.[26] First, we re-estimate our model by replacing *Dummy(ΔDivYield₁ >0)* with *Dummy(ΔDivYield₂ >0)* and *Dummy(ΔDPS >0)*.

The results for the agency theory treatment are reported in Panel C of Table 5. We find that the coefficients on the treatment dummy are all positive and statistically significant at the 5% level. The coefficient on *Treatment* in Column (1) is 0.297. This indicates that receiving the agency theory treatment increases the odds ratio by 1.35 (i.e., $e^{0.297}$) or the probability of increasing *DivYield₂* by around 7.1% (the mean of *Dummy(ΔDivYield₂ >0)* in the control groups is 0.377). These results are stronger when the control variables are added to the model, as shown

[25] The increase in the odds ratio is 1.56 ($e^{0.446}$). The mean of *Dummy(ΔDivYield₁ >0)* in the $Control_{placebo}$ group is 0.3476.

[26] We also re-estimate the models for the other three theories based on alternative measures of dividend payments and continue to find non-significant results.

in Column (2).

The coefficient on *Treatment* is 0.297 in Column (3). A similar calculation shows that receiving the agency theory treatment increases the probability of increasing *DPS* by around 7.2% (the mean of *Dummy(ΔDPS >0)* in the control groups is 0.38). This result is stronger when the control variables are added to the model, as shown in Column (4). The results for the other three theories are reported in Columns (3) and (4) of Online Appendix 11. None of the coefficients on the treatment variable are significant.

We also measure the change in dividend payments using the percentage change in dividend yield and DPS. We use $\Delta DivYield_1 / DivYield_1$ as defined above to measure the percentage change in dividend yield. We use $\Delta DPS / DPS$ as defined above to measure the percentage change in DPS.

We run an ordinary least squares (OLS) regression on Equation (1) by replacing the dependent variable with $\Delta DivYield_1 / DivYield_1$ and $\Delta DPS / DPS$. The results for the agency theory treatment are reported in Panel D of Table 5. We find that the coefficients on the treatment dummy are all positive and statistically significant. Specifically, $\Delta DivYield_1 / DivYield_1$ for the treatment firms is 17% higher than that for the control firms. $\Delta DPS / DPS$ for the treatment firms is 18% higher than that for the control firms. The results for the other three theories are reported in Columns (5) and (6) of Online Appendix 11. None of the coefficients on the treatment variable are significant.

Overall, the results suggest that the treatment effect of agency theory is robust to different definitions of dividend payments and that the lack of significant treatment effects for the other three theories should not be caused by inaccurate measurement of dividend payments.

5. Additional tests

5.1. Distinguishing between theory and call effects

In this section, we distinguish between theory and call effects by comparing firms that receive only the theory treatment (theory effect) with those that receive both the theory and call treatments (theory + call effect). If our treatment effect is driven by the call effect, the results should be significant for firms receiving the theory + call treatments but not for those receiving only the theory treatment. If our treatment effect is driven by the theory effect, we should observe similar significant results for both groups.

To conduct this test, we re-estimate Equation (1) by recoding the treatment variable. The results for the agency theory treatment are reported in Table 6. Columns (1) and (2) report the results when *Treatment* takes a value of 1 for firms in the $Agency_{theory}$ group and 0 for those in the $Control_{null}$ and $Control_{placebo}$ groups (the number of observations available is 560). The coefficients on *Treatment* are positive and significant in both columns, suggesting that firms receiving only the agency theory treatment increase their propensity to pay dividends.

Columns (3) and (4) report the results when *Treatment* takes a value of 1 for firms in the $Agency_{theory+call}$ group and 0 for those in the $Control_{null}$ and $Control_{placebo}$ groups (the number of observations available is 560). The coefficients on *Treatment* are positive and significant. These results suggest that the theory + call effect is significant for firms' propensity to increase dividends.

[Insert Table 6 about here]

Next, we test whether the theory effect is significantly different from the theory + call effect. To this end, we construct the variable *Treatment (theory only)*, which takes a value of 1 for firms in the $Agency_{theory}$ group and 0 for those in the $Agency_{theory+call}$ group. The results

are shown in Columns (5) and (6) (the number of observations available is 372). We find that the coefficients on *Treatment (theory only)* is not significant, suggesting that there is no significant difference between the $Agency_{theory}$ and $Agency_{theory+call}$ groups. In other words, adding the call treatment does not have a significant incremental effect on firms' propensity to increase dividends. Therefore, our evidence indicates that the treatment effect of agency theory is not driven by the call effect.

The results of our treatments for the other three theories are reported in Online Appendix 12. We find that none of the coefficients on the treatment variable are statistically significant. The only exception is that adding the call treatment to the bird-in-hand theory treatment increases firms' propensity to increase dividends (see Column 6). However, this result is statistically weak (t = 1.72). Similar effects are not observed for the other two theories (signaling and tax clientele).

Overall, we find that firms increase their propensity to pay dividends when receiving the agency theory treatment but show no change in dividend policy when receiving an explicit request to increase/initiate dividends. These results suggest that firms change their dividend policy via the theory effect rather than the call effect.

5.2. The role of the secretary of the board

As argued in Section 2, our experimental exercise is based on the role of the SOB as a coordinator between outside investors and the firm's decision-making body. This argument implies that our treatment effect should be more pronounced when the SOB plays a more important role in the firm. To substantiate this argument, we create three variables to measure the importance of the SOB in a firm.

The first variable is *Num. SOBs*, which is the number of SOBs in a firm.[27] If a firm's IR department is more important, it is likely to receive more resources and hire more SOBs than firms with a less important IR department. When a firm has more SOBs, it has more recourse to respond to investors' concerns and queries.

The second variable is *Log(SOB compensation)*, which is the natural logarithm of the total compensation of all SOBs in a firm. Hiring SOBs is costly. When a firm spends more money on its SOBs, it indicates that SOBs are likely to play an important role in the firm.

Third, IR communication channels (e.g., telephone, email, and the EasyIR platform) are more important for investors to communicate with a firm if investors cannot contact the firm via other channels such as WeChat and Weibo. Moreover, if communication between firms and outsiders occurs primarily through the IR channel, SOBs are more likely to receive more information from outsiders; as a result, their dividend proposals will be more compelling to their firm's decision-making body. Therefore, we create the variable *Dummy (Alt. Communication)*, which equals 1 if a firm has official WeChat or Weibo accounts, and 0 otherwise. We add the above three variables and their interaction terms with our treatment variable to Equation (1).

The results for the agency theory treatment are reported in Table 7. As expected, we find that the treatment effect of agency theory is more pronounced when a firm has more SOBs, when these SOBs are better paid, and when the firm has no alternative communication channels such as WeChat and Weibo. These results suggest that the treatment effect of agency theory is stronger when a firm's SOBs play a more important role than when they do not.

The results of our treatments for the other three theories are reported in Online Appendix 13. We do not observe similar and significant results. One exception is that the treatment effect of signaling theory appears to increase firms' propensity to increase dividends when their SOB

[27] Our data shows that some firms have multiple SOBs.

compensation is high. One plausible explanation for this finding is that when highly paid SOBs realize investors' growing concerns about firms' information opacity, they are inclined to propose a dividend increase in the hope of covering their high compensation.

[Insert Table 7 about here]

5.3. Comparing different communication channels

In our experiment, we use three channels (i.e., online IR platforms, email, and telephone) to contact a firm's SOB. These channels vary in their communication effectiveness (Firth et al., 2020). In this subsection, we test which channel is more likely to be the channel through which the treatment effect of dividend theories propagates.

To conduct this test, we focus on the treatment firms for each theory and examine whether the strength of the treatment effect varies with the communication intensity of each channel. To this end, we create six variables to measure communication intensity. First, we create dummies to indicate whether a specific channel is actually used in the experiment: *Dummy(Telephone)*, which equals 1 if we successfully contact a firm during the experimental period at least once and 0 otherwise; *Dummy(OnlineIR)*, which equals 1 if we receive at least one response from a firm on its online IR platform during the experimental period and 0 otherwise; and *Dummy(Email)*, which equals 1 if we receive at least one email from a firm during the experimental period and 0 otherwise.[28]

Moreover, we measure the duration of communication for each channel to capture the extent to which we engage with a firm based on the focal channel. The variables include *Log(Telephone)*, which is the logarithm of the average number of characters in the telephone

[28] The means of *Dummy(Telephone)*, *Dummy(OnlineIR)*, and *Dummy(Email)* for firms receiving the agency theory treatment are 0.86, 0.46, and 0.30, respectively.

transcripts; *Log(OnlineIR)*, which is the logarithm of the average number of characters in a firm's response on its online IR platform; and *Log(Email)*, which is the logarithm of the average number of characters in a firm's email. We expect communication to be more informative when the duration of communication is longer.

We re-estimate Equation (1) by replacing the treatment variable with the above six measures. The results for the agency theory treatment are reported in Table 8. We find that the coefficient on *Dummy(Telephone)* is positive and statistically significant at the 1% level, while the coefficients on *Dummy(OnlineIR)* and *Dummy(Email)* are not significant. These results suggest that the treatment effect of agency theory is stronger when telephone communication is used in the experiment. The results are similar when communication duration is used. As shown in Column (2), the coefficient on *Log(Telephone)* is positive and significant, while the coefficients on *Log(OnlineIR)* and *Log(Email)* are not significant.[29]

Overall, the results suggest that telephone communication is the channel through which our treatment effect of agency theory occurs. The results for the other three theories are reported in Online Appendix 14. We find that the coefficients on *Dummy(Telephone)* and *Log(Telephone Length)* for the other three theories are not statistically different from 0.

[Insert Table 8 about here]

5.4. Post-experimental survey

Lastly, we implement a follow-up survey to validate our experimental design and elucidate the mechanism behind our findings. In this effort, we contact each firm in our sample via phone

[29] In unreported analyses, we use an alternative sample for the regression by including both control firms and firms receiving the agency theory treatment. The communication intensity measures for the control firms take a value of 0. We find that the coefficients on *Dummy(Telephone)* and *Log(Telephone)* are positive and significant at the 1% level, while the coefficients on *Dummy(OnlineIR)*, *Dummy(Email)*, *Log(OnlineIR)*, *Log(Email)* are not significant.

to discuss any investor queries or issues they have experienced and to understand how they respond to such matters.

The survey questions are provided in Online Appendix 15, consisting of three questions. The first question, Q1 "*Has your company received queries from investors concerning following issues in past two years? (Queries could be made via online platforms such as EasyIR and sseinfo.com, IR email, or IR telephone)*" helps us confirm the effective treatment delivery across groups. The second question, Q2 "*What responses do you have in mind to these queries?*" allows us to understand firms' approaches to addressing investor concerns. Lastly, Q3, "*How can your firm benefit from an increased level of cash dividend payout?*" is aimed at understanding the reasoning behind firms' decisions to increase dividends. The survey uses a multiple-choice format, allowing firms to select one or more options for the same question.

We conducted this survey in April 2023 through a research center of our institution. We initiated conversations with each of the 1,589 past payers in our sample to discuss these three questions. We received responses from 711 firms to at least one question, yielding a response rate of 45%.

[Insert Figure 4 about here]

The survey results are available in Figure 4. Panel A presents the responses to Q1. Panel A1 reveals that 23% of the past payers select option A (corporate governance), 29% choose option B (high stock price volatility), 17% select option C (insufficient information disclosure), and 10% opt for option D (dividend tax).[30] Panel A2 shows, among those that choose A (N=359), 22% of them belong to the agency theory treatment groups ($Agency_{theory}$ and $Agency_{theory+call}$ groups). This relatively low representation of the agency theory treatment groups could likely be

[30] The cumulative percentage does not necessarily total 100% because some firms may select one or more options, while others might not answer all three questions.

due to the extended period between the conduct of the experiment and the survey. The percentage is 21% for the signaling theory treatment groups and even lower for other groups. Yet, even with the long duration between the experiment and the survey, the results still affirm the effectiveness of our experimental design.

Panel B displays the responses to Q2. As shown in Panel B1, 8% of past payers who receive investor concerns think of "increasing dividends" to mitigate the concerns (option E), next only to "improving investor relation management" (option D) (15%) and "increasing corporate information disclosure" (option C) (13%). Among those viewing increasing dividends as a solution to mitigate investors' concerns (N=122), 25% of them are from the agency theory treatment groups. The percentage is the highest among the treatment and control groups, suggesting that the agency theory treatment most significantly influences firms' decision to increase dividends as a response to investor concerns.

Panel C presents the results of Q3. Panel C1 shows the percentage of past payers that choose each option in Q3, given that they choose E in Q2 (i.e., increase dividends). We find that most of firms (61%) believe that paying dividends earns them investor support for corporate governance issues (option A) (e.g., investors are more likely to vote in favor of the company's management decisions). This belief is more prevalent than the notions that paying dividends provides stable income to investors (option B), signals positivity to the market (option C), or benefits long-term investors (option D). These results suggest that the mechanism most likely driving firms' dividend payments relates to corporate governance or agency problems.

Panel C2 further demonstrates that 31% of firms choosing E in Q2 and A in Q3 (N=75) are in the agency theory treatment groups, which is significantly higher than the percentage for other treatment and control groups. This supports the idea that concerns about corporate governance or

agency problems primarily drive the treatment effect of the agency theory we find. Overall, the survey evidence endorses our experimental findings.

5. Conclusion

We conduct a field experiment to test the four main dividend theories in the literature (i.e., agency, bird-in-hand, signaling, and tax clientele theories). Exploiting the IR policies of publicly listed firms that allow interactive communication between firms and market participants, we contact firms using their online IR platforms, email, and telephone during the window when SOBs are expected to propose the firm's dividend payment plan. We express concerns or queries on frictions of a particular dividend theory and examine whether firms receiving the treatment of the theory increase their propensity to pay dividends in the following period, compared with the control firms.

We find that past payers tend to increase their dividends after receiving the agency theory treatment. We do not find a similar treatment effect for non-payers. Moreover, firms receiving the treatments of the other three theories do not experience a significant change in their dividend policy, whether they are past payers or non-payers. Further supporting agency theory, we find that the treatment effect of agency theory is more pronounced for firms with poor governance and more serious agency problems. The treatment effect of agency theory in past payers is robust to controlling for different firm characteristics, various measures of dividend payments, and alternative model specifications. In addition, the treatment effect of agency theory on past payers is not driven by investors' demand for dividends. This effect also increases with the importance of the role of the SOB in a firm and when using the telephone channel to communicate with investors. A subsequent experimental survey lends further credibility to these observations.

Overall, we obtain causal evidence for the agency cost motive as an important determinant of a firm's dividend policy.

Cross-country studies of dividend policy suggest that "payout policies around the world have been subject to largely similar dynamics to those experienced by U.S. firms" (Farre-Mensa et al., 2014, p. 89). We believe that our evidence from China also sheds light on the determinants of dividend policy in the U.S. and other countries.

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Appendix Table 1: The distribution of dividend proposal dates

This table presents the distribution of dividend proposal dates for all Chinese publicly listed firms in 2020 and 2021. Panel A presents the monthly distribution of dividend proposal dates in 2020. Panel B presents the weekly distribution of dividend proposal dates in April 2020 and April 2021 (W*x* indicates a week in a month). Panel C presents the distribution of dividend proposal dates in 2021 for firms that filed dividend proposals each month of 2020.

Panel A: Monthly distribution of dividend proposal dates in 2020

Year.month	Frequency	Percentage (%)	Cum. Frequency	Cum. Percentage (%)
2019.12	2	0.05	2	0.05
2020.01	3	0.08	5	0.13
2020.02	36	0.92	41	1.05
2020.03	657	16.76	698	17.8
2020.04	**3,077**	**78.47**	**3,775**	**96.28**
2020.05	57	1.45	3,832	97.73
2020.06	80	2.04	3,912	99.77
2020.07	3	0.08	3,915	99.85
2020.08	4	0.1	3,919	99.95
2020.09	1	0.03	3,920	99.97
2020.10	1	0.03	3,921	100

Panel B: Weekly distribution of dividend proposal dates in April 2020 and April 2021

Year.month.week	Frequency	Percentage (%)	Cum. Frequency	Cum. Percentage (%)
2020.04.W1	106	3.44	106	3.44
2020.04.W2	225	7.31	331	10.76
2020.04.W3	385	12.51	716	23.27
2020.04.W4	862	28.01	1,578	51.28
2020.04.W5	1,499	48.72	3,077	100
Year.week	Frequency	Percentage (%)	Cum. Frequency	Cum. Percentage (%)
2021.04.W1	68	2.13	68	2.13
2021.04.W2	227	7.12	295	9.26
2021.04.W3	446	14	741	23.26
2021.04.W4	802	25.17	1,543	48.43
2021.04.W5	1,643	51.57	3,186	100

Panel C: Monthly distribution of dividend proposal dates in 2021 for firms that filed dividend proposals each month of 2020

Year.month	2020.03	2020.04	2020.05	2020.06
2021.01	0	2	0	0
2021.02	8	24	0	0
2021.03	454	539	3	5
2021.04	193	**2,497**	53	67
2021.05	0	1	0	0
2021.06	0	1	0	0
Total	655	3,064	56	72

Appendix Table 2: Sample selection procedure

This table presents the sample selection procedure for our experiment.

Steps	Sample	Number of unique firms remaining
1	Publicly listed firms by March 27, 2021	4,277
2	Excl. firms with missing ROA in 2020	3,861
3	Excl. B-shares	3,769
4	Excl. ST firms	3,569
5	Excl. firms with 2021 dividend proposals submitted before March 27, 2021	3,019
6	Excl. firms that did not issue a dividend proposal in April 2020	2,566
7	Excl. firms with missing financial information	2,564
8	**The final sample**	**2,564**
	--firms that paid dividends in 2020 (past payers)	1,859
	--firms that did not pay dividends in 2020 (non-payers)	705

Appendix Table 3: Theory and theory + call treatment templates (translated from Chinese)

Theory	Theory treatment	Theory + call treatments (call for an *increase* in dividends)	Theory + call treatments (call for *initiating* dividends)
Agency theory	A firm's managers are more likely to overinvest and overspend when the firm has too much cash. Reducing its cash holding may improve shareholder value.	A firm's managers are more likely to overinvest and overspend when the firm has too much cash. Reducing its cash holding may improve shareholder value. Should the firm increase cash dividends?	A firm's managers are more likely to overinvest and overspend when the firm has too much cash. Reducing its cash holding may improve shareholder value. Should the firm start paying cash dividends?
Bird-in-hand	Relative to capital gains that come with share price changes and fluctuate from time to time, I like cash dividends because they give me a sense of certainty.	Relative to capital gains that come with share price changes and fluctuate from time to time, I like cash dividends because they give me a sense of certainty. Should the firm increase its cash dividends?	Relative to capital gains that come with share price changes and fluctuate from time to time, I like cash dividends because they give me a sense of certainty. Should the firm start paying cash dividends?
Signaling	I am confused about the firm's operations, is there anything you can do to allow me to have more confidence in the firm's profitability?	I am confused about the firm's operations, is there anything you can do to allow me to have more confidence in the firm's profitability? Should the firm increase its cash dividends?	I am confused about the firm's operations, is there anything you can do to allow me to have more confidence in the firm's profitability? Should the firm start paying cash dividends?
Tax clientele	If I hold your shares for more than a year, will I be exempt from dividend income tax?	If I hold your shares for more than a year, will I be exempt from dividend income tax? Should the firm increase its cash dividends?	If I hold your shares for more than a year, will I be exempt from dividend income tax? Should the firm start paying cash dividends?

Appendix Table 4: Treatment groups

This table presents the treatment and control groups used in the experiment.

No.	Group type	Dividend theory	Treatment	Group name
1	Treatment groups	Agency theory	Agency theory treatment	$Agency_{theory}$
2			Agency theory + call treatments	$Agency_{theory+call}$
3		Bird-in-hand theory	Bird-in-hand theory treatment	$Bird_{theory}$
4			Bird-in-hand theory + call treatments	$Bird_{theory+call}$
5		Signaling theory	Signaling theory treatment	$Signaling_{theory}$
6			Signaling theory + call treatments	$Signaling_{theory+call}$
7		Tax clientele theory	Tax clientele theory treatment	Tax_{theory}
8			Tax clientele theory + call treatments	$Tax_{theory+call}$
9	Control groups	No theory	Placebo treatment	$Control_{placebo}$
10			No treatment	$Control_{null}$

Figure 1: Timeline and layout of the experiment

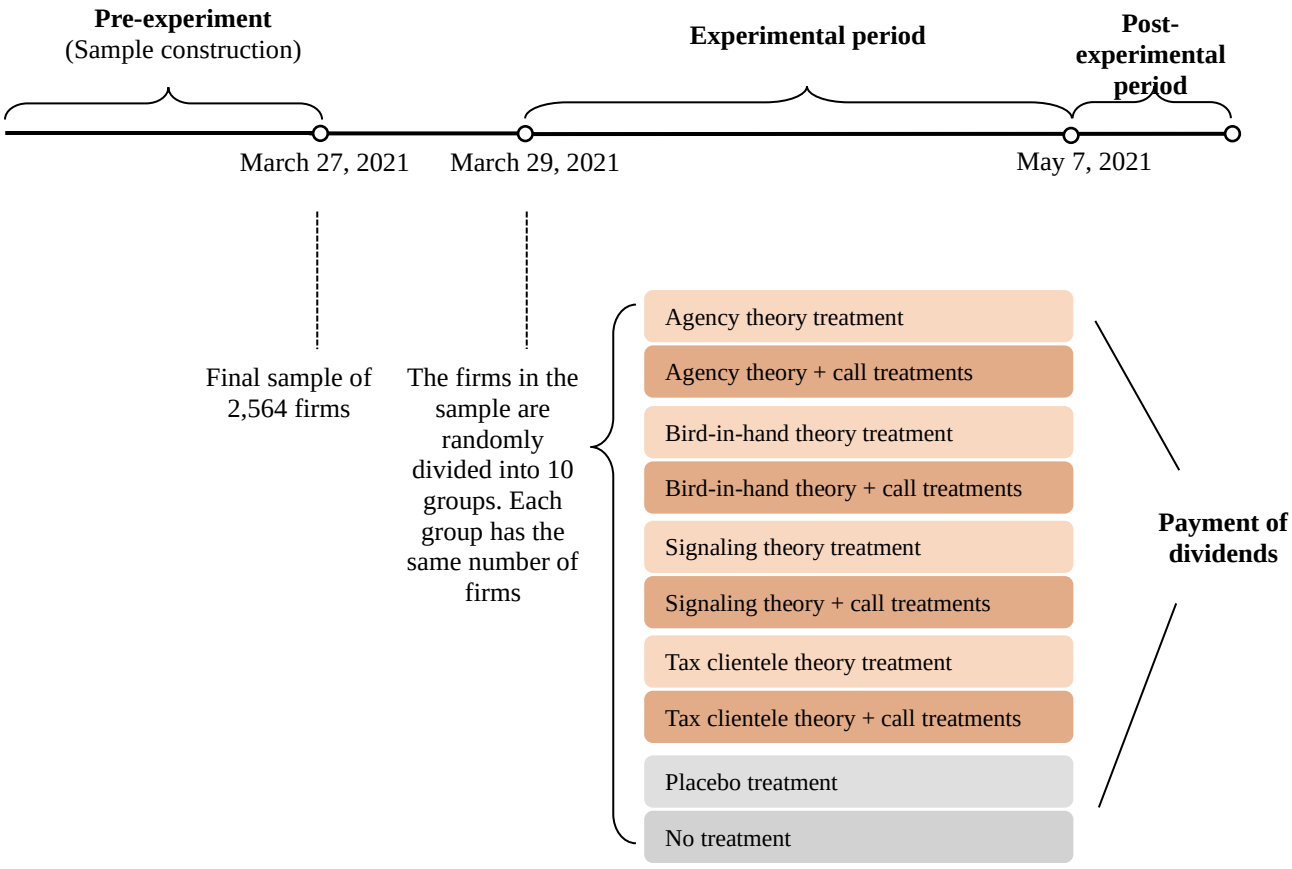
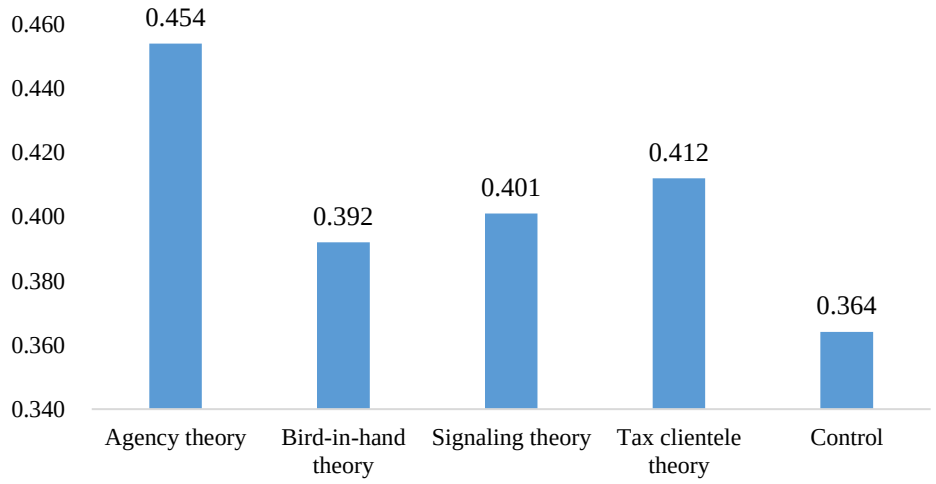


Figure 2: The fraction of firms that increase their dividends in the post-experimental period

The figure reports the fraction of firms that increase their dividends in the post-experimental period (measured by *Dummy(ΔDivYield₁ >0)* and *Dummy(ΔDivYield₁ >0)*) for past payers (i.e., firms that paid dividends in 2020) in different treatment and control groups. "Agency theory" indicates the average number of firms in the $Agency_{theory}$ and $Agency_{theory+call}$ groups. "Bird-in-hand" indicates the average number of firms in the $Bird_{theory}$ and $Bird_{theory+call}$ groups. "Signaling" indicates the average number of firms in the $Signaling_{theory}$ and $Signaling_{theory+call}$ groups. "Tax clientele" indicates the average number of firms in the Tax_{theory} and $Tax_{theory+call}$ groups. "Control" indicates the average number of firms in the $Control_{placebo}$ and $Control_{null}$ groups.

Panel A: The mean of *Dummy(ΔDivYield₁ >0)*



Panel B: The mean of *Dummy(ΔDPS >0)*

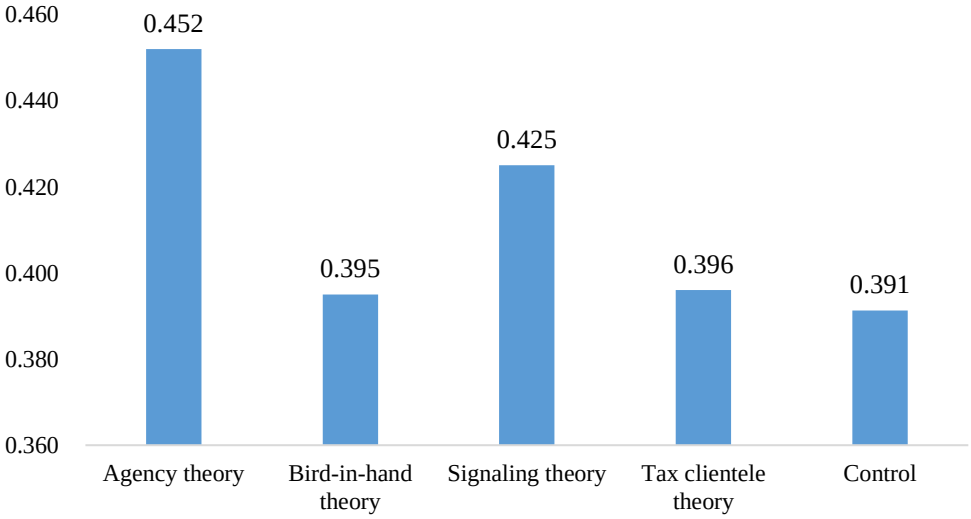


Figure 3: Dividend growth in the post-experimental period

The figure reports the growth rate of dividends in the post-experimental period (measured by $\Delta DivYield_1 / DivYield_1$ and $\Delta DPS / DPS$) for past payers (i.e., firms that paid dividends in 2020) in different treatment and control groups. "Agency theory" indicates the average growth rate of firms in the $Agency_{theory}$ and $Agency_{theory+call}$ groups. "Bird-in-hand" indicates the average growth rate of firms in the $Bird_{theory}$ and $Bird_{theory+call}$ groups. "Signaling" indicates the average growth rate of firms in the $Signaling_{theory}$ and $Signaling_{theory+call}$ groups. "Tax clientele" indicates the average growth rate of firms in the Tax_{theory} and $Tax_{theory+call}$ groups. "Control" indicates the average growth rate of firms in the $Control_{placebo}$ and $Control_{null}$ groups.

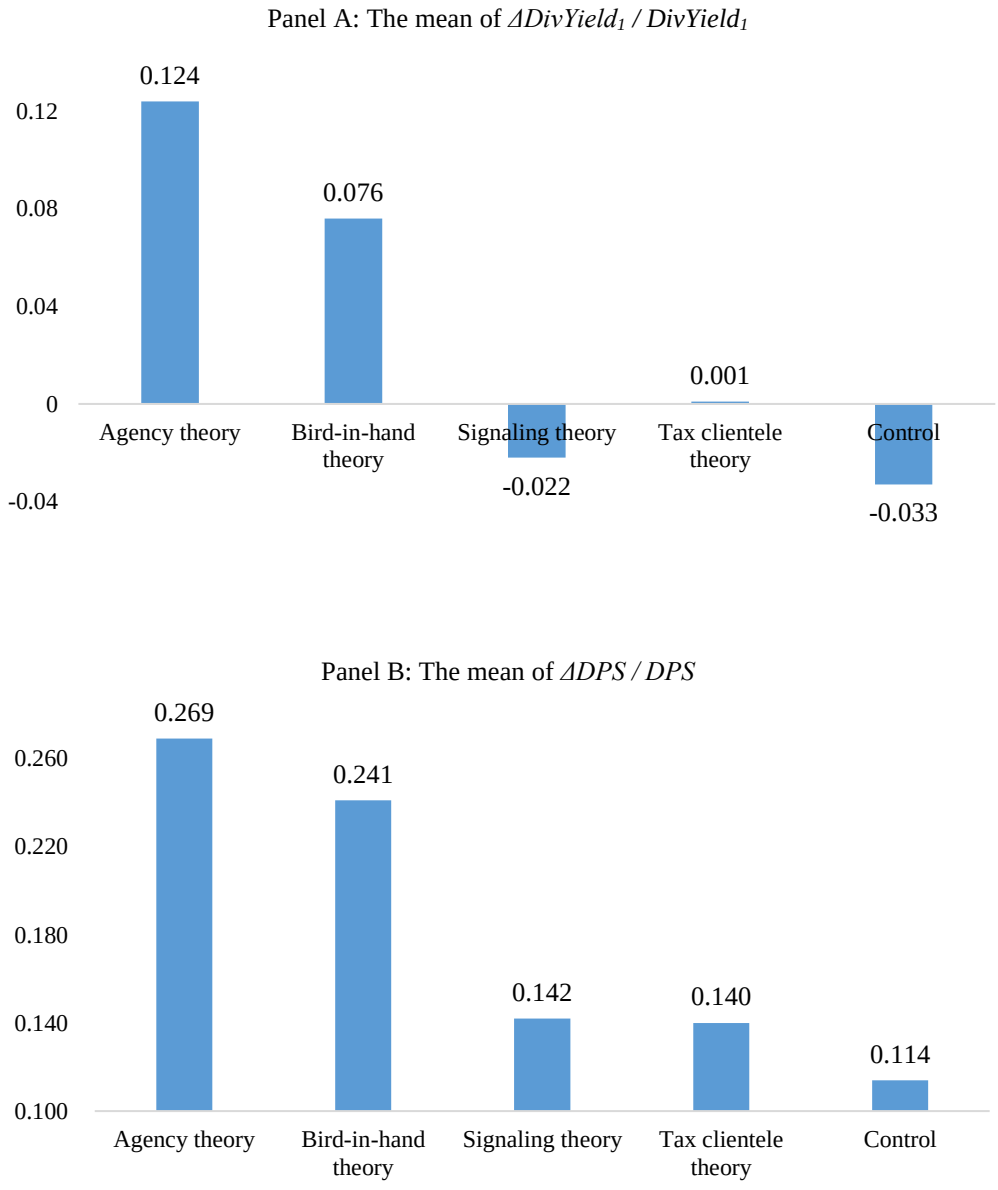
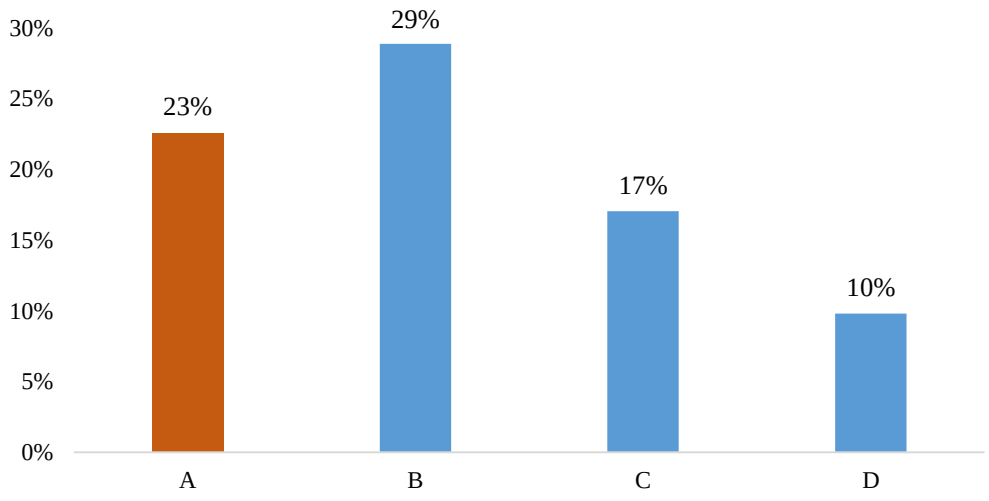


Figure 4: The results of the post-experiment survey

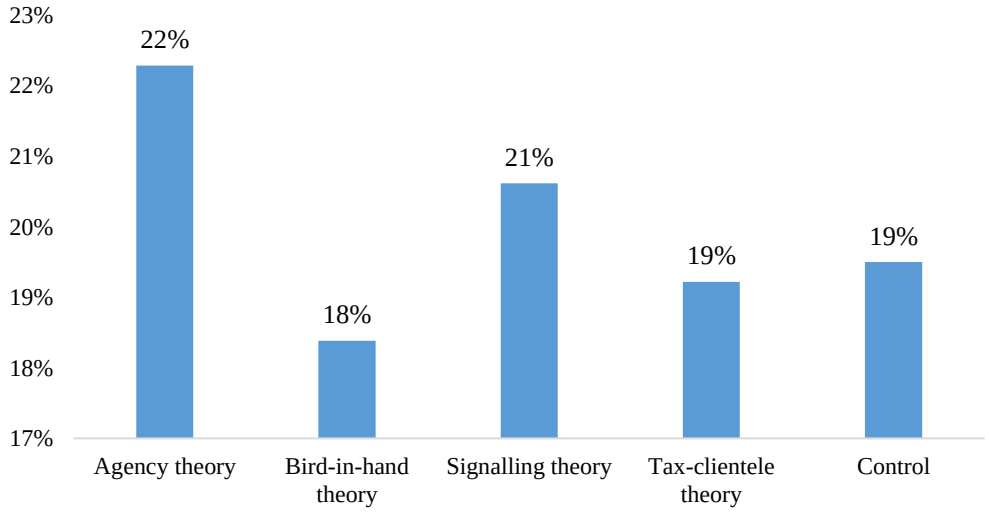
The figure presents the results of the post-experiment survey for past payers (i.e., firms that paid dividends in 2020). The survey questions are provided Online in Appendix 12. "Agency theory" indicates the responses of firms in the $Agency_{theory}$ and $Agency_{theory+call}$ groups. "Bird-in-hand" indicates the responses of firms in the $Bird_{theory}$ and $Bird_{theory+call}$ groups. "Signaling" indicates the responses of firms in the $Signaling_{theory}$ and $Signaling_{theory+call}$ groups. "Tax clientele" indicates the responses of firms in the Tax_{theory} and $Tax_{theory+call}$ groups. "Control" indicates the responses of firms in the $Control_{placebo}$ and $Control_{null}$ groups.

Panel A: The responses to Q1 (i.e., Has your company received queries from investors concerning following issues in past two years?
A. Corporate governance;
B. High volatility of stock returns;
C. Insufficient information disclosure;
D. Dividend tax)

A1: The percentage of participants that choose each option in Q1 (N=1,589)

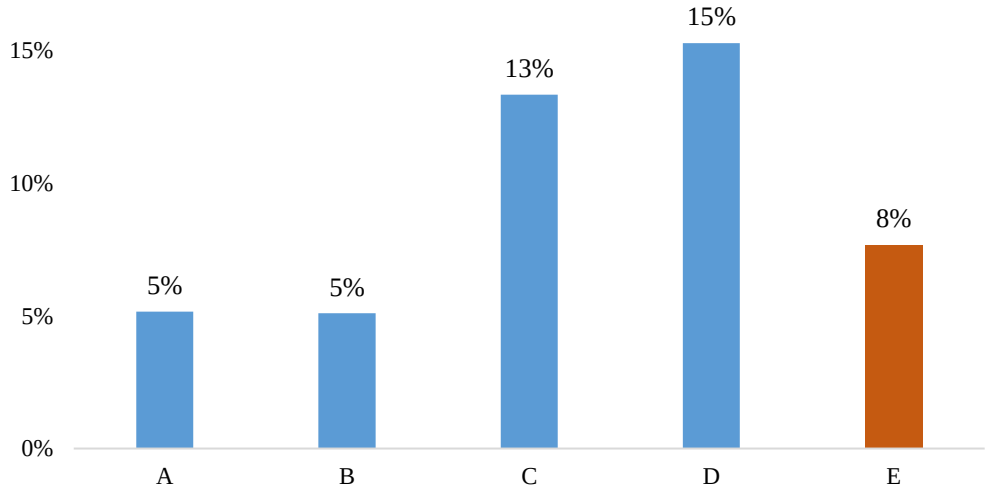


A2: Among participants that choose A (i.e., *corporate governance*) in Q1 (N=359), the percentage of participants falling into each of four treatment groups or the control group

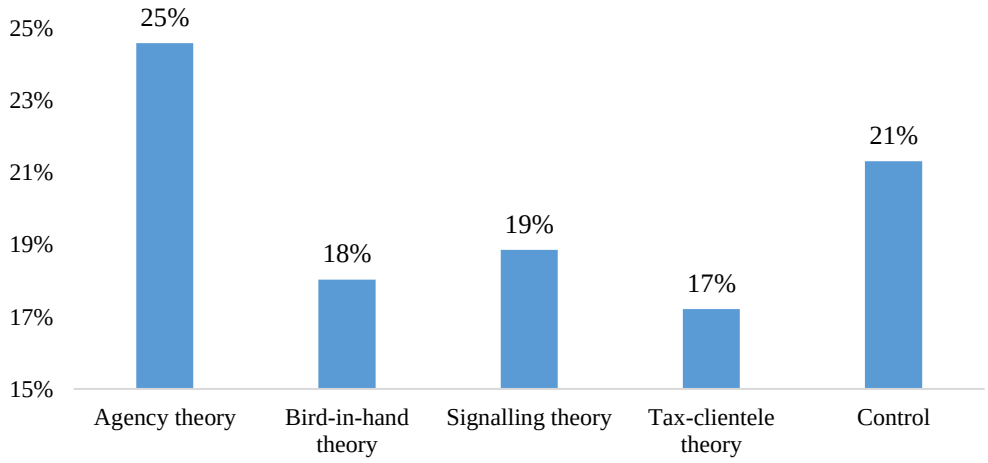


Panel B: The responses to Q2 (i.e., What responses do you have in mind to these queries?
A. Increase investment and lower cash holding;
B. Increase stock repurchases or decrease seasoned equity offering;
C. Increase corporate information disclosure;
D. Improve investor relations management;
E. Increase dividend, especially cash dividend)

B1: The percentage of participants that choose each option in Q2 (N=1,589)



B2: Among participants that choose E (i.e., *Increase dividend, especially cash dividend*) in Q2 (N=122), the percentage of participants falling into each of four treatment groups or the control group



Panel C: The responses to Q3 (i.e., How can your firm benefit from an increased level of cash dividend payout?

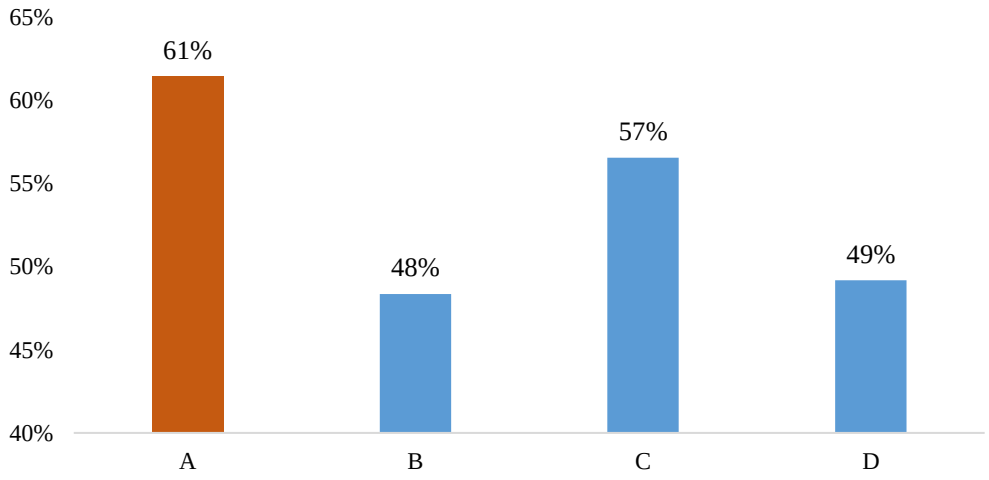
A. Enhancing investors' trust in firms' corporate governance, resulting in better investor collaboration with the firms' management team: for example, investors are more likely to vote in favor of the company's director decisions, or they have more patience when the company meets temporary problems.

B. Bringing a higher level of stable income to investors, reducing investors' perception of the firm's risk, and increasing the stock valuation of the firm.

C. Sending a positive signal of firms' financial healthy and future performance, reducing the information asymmetry, and enhancing investors' confidence in the firm's prospect.

D. Benefiting tax-exempt investors (such as long-term investors holding the stock for more than one year, who do not have pay taxes on dividend income according to China's current tax policy).

C1: The percentage of participants that choose each option in Q3, given that they choose E in Q2 (N=122)



C2: The percentage of participants that choose A in Q3 by treatment and control groups, given that they choose E in Q2 (N=75)

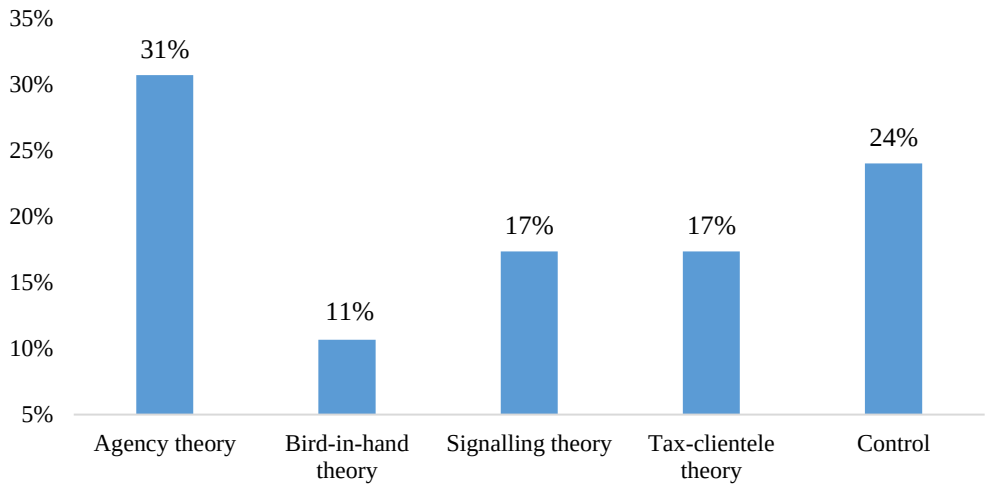


Table 1: Summary statistics

This table presents the summary statistics of the variables used in this paper. Columns (1)–(3) are the results for the full sample (both past payers and non-payers). Columns (4)–(6) are the results for the subsample of past payers (i.e., firms that paid dividends in 2020). Columns (7)–(9) are the results for the subsample of non-payers (i.e., firms that did not pay dividends in 2020). *Dummy(ΔDivYield$_1$ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield$_1$* (dividend per share [*DPS*] scaled by the average stock price in the previous 12 months), is greater than its *DivYield$_1$* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔDivYield$_2$ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield$_2$* (*DPS* scaled by the stock price in the month immediately before the announcement of a firm's dividend proposal), is greater than its *DivYield$_2$* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔDPS >0)* equals 1 if a firm's *DPS* in 2021 is greater than its *DPS* in 2020, and 0 otherwise (lower or no change). *ΔDivYield$_1$ / DivYield$_1$* is *DivYield$_1$* in 2021 minus *DivYield$_1$* in 2020 scaled by *DivYield$_1$* in 2020. *ΔDPS / DPS* is *DPS* in 2021 minus *DPS* in 2020 scaled by *DPS* in 2020. *Log(TA)* is the logarithm of total assets. *ROA* is the return on assets. *AssetGrowth* is total assets in 2021 minus total assets in 2020 scaled by total assets in 2020. *M/B* is the market value of equity scaled by total assets. *Cash/TA* is cash and cash equivalents scaled by total assets. *Leverage/TA* is long-term debt scaled by total assets. *CEODuality* is a dummy variable that equals 1 if a firm's CEO and chair of the board are the same person, and 0 otherwise. *Return* is a firm's annual stock return in 2020. *Volatility* is the standard deviation of a firm's monthly stock returns in 2020. *IndDirectors* is the percentage of independent directors. *Log(ExePay)* is the logarithm of 1 plus the total compensation of the top three executives. *ExeOwnership* is the percentage of shares owned by executives. *FirmAge* is the number of years since the establishment of the firm. Please refer to Online Appendix 3 for detailed variable definitions.

Sample	Full sample (#2,564)			Past payers (#1,859)			Non-payers (#705)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Firm characteristics before the experiment (measured in 2020):									
DivYield$_1$	0.01	0.01	0.013	0.01	0.01	0.014	0.00	0.00	0.00
DPS	0.15	0.06	0.426	0.21	0.10	0.488	0.00	0.00	0.00
Log(TA)	22.40	22.17	1.386	22.51	22.26	1.432	22.10	21.96	1.21
ROA	0.03	0.03	0.087	0.04	0.04	0.065	-0.03	0.01	0.11
AssetGrowth	0.12	0.08	0.251	0.15	0.10	0.235	0.04	0.01	0.28
M/B	2.40	1.76	1.977	2.47	1.77	2.089	2.20	1.75	1.63
Cash/TA	0.23	0.19	0.154	0.24	0.21	0.157	0.18	0.15	0.13
Leverage/TA	0.43	0.42	0.204	0.41	0.40	0.195	0.49	0.49	0.21
Return	0.18	0.03	0.538	0.21	0.04	0.551	0.10	-0.02	0.50
Volatility	0.13	0.11	0.067	0.13	0.11	0.068	0.13	0.12	0.06
CEODuality	0.32	0.00	0.465	0.32	0.00	0.468	0.29	0.00	0.45
IndDirectors	0.38	0.36	0.057	0.38	0.36	0.056	0.38	0.36	0.06
Log(ExePay)	14.75	14.71	0.779	14.80	14.75	0.816	14.61	14.55	0.65
ExeOwnership	0.08	0.00	0.141	0.09	0.00	0.151	0.06	0.00	0.11
FirmAge	20.48	20.00	5.656	20.28	20.00	5.706	20.99	21.00	5.49
Panel B: Change in dividend payments after the experiment (measured based on 2020 and 2021 data):									
Dummy(ΔDivYield$_1$ > 0)	0.36	0.00	0.479	0.40	0.00	0.491	0.23	0.00	0.42
Dummy(ΔDivYield$_2$ > 0)	0.36	0.00	0.481	0.41	0.00	0.492	0.23	0.00	0.42
Dummy(ΔDPS >0)	0.36	0.00	0.48	0.41	0.00	0.492	0.23	0.00	0.42
ΔDivYield$_1$ / DivYield$_1$	0.03	-0.11	1.177	0.03	-0.11	1.177	-	-	-
ΔDPS / DPS	0.18	0.00	1.793	0.18	0.00	1.793	-	-	-

Table 2: Univariate tests

This table presents the differences in firm characteristics between the control groups and each treatment group for the subsample of past payers (i.e., firms that paid dividends in 2020). Column (1) presents the mean of the $Control_{placebo}$ and $Control_{null}$ groups. Columns (2)–(4) presents the mean of the agency theory treatment groups ($Agency_{theory}$ and $Agency_{theory+call}$) and the *t*-test results (difference and *t*-value) between the two groups, respectively. Similar statistics are reported in Columns (5)–(7) for the bird-in-hand theory treatment groups ($Bird_{theory}$ and $Bird_{theory+call}$), in Columns (8)–(10) for the signaling theory treatment groups ($Signaling_{theory}$ and $Signaling_{theory+call}$), and in Columns (11)–(13) for the tax clientele theory treatment groups (Tax_{theory} and $Tax_{theory+call}$). *Dummy(ΔDivYield₁ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield₁* (dividend per share [*DPS*] scaled by the average stock price in the previous 12 months), is greater than its *DivYield₁* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔdivYield₂ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield₂* (*DPS* scaled by the stock price in the month immediately before the announcement of a firm's dividend proposal), is greater than its *DivYield₂* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔDPS >0)* equals 1 if a firm's *DPS* in 2021 is greater than its *DPS* in 2020, and 0 otherwise (lower or no change). *ΔDivYield₁ / DivYield₁* is *DivYield₁* in 2021 minus *DivYield₁* in 2020 scaled by *DivYield₁* in 2020. *ΔDPS / DPS* is *DPS* in 2021 minus *DPS* in 2020 scaled by *DPS* in 2020. Please refer to Online Appendix 3 for the definitions of all other variables.

Sample	Control	Agency theory			Bird-in-hand theory			Signaling theory			Tax clientele theory		
	mean [a]	mean [b]	diff. [b-a]	*t*-value	mean [c]	diff. [c-a]	*t*-value	mean [d]	diff. [d-a]	*t*-value	mean [e]	diff. [e-a]	*t*-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Panel A: Firm characteristics before the experiment (measured in 2020):													
DivYield₁	0.01	0.01	0.00	1.07	0.01	0.00	1.13	0.01	0.00	-0.47	0.01	0.00	0.35
DPS	0.19	0.20	0.02	0.85	0.19	0.01	0.47	0.25	0.06	1.32	0.22	0.03	1.59
Log(TA)	22.51	22.60	0.08	0.78	22.49	-0.03	-0.25	22.48	-0.03	-0.33	22.49	-0.02	-0.21
ROA	0.04	0.04	0.00	-0.29	0.04	0.00	0.06	0.05	0.01	1.17	0.05	0.00	1.13
AssetGrowth	0.16	0.14	-0.02	-1.30	0.13	-0.03	-1.62	0.16	0.00	0.13	0.15	-0.01	-0.53
M/B	2.51	2.26	-0.25	-1.76	2.43	-0.08	-0.56	2.62	0.11	0.69	2.54	0.03	0.20
Cash/TA	0.25	0.24	-0.01	-0.66	0.25	0.00	0.14	0.24	-0.01	-0.60	0.24	-0.01	-0.53
Leverage/TA	0.42	0.42	0.00	0.00	0.40	-0.01	-0.82	0.41	-0.01	-0.68	0.41	-0.01	-0.36
Return	0.19	0.19	0.00	-0.08	0.19	0.00	-0.06	0.24	0.05	1.20	0.23	0.05	1.18
Volatility	0.13	0.12	-0.01	-1.72	0.13	0.00	-0.52	0.13	0.00	-0.26	0.13	0.00	0.35
CEODuality	0.30	0.33	0.03	0.85	0.34	0.04	1.15	0.30	0.00	0.09	0.35	0.05	1.31
IndDirectors	0.38	0.38	0.00	0.18	0.38	0.00	-0.33	0.38	0.01	1.54	0.38	0.00	0.15
Log(ExePay)	14.85	14.83	-0.01	-0.30	14.77	-0.08	-1.50	14.77	-0.08	-1.17	14.77	-0.08	-1.52
ExeOwnership	0.09	0.09	0.00	0.32	0.10	0.01	0.57	0.10	0.01	1.05	0.08	-0.01	-0.48
FirmAge	20.42	20.10	-0.33	-0.78	20.00	-0.42	-1.00	20.59	0.17	0.39	20.29	-0.13	0.39
Panel B: Change in dividend payments after the experiment (measured based on 2020 and 2021 data):													
Dummy(ΔDivYield₁ >0)	0.36	0.45	0.09	2.60	0.39	0.03	0.88	0.40	0.04	1.11	0.41	0.05	1.43
Dummy(ΔDivYield₂ >0)	0.38	0.45	0.07	2.00	0.39	0.01	0.35	0.42	0.05	1.26	0.42	0.05	1.27
Dummy(ΔDPS >0)	0.38	0.45	0.07	2.00	0.40	0.02	0.43	0.43	0.05	1.25	0.40	0.02	0.45
ΔDivYield₁ / DivYield₁	-0.03	0.12	0.16	2.01	0.08	0.11	1.06	-0.02	0.01	0.15	0.00	0.03	0.46
ΔDPS / DPS	0.11	0.27	0.16	1.40	0.24	0.13	0.78	0.14	0.03	0.26	0.14	0.03	0.28

Table 3: Treatment effect on firms' propensity to increase dividends

This table reports the treatment effects of different dividend theories on firms' propensity to increase their dividends based on the subsample of past payers (i.e., firms that paid dividends in 2020). The dependent variable is *Dummy(ΔDivYield₁ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). In Columns (1) and (2), the sample of agency theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the agency theory treatment ($Agency_{theory}$ and $Agency_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). In Columns (3) and (4), the sample of bird-in-hand theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the bird-in-hand theory treatment ($Bird_{theory}$ and $Bird_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). In Columns (5) and (6), the sample of signaling theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the signaling theory treatment ($Signaling_{theory}$ and $Signaling_{theory+call}$) and 0 for those in the control groups ($Control_{null}$and $Control_{placebo}$). In Columns (7) and (8), the sample of tax clientele theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the tax clientele theory treatment (Tax_{theory} and $Tax_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). In Columns (9) and (10), the full sample is used and the four theory treatment indicators are included in the same model. The theory treatment indicator is set to 1 for firms that receive one of the four theory treatments and 0 for the others. *Log(TA)* is the logarithm of total assets. *ROA* is the return on assets. *AssetGrowth* is total assets in 2021 minus total assets in 2020 scaled by total assets in 2020. *M/B* is the market value of equity scaled by total assets. *Cash/TA* is cash and cash equivalents scaled by total assets. *Leverage/TA* is long-term debt scaled by total assets. *CEODuality* is a dummy variable that equals 1 if a firm's CEO and chair of the board are the same person, and 0 otherwise. *Return* is a firm's annual stock return in 2020. *Volatility* is the standard deviation of a firm's monthly stock returns in 2020. *IndDirectors* is the percentage of independent directors. *Log(ExePay)* is the logarithm of 1 plus the total compensation of the top three executives. *ExeOwnership* is the percentage of shares outstanding owned by executives. *FirmAge* is the number of years since the establishment of the firm. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Theory	Agency theory		Bird-in-hand theory		Signaling theory		Tax clientele theory		All	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
***Treatment* (Agency)**	**0.388*** **	**0.402** **							**0.388*** **	**0.403** **
	(2.59)	**(2.46)**							**(2.59)**	**(2.48)**
***Treatment* (Bird-in-hand)**			**0.134**	**0.068**					**0.134**	**0.075**
			(0.88)	**(0.40)**					**(0.88)**	**(0.45)**
***Treatment* (Signaling)**					**0.168**	**0.171**			**0.168**	**0.170**
					(1.11)	**(1.02)**			**(1.11)**	**(1.03)**
***Treatment* (Tax clientele)**							**0.215**	**0.162**	**0.215**	**0.215**
							(1.43)	**(0.96)**	**(1.43)**	**(1.31)**
Log(TA)		-0.039		-0.128		-0.152*		-0.153*		-0.066
		(-0.43)		(-1.39)		(-1.68)		(-1.68)		(-1.23)
ROA		14.867***		17.226***		18.270***		19.099***		15.743***
		(6.27)		(6.92)		(6.99)		(7.33)		(10.36)
AssetGrowth		0.437		0.490		0.311		-0.303		0.498**
		(1.22)		(1.22)		(0.86)		(-0.76)		(1.99)
M/B		-0.254***		-0.244***		-0.447***		-0.260***		-0.264***

		(-3.44)		(-3.29)		(-6.01)		(-3.70)		(-6.07)
Cash/TA		0.607		1.143*		1.479**		1.078		0.731*
		(0.97)		(1.67)		(2.21)		(1.63)		(1.85)
Leverage/TA		0.472		1.186*		0.785		2.222***		0.938**
		(0.75)		(1.72)		(1.17)		(3.25)		(2.29)
Return		-0.809***		-0.549**		-0.238		-0.817***		-0.857***
		(-3.05)		(-2.01)		(-0.99)		(-2.98)		(-5.21)
Volatility		-2.138		-7.174***		-4.094**		-3.371**		-2.406**
		(-1.27)		(-3.70)		(-2.57)		(-2.07)		(-2.32)
CEODuality		-0.203		-0.304		0.073		-0.243		-0.181
		(-1.09)		(-1.56)		(0.38)		(-1.28)		(-1.55)
IndDirectors		0.666		-0.308		0.695		2.743*		-0.193
		(0.44)		(-0.19)		(0.46)		(1.77)		(-0.20)
Log(ExePay)		-0.014		-0.184		0.054		-0.307**		-0.054
		(-0.10)		(-1.38)		(0.54)		(-2.18)		(-0.80)
ExeOwnership		0.306		-1.158*		-0.063		-0.596		0.023
		(0.52)		(-1.83)		(-0.10)		(-0.93)		(0.06)
FirmAge		0.003		-0.023		0.005		-0.003		0.001
		(0.20)		(-1.42)		(0.35)		(-0.23)		(0.15)
Industry FE	N	Y	N	Y	N	Y	N	Y	N	Y
Observations	746	738	741	732	746	728	748	734	1,859	1,859

Table 4: The impacts of ex-ante governance and agency problems

This table reports the results of how the treatment effect of agency theory varies with firms' ex-ante governance and agency problems among past payers (i.e., firms that paid dividends in 2020). The dependent variable, *Dummy(ΔDivYield$_1$ >0)*, equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). *Treatment* equals 1 for firms receiving the agency theory treatment ($Agency_{theory}$ and $Agency_{theory+call}$) and 0 for those in the control groups ($Control_{null}$and $Control_{placebo}$). We divide firms in each industry into two groups based on the industry median of *Log(ExePay)* (Columns (1) and (2) of Panel A), *IndDirectors* (Columns (3) and (4) of Panel B), *Analyst* (Columns (1) and (2) of Panel B), and *IO* (Columns (3) and (4) of Panel B). *Log(ExePay)* is the natural logarithm of the total compensation of the top three executives. *IndDirectors* is the percentage of independent directors on the board. *Analyst* is the number of financial analysts that have made at least one forecast during the year. *IO* is the proportion of shares held by institutional investors. Please refer to Online Appendix 3 for the definitions of all other variables. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Internal corporate governance

Sample	*Log(ExePay)* > median	*Log(ExePay)* < median	*IndDirectors* < median	*IndDirectors* > median
	(1)	(2)	(3)	(4)
Treatment	**0.507****	**0.175**	**0.457***	**0.390**
	(2.28)	**(0.70)**	**(1.95)**	**(1.63)**
Control	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	397	335	367	371

Panel B: External corporate governance

Sample	*Analyst* < median	*Analyst* > median	*IO* < median	*IO* > median
	(1)	(2)	(3)	(4)
Treatment	**0.873*****	**0.129**	**0.685*****	**0.224**
	(3.19)	**(0.61)**	**(2.71)**	**(0.96)**
Control	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	302	436	331	374

Table 5: Robustness tests

This table presents four robustness tests for the treatment effect of agency theory based on past payers (i.e., firms that paid dividends in 2020). Panel A reports the treatment effect with the exclusion of firms that announced their dividend proposals in the first week of our experiment (March 29, 2021 to April 2, 2021). Panel B presents the results using the placebo treatment group ($Control_{placebo}$) as the control group. Panel C presents the treatment effect using alternative measures of a firm's propensity to increase dividends (*Dummy(ΔDivYield₂ >0)* and *Dummy(ΔDPS >0)*). Panel D presents the treatment effect using the percentage change in dividend payments as measures of a change in firms' dividend policy (*ΔDivYield₁ / DivYield₁* and *ΔDPS / DPS*). *Dummy(ΔDivYield₁ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield₁* (dividend per share [*DPS*] scaled by the average stock price in the previous 12 months), is greater than its *DivYield₁* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔDivYield₂ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield₂* (*DPS* scaled by the stock price in the month immediately before the announcement of a firm's dividend proposal), is greater than its *DivYield₂* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔDPS >0)* equals 1 if a firm's *DPS* in 2021 is greater than its *DPS* in 2020, and 0 otherwise (lower or no change). *ΔdivYield₁ / DivYield₁* is *DivYield₁* in 2021 minus *DivYield₁* in 2020 scaled by *DivYield₁* in 2020. *ΔDPS / DPS* is *DPS* in 2021 minus *DPS* in 2020 scaled by *DPS* in 2020. Please refer to Online Appendix 3 for the definitions of all other variables. The results are based on logit regressions in Panels A, B, and C. The results in Panel D are based on ordinary least squares (OLS) regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Excluding firms that announced their dividend proposals in the first week of our experiment

Dependent variable	*Dummy(ΔDivYield₁ >0)*	
	(1)	(2)
Treatment	**0.399****	**0.445****
	(2.49)	**(2.54)**
Control	N	Y
Industry FE	N	Y
Observations	655	648

Panel B: Using firms receiving the placebo treatment as the control group

Dependent variable	*Dummy(ΔDivYield₁ >0)*	
	(1)	(2)
Treatment	**0.446****	**0.464****
	(2.41)	**(2.29)**
Control	N	Y
Industry FE	N	Y
Observations	559	555

Panel C. Using alternative measures of a firm's propensity to increase dividends

Dependent variable	*Dummy(ΔDivYield₂ >0)*		*Dummy(ΔDPS >0)*	
	(1)	(2)	(3)	(4)
Treatment	**0.297****	**0.382****	**0.297****	**0.346****
	(1.99)	**(2.33)**	**(1.99)**	**(2.08)**
Control	N	Y	N	Y
Industry FE	N	Y	N	Y
Observations	746	738	746	738

Panel D: Using the percentage change in dividend payments as measures of a change in firms' dividend policy (OLS regressions)

Dependent variable	*ΔDivYield₁ / DivYield₁*		*ΔDPS / DPS*	
	(1)	(2)	(3)	(4)
Treatment	**0.167****	**0.167****	**0.175***	**0.180****
	(2.28)	**(2.33)**	**(1.85)**	**(1.99)**
Control	N	Y	N	Y
Observations	746	738	746	738
R-squared	0.01	0.12	0.00	0.15

Table 6: Distinguishing between theory and call effects

This table presents the effect of the agency theory treatment and that of the call to increase/initiate dividends based on past payers (i.e., firms that paid dividends in 2020). The dependent variable is *Dummy(ΔDivYield₁ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). In Columns (1) and (2), *Treatment* equals 1 for firms in the $Agency_{theory}$ group, and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). In Columns (3) and (4), *Treatment* equals 1 for firms in the $Agency_{theory+call}$ group, and 0 for those in the control groups ($Control_{null}$and $Control_{placebo}$). In Columns (5) and (6), *Treatment (theory only)* equals 1 for firms in the $Agency_{theory}$ group, and 0 for those in the $Agency_{theory+call}$ group. Please refer to Online Appendix 3 for the definitions of all other variables. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Sample	Theory treatment vs. control		Theory + call treatments vs. control		Theory treatment vs. theory + call treatments	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	**0.334***	**0.402****	**0.442****	**0.412****		
	(1.82)	**(1.96)**	**(2.43)**	**(2.08)**		
Treatment (theory only)					**-0.108**	**-0.011**
					(-0.52)	**(-0.05)**
Control	N	Y	N	Y	N	Y
Industry FE	N	Y	N	Y	N	Y
Observations	560	552	560	554	372	370

Table 7: The role of the secretary of the board

This table presents the importance of the role of the secretary of the board (SOB) on the treatment effect of agency theory for past payers (i.e., firms that paid dividends in 2020). The dependent variable is *Dummy(ΔDivYield$_1$ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). *Treatment* equals 1 for firms receiving the agency theory treatment ($Agency_{theory}$ and $Agency_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). The importance of the role of SOBs is measured by three variables, *Num SOBs*, *Log(SOB Compensation)*, and *Dummy (Alt. Communication)*. *Num SOBs* is the number of SOBs in a firm in 2020. *Log(SOB Compensation)* is the natural logarithm of the total compensation of all SOBs in a firm in 2020. *Dummy (Alt. Communication)* equals 1 if a firm has official WeChat or Weibo accounts in 2020, and 0 otherwise. The control variables include *Log(TA)*, *ROA*, *AssetGrowth*, *M/B*, *Cash/TA*, *Leverage/TA*, *Return*, *Volatility*, *CEODuality*, *IndDirectors*, *Log(ExePay)*, *ExeOwnership*, and *FirmAge*. Please refer to Online Appendix 3 for detailed variable definitions. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Moderator	*Num. SOBs*	*Log(SOB Compensation)*	*Dummy (Alt. Communication)*
	(1)	(2)	(3)
Treatment* × *Moderator	**1.157****	**0.609*****	**-0.767****
	(2.52)	**(2.81)**	**(-2.20)**
Moderator	-0.486	-0.584***	0.381
	(-1.41)	(-2.76)	(1.51)
Treatment	-0.917*	-7.717***	0.707***
	(-1.67)	(-2.67)	(3.29)
Control	Y	Y	Y
Industry FE	Y	Y	Y
Observations	719	719	702

Table 8: Comparing different communication channels

This table presents the treatment effects of different communication channels (online IR platforms, email, and telephone) for past payers (i.e., firms that paid dividends in 2020). Only firms receiving the agency theory treatment ($Agency_{theory}$ and $Agency_{theory+call}$) are included in this analysis. The dependent variable is *Dummy(ΔDivYield$_1$ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). *Dummy(Telephone)* equals 1 if we successfully contact a firm during the experimental period at least once, and 0 otherwise. *Dummy(OnlineIR)* equals 1 if we receive at least one response from a firm on its online IR platform during the experimental period, and 0 otherwise. *Dummy(Email)* equals 1 if we receive at least one email from a firm during the experimental period, and 0 otherwise. *Log(Telephone)* is the logarithm of the average number of characters in the telephone transcripts. *Log(OnlineIR)* is the logarithm of the average number of characters in a firm's response on its online IR platform. *Log(Email)* is the logarithm of the average number of characters in a firm's email. Please refer to Online Appendix 3 for the definitions of all other variables. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
Dummy(Telephone)	**1.037*** **	
	(2.85)	
Dummy(OnlineIR)	**-0.177**	
	(-0.74)	
Dummy(Email)	**-0.141**	
	(-0.55)	
Log(Telephone)		**0.170****
		(2.32)
Log(OnlineIR)		**-0.052**
		(-1.13)
Log(Email)		**-0.024**
		(-0.47)
Control	Yes	Yes
Industry FE	Yes	Yes
Observations	370	370

Online Appendix (Not for Publication)

Of

"Unraveling the Dividend Puzzle: A Field Experiment"

Online Appendix 1: Dividend theories and evidence

Studies of corporate payout develop and propose a variety of explanations and theories for firms' payment of dividends. We focus on the four prominent theories used in the literature. Other explanations may follow from these theories.

1. Agency theory

Excess free cash flow creates agency problems because management may obtain excessive perks and invest in projects that benefit them but have a negative net present value. Traditional agency models posit that if equity holders can minimize discretionary cash for management, they can make it more difficult for managers to waste corporate resources and thus mitigate agency problems. Following this idea, theoretical studies suggest that one way to mitigate management entrenchment is to increase the level of corporate payout. For example, Jensen (1986) argues that firms with high free cash flow can increase dividends or repurchase shares and thereby repay current cash that would otherwise be invested in low-return projects or wasted.

The primary concept behind these studies is that shareholders exert pressure on firms to distribute dividends, thereby compelling them to disburse discretionary cash and prevent managerial waste. In support of this perspective, research demonstrates that firms are more inclined to pay dividends when their managers face heightened discipline. For instance, Floyd, Li, and Skinner (2015) find that industrial firms' payout policy is mainly explained by agency costs of free cash flow. Crane et al. (2016) find a positive causal effect of institutional ownership on dividend payments. They specifically show that increased institutional ownership leads to more governance-related shareholder proposals and more dissenting votes against firm management, which in turn encourages firms to pay dividends. Bae et al. (2021) observe that firms, particularly for those with weak board governance, pay high dividends following reforms that improve board governance in a cross-country sample of 40 countries. In a similar vein, Price et al. (2011) find that firms with greater (vs. lower) compliance with the code of best corporate practices in Mexico pay higher dividends. Landsman, Li, and Zhao (2023) find that firms pay dividends to distribute excess free cash flow to mitigate exacerbated manager-shareholder agency conflicts.

Nonetheless, the literature is inconclusive regarding the relationship between the static

level of governance and dividend payments. Some studies suggest a positive relationship. For example, La Porta et al. (2000) find that, based on a sample of 33 countries, firms in countries with stronger legal shareholder protection (i.e., common law countries) pay higher dividends than those in countries with weaker legal shareholder protection (i.e., civil law countries). Similarly, Adjaoud and Ben-Amar (2010) find that firms with stronger governance pay higher dividends in Canada than those with weaker governance. Conversely, some other research indicates a negative relationship between governance and dividend payments. For example, John et al. (2011) find that remotely located firms facing severe agency conflicts pay higher dividends. Similarly, Jordan et al. (2014) find that dual-class firms tend to have higher cash dividend payments and total payouts. Landsman, Li, and Zhao (2023) find that dividends increase when firms experience reduced monitoring by banks following firms' initiation of credit default swaps.

Although there is conflicting evidence regarding agency theory, it is considered the predominant mainstream economic model for explaining observed dividend payouts and possesses modest yet noteworthy backing (Farre-Mensa et al., 2014).

2. Bird-in-hand theory

The bird-in-hand theory for dividends was developed by Gordon (1963) and Lintner (1964) as a response to the MM dividend irrelevance theorem (1961). This theory posits that investors are generally risk-averse and attach less risk to current dividends or capital gains than to future dividends or capital gains. The payment of current dividends is therefore believed to reduce investor uncertainty, causing them to discount firms' earnings at a lower rate and placing a higher value on firms.

Dividends (a bird in the hand) are better than retained earnings or capital gains (a bird in the bush) because the latter are uncertain and may never materialize as future cash flows (can fly away). The basic idea of this theory is that paying low dividends leads to an increase in the cost of capital. In other words, the required rate of return on capital gains is higher than that on dividends for the same stock. Therefore, the higher the dividend payout ratio, the higher the stock price.

Supporting the theory, Friend and Puckett (1964) show that dividends are positively correlated with stock prices, indicating that investors prefer dividends as a less risky form of returns. A recent study suggests that the reappearance of dividends beginning around the turn of

the century is a partial response to increased earnings volatility, consistent with the notion that dividends reduce investor uncertainty (Michaely and Moin, 2022). However, critics of bird-in-hand theory claim that a firm's risk is determined by the riskiness of project cash flows rather than how the firm distributes these cash flows (Bhattacharya, 1979). For example, Black and Scholes (1974) shows that there is no significant relationship between dividend yields and stock returns, suggesting that investors may not consistently value dividends over capital gains.

3. Signaling theory

The intuition behind the dividend signaling model is that managers have information about their firms that the market does not and disclose that information to the market through the payment of dividends. Miller and Modigliani (1961) suggest that a change in dividends may reveal managers' private information about their firm's future earnings prospects to investors if the capital market is not perfect. Undervalued firms adjust their dividends upward (or initiate dividends) to signal their future prospects. Cash dividends can serve as a reliable signal because they are associated with various costs, including transaction costs related to the use of external financing (Bhattacharya, 1979), reduced firm investment (Miller and Rock, 1985), and increased taxes (John and Williams, 1985).

Signaling theory explains the wide adoption of dividend payments and the positive (negative) market reaction to announcements of dividend increases (decreases) (see Baker et al., 2016). However, empirical findings are mixed on whether a change in dividends predicts future profitability. For example, Floyd, Li, and Skinner (2015) find that banks' payout policy is mainly explained by their incentive to signal financial strength. Ham et al. (2020) find that a change in dividends contains information about persistent changes in future economic income. In contrast, Grullon et al. (2005) find that a change in dividends contains no incremental information about a change in future earnings. A more recent study by Michaely and Moin (2022) shows that dividends convey information about the second moment of earnings but not about the first moment of earnings. Specifically, they find that changes in cash flow volatility follow changes in dividends, but changes in the level of cash flow do not.

4. Tax clientele theory

Tax clientele theory was developed by Elton and Gruber (1970) and Litzenberger and

Ramaswamy (1979). This theory posits that investors have distinct preferences for dividends and capital gains due to the uneven tax treatment of dividends and capital gains. For example, investors may prefer shares with no or low dividends when their tax treatment of capital gains is favorable. If the capital gains tax rate is lower than income tax, lower dividends will reduce the tax burden on investors. As a result, firms should avoid or pay low dividends when their shareholders' tax bracket for capital gains (dividends) is low (high).

In support of this theory, Chetty and Saez (2005) find that the tax cut on individual dividend income enacted in 2003 leads U.S. companies to increase their dividends. Isakov et al. (2021) exploit the tax reform in Switzerland that allows a subsample of firms to pay tax-exempt dividends and find that the treatment firms significantly increase dividends after the tax cut. Chetty and Saez (2006) find that the 2003 dividend tax reduction reforms in the US encourages firms to increase dividends. Li et al. (2017) explores China's 2012 Dividend Tax Reform and find that firms facing a reduction (increase) in dividend tax rates for their individual investors are more (less) likely to increase dividends.

However, there is also evidence that tax clientele theory may be irrelevant. For example, Brav et al. (2008) conduct a survey of 328 U.S. financial executives regarding the impact of the 2003 dividend tax reduction reform on their dividend payment decisions. They find that more than two thirds of the respondents stated that the reform would definitely or probably not affect their dividend payment decisions. Hubbard and Michaely (1997) study the market response of two classes of common stock (one paying cash dividends and the other paying stock dividends) of the same company to the 1986 tax reform in the U.S. They find no significant difference in valuation change between the two classes.

Overall, the evidence on the four theories is mixed. The dividend puzzle remains an unresolved research phenomenon in corporate finance due to the lack of unanimity among researchers over the explanations, spurring the exploration of new methodologies to tackle the puzzle.

Online Appendix 2: Theory setup

In an effort to unravel the conundrum, we set up our theoretical foundations and create the experimental design based on the premises of the four dividend theories.

The agency theory says that dividend payment reduces the amount of free cash flow under management's control. The premise of agency theory is that managers perceive agency concerns from shareholders because people have no incentive to pour out what they drink and lower their perquisites if doing so is not costly. Therefore, to test the theory, it is critical to change managers' perceptions of investors' agency concerns.

The premise of the bird-in-hand theory is that managers understand investors' risk attitude and know investors' preference for dividends over capital gains otherwise managers do not pay more dividends even if investors have the demand. Therefore, to evaluate the theory, we introduce a shock to managers' perception of investors' preference regarding cash dividends and capital gains.

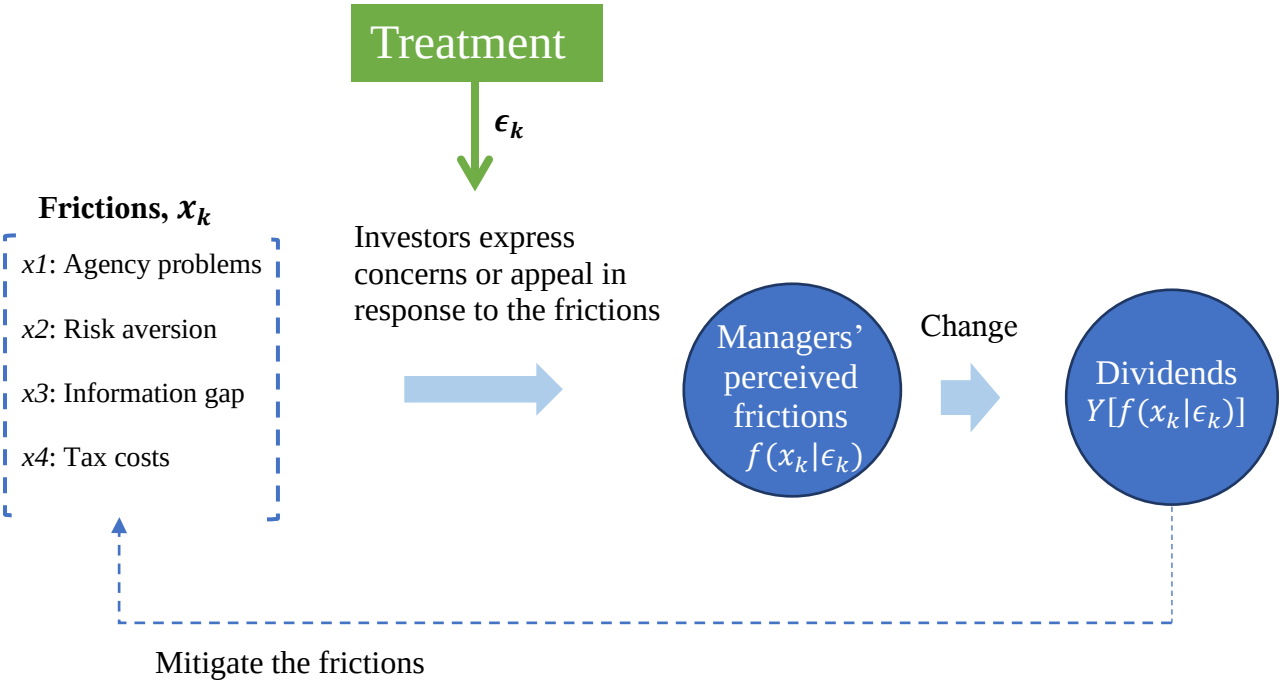
The key point of the signaling theory is that managers worry about that outside investors do not know the firms' real situation, especially when the situation is good, and therefore send the market a signal by increasing dividends. The premise of this prediction is that managers recognize the information gap between themselves and outside investors. If this is not the case, there is no trigger for managers to send the signal even if the information gap exists. Therefore, to test the theory, we change the information that investors possess from the perspective of managers.

The tax-clientele theory is based on the premise that managers are aware of their investors' tax status and form conjectures about the firms' tax clientele. If this were not the case, managers would not alter the dividend policy to cater to investors. To test this theory, we introduce a shock to the managers' knowledge of their firms' tax clientele.

We summarize the basic idea of the four theories and our treatments in Figure 1 of this appendix. Let k be an indicator, assigned values of 1, 2, 3, 4 for agency, bird-in-hand, signaling, and tax-clientele theories, respectively. x_k indicates the friction that theory k speaks to (i.e., being expropriated, risk averse to uncertainty, opaque information, or high tax costs on dividend income). First, investors express concerns or appeal in response to the frictions (e.g., concerns of being expropriated, preference for dividends over capital gains, demand for more disclosures,

concerns about dividend tax status).

Figure 1: The mind map of dividend theories and our treatments



Second, managers observe investors' concerns or appeal and update their knowledge on x_k, which we refer to as perceived x_k, $f(x_k)$. $f(x_k)$ denotes managers' improved knowledge on x_k or perceived implications of x_k. For example, managers are likely to perceive threats (e.g., shareholder activism) from outside investors when investors express concerns on agency problems; managers can better know investors' risk preference when investors show preference to dividends over capital gains; managers are more likely to recognize the information gap with outside investors when investors demand more disclosures; managers can better know the firms' tax clientele when investors reveal their tax status and concerns.

Lastly, the informed managers change firms' dividend policy (*Y*) accordingly, which in return mitigates the frictions or satisfies investors' demand.

The dividend theories essentially claim that $f(x_k)$ has an impact on *Y* (it is not the impact of x_k on *Y* because managers have to be informed to make the decisions). To test the theory *k*, we introduce a treatment (ϵ_k) to create a change in $f(x_k)$. Let $f(x_k|\epsilon_k)$ notate managers' perceived x_k when they receive the treatment ϵ_k. For example, $f(x_1|\epsilon_1)$ is managers' perceived threats

from investors when the treatment of expressing concerns on agency problems (ϵ_1) is provided; $f(x_2|\epsilon_2)$ is investors' risk preference perceived by managers when the treatment of expressing preference to dividends over capital gains (ϵ_2) is provided; $f(x_3|\epsilon_3)$ is managers' perceived information gap between them and outside investors when the treatment of expressing demand for more disclosures (ϵ_3) is provided; and $f(x_4|\epsilon_4)$ is managers' perceived clientele when the treatment of expressing tax status and concerns (ϵ_4) is provided.

The value of the dividend output issued by firms receiving the treatment ($\epsilon_k \neq 0$) is defined as

$$Y[f(x_k|\epsilon_k \neq 0)]$$

Let $I_{k,i}$ be an indicator variable that equals one when firm *i* is classified as treated according to theory *k* and zero otherwise. The expected dividend outcome of treatment firms is

$$E[[Y[f(x_{k,i}|\epsilon_{k,i} \neq 0)] \mid I_{k,i} = 1]]$$

The average treatment effect on the treated (ATT) is defined as:

$$E[[Y[f(x_{k,i}|\epsilon_{k,i} \neq 0)] - Y[f(x_{k,i}|\epsilon_{k,i} = 0)] \mid I_{k,i} = 1]]$$

$$=E[[Y[f(x_{k,i}|\epsilon_{k,i} \neq 0)] \mid I_{k,i} = 1]] - E[[Y[f(x_{k,i}|\epsilon_{k,i} = 0)] \mid I_{k,i} = 1]]$$

However, $E[[Y[f(x_{k,i}|\epsilon_{k,i} = 0)] \mid I_{k,i} = 1]]$ cannot be directly estimated in the data because we only observe one potential outcome for a particular firm at a time. The field experiment approach resolves this challenge by randomizing the sample and imputing the counterfactual outcomes of treatment firms using outcomes for control firms. That is, it assumes that, after randomization, the observed x_k in control firms mimic those in treatment firms. The expected dividend outcome of control firms is

$$E[[Y[f(x_{k,i}|\epsilon_{k,i} = 0)] \mid I_{k,i} = 0]]$$

Finally, the ATT can be estimated as follows:

$$E[[Y[f(x_{k,i}|\epsilon_{k,i} \neq 0)] \mid I_{k,i} = 1]] - E[[Y[f(x_{k,i}|\epsilon_{k,i} = 0)] \mid I_{k,i} = 0]]$$

Online Appendix 3: Variable definitions and data sources

Variable	Definition	Data Source
Outcome variables:		
DPS	Dividend per share	CSMAR
$DivYield_1$	*DPS* in 2021 scaled by the average stock price over the previous 12 months	CSMAR
$DivYield_2$	*DPS* in 2021 scaled by the stock price in the month immediately before the announcement of a firm's dividend proposal	CSMAR
$Dummy(\Delta DivYield_1 > 0)$	An indicator equal to 1 if a firm's $DivYield_1$ in 2021 is greater than its $DivYield_1$ in 2020, and 0 otherwise (lower or no change)	CSMAR
$Dummy(\Delta DivYield_2 > 0)$	An indicator equal to 1 if a firm's $DivYield_2$ in 2021 is greater than its $DivYield_2$ in 2020, and 0 otherwise (lower or no change)	CSMAR
$Dummy(\Delta DPS > 0)$	An indicator equal to 1 if a firm's *DPS* in 2021 is greater than its *DPS* in 2020, and 0 otherwise (lower or no change)	CSMAR
$\Delta DivYield_1 / DivYield_1$	$DivYield_1$ in 2021 minus $DivYield_1$ in 2020 scaled by $DivYield_1$ in 2020	CSMAR
$\Delta DPS / DPS$	*DPS* in 2021 minus *DPS* in 2020 scaled by *DPS* in 2020	CSMAR
Treatment variable:		
Treatment	An indicator equal to 1 for firms receiving a theory treatment, and 0 for firms in the control groups	Manual
Control variables:		
Log(TA)	Logarithm of total assets in 2020	CSMAR
ROA	Net income / total assets in 2020	CSMAR
AssetGrowth	Total assets in 2021 minus total assets in 2020 scaled by total assets in 2020	CSMAR
M/B	Market value of equity scaled by total assets in 2020	CSMAR
Cash/TA	Cash and cash equivalents scaled by total assets in 2020	CSMAR
Leverage/TA	Long term debt scaled by total assets in 2020	CSMAR
Return	Annual stock return (including dividend return) in 2020	CSMAR
Volatility	Standard deviation of monthly stock returns (including dividend return) in 2020	CSMAR
CEODuality	A dummy variable equal to 1 if a firm's CEO and chair of the board are the same person in 2020, and 0 otherwise	CSMAR
IndDirectors	Number of independent directors scaled by the total number of board directors in 2020	CSMAR
Log(ExePay)	Logarithm of 1 plus the total compensation of the top three executives in 2020	CSMAR
ExeOwnership	Number of shares held by executives scaled by the total number of shares outstanding in 2020	CSMAR
FirmAge	Number of years since the establishment of the firm as of 2020	CSMAR
Other variables:		
Analyst	The number of financial analysts that have issued at least one forecast in 2020.	CSMAR
IO	The number of shares held by institutional investors over the total number of shares outstanding in 2020.	CSMAR
CGVolatility	The standard deviation of a firm's monthly capital gains yield (i.e., difference between month-end and start-of-month prices scaled by the start-of-month price) in 2020.	CSMAR
Dispersion	The standard deviation of earnings forecasts by all financial analysts scaled by year-end stock prices in 2020.	CSMAR
Turnover	The value of shares traded scaled by total market value in 2020 (i.e., monthly average of the ratios of the value of shares traded scaled by market value).	CSMAR

Tradeable	The value of total tradable shares scaled by total market value in 2020 (i.e., monthly average of the ratios of the value of total tradable shares scaled by market value).	CSMAR
Num. SOBs	The number of SOBs for a firm in 2020.	CSMAR
Log(SOB compensation)	The natural logarithm of the total compensation of all SOBs for a firm in 2020.	CSMAR
Dummy (Alt. Communication)	1 if a firm has official WeChat or Weibo accounts, and 0 otherwise in 2020.	CSMAR
Dummy(Telephone)	1 if we successfully contact a firm during the experimental period at least once and 0 otherwise	Manual
Dummy(OnlineIR)	1 if we receive at least one response from a firm on its online IR platform during the experimental period and 0 otherwise	Manual
Dummy(Email)	1 if we receive at least one email from a firm during the experimental period and 0 otherwise.	Manual
Log(Telephone)	The logarithm of the average number of characters in the telephone transcripts.	Manual
Log(OnlineIR)	The logarithm of the average number of characters in a firm's response to us on its online IR platform;	Manual
Log(Email)	The logarithm of the average number of characters in a firm's email reply to us.	Manual

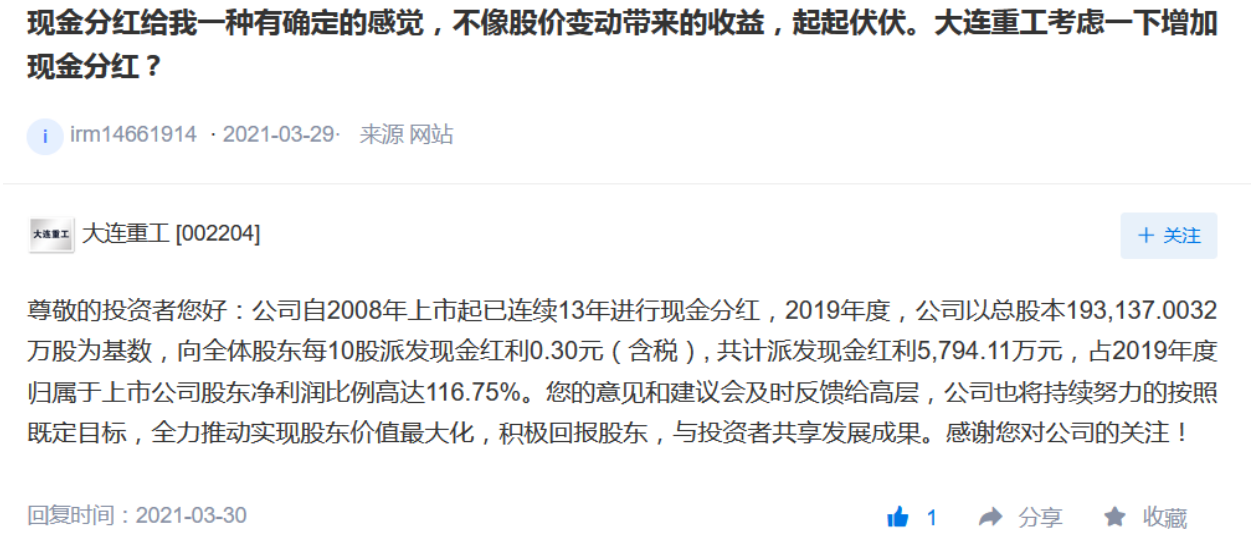
Online Appendix 4: The distribution of actual filing dates for the 2021 dividend proposals of the firms in our sample

Dividend proposal filing date	Frequency	Percentage	Cumulative frequency	Cumulative percentage
March 29, 2021	8	0.31	8	0.31
March 30, 2021	75	2.93	83	3.24
March 31, 2021	161	6.28	244	9.52
April 1, 2021	17	0.66	261	10.18
April 2, 2021	28	1.09	289	11.28
April 6, 2021	12	0.47	301	11.74
April 7, 2021	10	0.39	311	12.13
April 8, 2021	22	0.86	333	12.99
April 9, 2021	52	1.99	385	14.98
April 10, 2021	66	2.58	451	17.56
April 12, 2021	6	0.23	457	17.79
April 13, 2021	50	1.95	507	19.74
April 14, 2021	16	0.62	523	20.37
April 15, 2021	84	3.28	607	23.64
April 16, 2021	99	3.86	706	27.51
April 17, 2021	65	2.54	771	30.04
April 19, 2021	7	0.27	778	30.32
April 20, 2021	152	5.93	930	36.25
April 21, 2021	64	2.5	994	38.74
April 22, 2021	70	2.73	1,064	41.47
April 23, 2021	150	5.85	1,214	47.33
April 24, 2021	154	6.01	1,368	53.34
April 26, 2021	72	2.81	1,440	56.15
April 27, 2021	288	11.24	1,728	67.38
April 28, 2021	333	12.99	2,061	80.37
April 29, 2021	263	10.26	2,324	90.64
April 30, 2021	239	9.33	2,563	99.96
May 7, 2021	1	0.04	2,564	100

Online Appendix 5: Example of real posts (in Chinese)

Panel A: Agency theory ($Agency_{theory+call}$)

Panel B: Bird-in-hand theory ($Bird_{theory+call}$)



Panel C: Signaling theory ($Signaling_{theory+call}$)

Panel D: Tax clientele theory ($Tax_{theory+call}$)

回复: 关于贵司利润分配的建议-来自一名长期投资者

优化阅读 | 精简信息

发件人：hjir@huijiegroup.com<hjir@huijiegroup.com>

收件人：甘涛<forestgump666@163.com>

时　间：2021年04月25日 08:44 (星期日)

个性化定制，0成本学习，轻松上手 免费试用 广告

尊敬的投资者，您好，公司已于2021年4月23日在巨潮资讯网披露《2020年度利润分配预案公告》，股东可自行查阅，感谢您对公司的关注与支持。

深圳汇洁集团股份有限公司证券部

地址：深圳市福田区深南大道1006号国际创新中心A栋32楼

电话：0755-82794134

邮箱：hjir@huijiegroup.com

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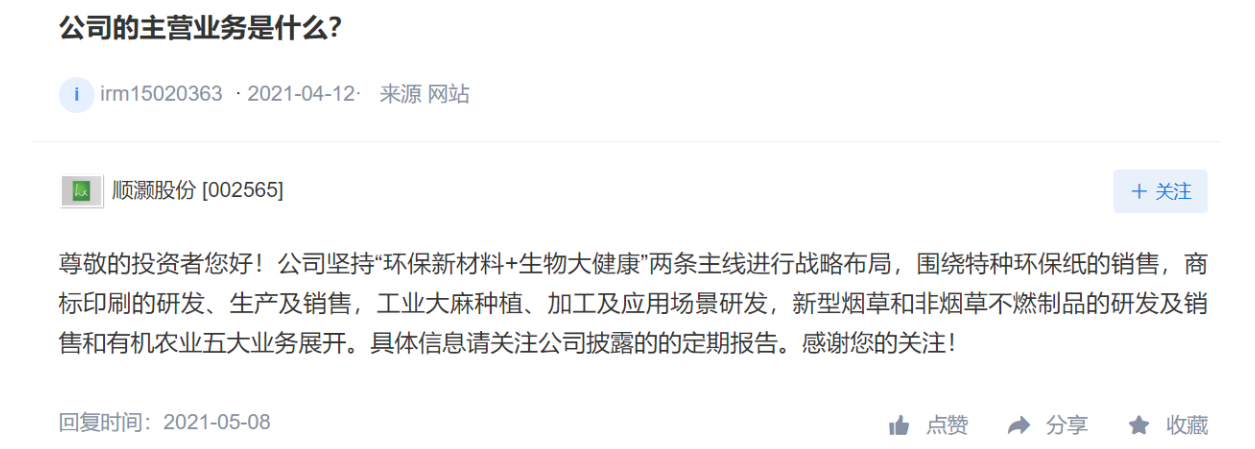
发件人： 甘涛
发送时间： 2021-04-24 00:19
收件人： hjir
主题： 关于贵司利润分配的建议-来自一名长期投资者

董秘您好：

我是一名价值投资者，持有周期通常都是好几年，这样在分享企业长期成长红利的同时我也可以免税。汇洁股份的股票我也持有很久了。建议贵司今年考虑一下增加现金分红，以回馈坚定持有的长期投资者。谢谢！

Panel E: Placebo treatment ($Control_{Placebo}$)



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回复时间：2021-05-08

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Online Appendix 6: Example of real-life cases

Case 1: Baoshan Iron & Steel Co., Ltd. (Stock Code: 600019)
The firm paid 2.8 yuan per share in 2020 and 3 yuan per share in 2021. Its dividend yield was 4.9% in 2020 and 5.2% in 2021.
Concern: *Firms are likely to invest in low-return projects when they have too much cash.*
Online IR platform response: *Thank you for your attention to our firm. Cash flow is a one of the main advantages of our firm. At present, our asset-liability ratio is around 44%, and our net interest-bearing debt at the end of the first quarter is less than 20 billion yuan. Our annual depreciation is about 19 billion yuan. As we do not plan to increase our production capacity in the future, we mainly use cash as follows: (1) capital expenditure, such as environment-related investments, smart manufacturing, and technological improvements; (2) prepare for future mergers and acquisitions with targets in mind; (3) distribution of dividends from remaining funds and redemption of interest-bearing debt; and (4) preservation and appreciation of idle funds in stages.*

Concern: *Firms should reduce wasteful spending, put money to good use, and commit to creating returns for shareholders.*
Telephone call response: *Thank you for your call. The firm's free cash is mainly invested in increasing production capacity. We believe that continued investment in production activities is the key to increasing benefits for all shareholders. Note that our firm always has a dividend plan and writes its promises in corporate articles. We can spend up to half of our operating profit on dividends.*

Case 2: Shenzhen Overseas Chinese Town Co., Ltd. (Stock Code: 000069)
The firm paid 3 yuan per share in 2020 and 4 yuan per share in 2021. Its dividend yield was 4.4% in 2020 and 5.9% in 2021.
Concern: *Firms with too much cash tend to invest in low-return projects.*
Online IR platform response: *Hello! The firm makes reasonable arrangements for funds according to its annual capital budget and daily capital utilization plan. Focusing on its priority of investing in projects under construction and meeting daily working capital, the firm implements the principles of "income-based investing" and "selecting the best of the best" for project expansion. We are pursuing high-quality development while maintaining our continuous and stable dividend policy for shareholders.*

Concern: *Too much cash will harm corporate governance.*
Telephone call response: *Our raised funds are mainly used for business investments. We have a strong governance system to protect shareholders. We reward shareholders as best we can. We expect our firm's shareholder earnings to have improved over last year.*

Case 3: Dalian Insulator Group Co., Ltd. (Stock Code: 002606)
The firm paid 0.3 yuan per share in 2020 and 0.1 yuan per share in 2021. Its dividend yield was 0.2% in 2020 and 0.3% in 2021.
Concern: *Firms should not spend money at will to invest in various low-return and risky projects. Money should be spent well.*
Online IR platform response: *Dear investors, thank you for your suggestion. Our firm will continue to develop its main business and carry out related activities on the premise of ensuring the safety of funds and meeting regulatory requirements. According to regulatory requirements, the use of raised funds is strictly regulated and these funds cannot be used arbitrarily; the firm has decided to use part of its idle funds to purchase short-term capital-guaranteed wealth management banking products, with the aim of improving its efficient use of idle funds and increasing its return on cash equivalents under the premise of ensuring the safety of funds. Asset returns bring better returns on investment for the firm and shareholders. Thanks!*

Concern: *Too much free cash flow can increase the risk of misuse of firm assets.*
Telephone call response: *If our free cash flow is high, we won't leave it idle. We will purchase short-term financial products to earn interest while protecting our principal. In addition, we can spend money to fulfill our employee incentive plan. We will not waste money under any circumstances.*

Case 4: Keli Sensing Technology (Ningbo) Co., Ltd. (Stock Code: 603662)
The firm paid 5 yuan per share in 2020 and 4 yuan per share in 2021. Its dividend yield was 1.1% in 2020 and 1.3%

in 2021.

Concern: *We want more information on how the firm deals with free cash flow, as this is related to corporate governance.*

Email response: *The firm has adopted strict closed-loop fund utilization systems, including the "Monetary Funds Management System," the "Entrusted Financial Management Implementation Rules," the "Financial Reimbursement and Payment System," and the "Raised Funds Use System." In our daily management process, wire transfer is used (so you can keep a record). We ensure that the firm operates in a standardized manner and strictly adheres to the requirements of listed firms in terms of capital management and control. Thank you for your attention.*

Concern: *We expect the firm to reduce spending on overseas travel, purchase of business vehicles, and business entertainment. In other words, money should be used in the interest of shareholders.*

Telephone call response: *Thank you for your call. Our firm has very strict internal controls. You can refer to our periodic announcements to check how we use capital. In addition, we have strict cash management. For instance, we won't leave cash idle and instead invest in short-term interest-bearing securities. We place great importance on shareholder returns.*

Online Appendix 7: Univariate test results for the full sample and the subsample of non-payers

This table presents the differences in firm characteristics between the control groups and each treatment group for the full sample (Panel A) and the subsample of non-payers (i.e., firms that did not pay dividends in 2020) (Panel B). Column (1) presents the mean of the control groups ($Control_{placebo}$ and $Control_{null}$). Columns (2) and (3) presents the mean of firms receiving the agency theory treatment ($Agency_{theory}$ and $Agency_{theory+call}$) and the *t*-test results (difference and *t*-value) between the two groups, respectively. Similar results are reported in Columns (5)–(7) for the bird-in-hand theory treatment groups ($Bird_{theory}$ and $Bird_{theory+call}$), in Columns (8)–(10) for the signaling theory treatment groups ($Signaling_{theory}$ and $Signaling_{theory+call}$), and in Columns (11)–(13) for the tax clientele theory treatment groups (Tax_{theory} and $Tax_{theory+call}$). *Dummy(ΔdivYield₁ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield₁* (dividend per share [*DPS*] scaled by the average stock price in the previous 12 months), is greater than its *DivYield₁* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔdivYield₂ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield₂* (*DPS* scaled by the stock price in the month immediately before the announcement of a firm's dividend proposal), is greater than its *DivYield₂* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔDPS >0)* equals 1 if a firm's *DPS* in 2021 is greater than its *DPS* in 2020, and 0 otherwise (lower or no change). *ΔdivYield₁ / DivYield1* is *DivYield₁* in 2021 minus *DivYield₁* in 2020 scaled by *DivYield₁* in 2020. *ΔDPS / DPS* is *DPS* in 2021 minus *DPS* in 2020 scaled by *DPS* in 2020. Please refer to Online Appendix 3 for the definitions of all other variables.

Panel A: Full sample

Sample	Control	Agency theory			Bird-in-hand theory			Signaling theory			Tax clientele theory		
	mean [a]	mean [b]	diff. [b-a]	*t*-value	mean [c]	diff. [c-a]	*t*-value	mean [d]	diff. [d-a]	*t*-value	mean [e]	diff. [e-a]	*t*-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Panel A1: Firm characteristics before the experiment (measured in 2020):													
DivYield₁	0.01	0.01	0.00	0.87	0.01	0.00	0.93	0.01	0.00	-0.50	0.01	0.00	0.38
DPS	0.13	0.15	0.01	0.74	0.14	0.01	0.35	0.18	0.05	1.27	0.16	0.03	1.54
Log(TA)	22.39	22.44	0.05	0.61	22.35	-0.04	-0.39	22.41	0.03	0.33	22.41	0.03	0.29
ROA	0.03	0.02	-0.01	-1.16	0.02	0.00	-0.42	0.03	0.00	0.33	0.03	0.01	1.21
AssetGrowth	0.14	0.10	-0.04	-2.43	0.10	-0.04	-2.17	0.12	-0.02	-1.03	0.13	-0.01	-0.70
M/B	2.45	2.26	-0.19	-1.58	2.39	-0.05	-0.43	2.49	0.04	0.31	2.40	-0.05	-0.37
Cash/TA	0.23	0.22	-0.01	-0.54	0.23	0.00	-0.03	0.22	-0.01	-0.92	0.22	-0.01	-0.77
Leverage/TA	0.43	0.43	0.00	0.16	0.43	0.00	-0.20	0.43	0.00	0.31	0.44	0.01	0.80
Return	0.14	0.17	0.03	1.00	0.17	0.02	0.75	0.21	0.07	2.06	0.20	0.06	1.85
Volatility	0.13	0.13	0.00	-0.31	0.13	0.00	0.26	0.13	0.00	0.78	0.13	0.00	0.97
CEODuality	0.30	0.32	0.02	0.69	0.33	0.03	1.18	0.31	0.01	0.40	0.33	0.03	1.13
IndDirectors	0.38	0.38	0.00	0.54	0.38	0.00	0.29	0.38	0.01	2.02	0.38	0.00	0.50
Log(ExePay)	14.77	14.79	0.02	0.48	14.74	-0.03	-0.64	14.71	-0.06	-1.11	14.72	-0.04	-0.99
ExeOwnership	0.08	0.09	0.01	0.58	0.09	0.01	0.66	0.09	0.01	0.98	0.08	-0.01	-0.70
FirmAge	20.70	20.33	-0.37	-1.06	20.09	-0.61	-1.71	20.83	0.13	0.35	20.42	-0.29	-0.78
Panel A2: Change in dividend payments after the experiment (measured based on 2020 and 2021 data):													
Dummy(ΔDivYield₁ >0)	0.34	0.40	0.06	1.85	0.35	0.00	0.14	0.35	0.01	0.15	0.35	0.01	0.20
Dummy(ΔDivYield₂ >0)	0.35	0.39	0.04	1.33	0.34	-0.01	-0.32	0.36	0.01	0.28	0.36	0.00	0.07
Dummy(ΔDPS >0)	0.36	0.40	0.04	1.33	0.35	-0.01	-0.25	0.36	0.01	0.28	0.34	-0.02	-0.65
ΔDivYield₁ / DivYield₁	-0.03	0.12	0.16	2.01	0.08	0.11	1.06	-0.02	0.01	0.15	0.00	0.03	0.46
ΔDPS / DPS	0.11	0.27	0.16	1.40	0.24	0.13	0.78	0.14	0.03	0.26	0.14	0.03	0.28

Panel B: Subsample of non-payers (i.e., firms that did not pay dividends in 2020).

Sample	Control	Agency theory			Bird-in-hand theory			Signaling theory			Tax clientele theory		
	mean [a]	mean [b]	diff. [b-a]	*t*-value	mean [c]	diff. [c-a]	*t*-value	mean [d]	diff. [d-a]	*t*-value	mean [e]	diff. [e-a]	*t*-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Panel B1: Firm characteristics before the experiment (measured in 2020):													
DivYield$_1$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DPS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Log(TA)	22.04	22.03	-0.01	-0.09	21.99	-0.05	-0.34	22.24	0.20	1.32	22.19	0.15	0.97
ROA	-0.02	-0.04	-0.02	-1.29	-0.03	-0.01	-0.61	-0.03	-0.01	-0.51	-0.01	0.01	0.62
AssetGrowth	0.08	0.00	-0.08	-2.37	0.03	-0.05	-1.45	0.02	-0.07	-2.00	0.06	-0.02	-0.50
M/B	2.28	2.26	-0.02	-0.07	2.31	0.03	0.15	2.13	-0.14	-0.68	2.01	-0.26	-1.42
Cash/TA	0.18	0.19	0.00	0.13	0.18	0.00	-0.28	0.17	-0.01	-0.79	0.17	-0.01	-0.75
Leverage/TA	0.47	0.47	0.01	0.25	0.49	0.02	0.80	0.51	0.04	1.55	0.52	0.05	2.06
Return	0.02	0.14	0.12	2.32	0.11	0.10	1.71	0.14	0.12	2.49	0.10	0.09	1.83
Volatility	0.12	0.14	0.02	2.36	0.13	0.01	1.47	0.14	0.02	2.25	0.13	0.01	1.43
CEODuality	0.28	0.28	0.00	-0.05	0.30	0.02	0.38	0.31	0.04	0.62	0.28	0.00	0.00
IndDirectors	0.38	0.38	0.01	0.72	0.38	0.01	1.05	0.38	0.01	1.36	0.38	0.01	0.69
Log(ExePay)	14.55	14.66	0.11	1.61	14.66	0.11	1.45	14.55	0.00	0.04	14.60	0.05	0.65
ExeOwnership	0.06	0.07	0.01	0.73	0.06	0.01	0.39	0.06	0.00	0.12	0.05	-0.01	-0.69
FirmAge	21.45	20.93	-0.52	-0.81	20.33	-1.12	-1.70	21.44	-0.01	-0.01	20.76	-0.69	-1.09
Panel B2: Change in dividend payments after the experiment (measured based on 2020 and 2021 data):													
Dummy(ΔDivYield$_1$ >0)	0.29	0.25	-0.04	-0.77	0.23	-0.07	-1.26	0.21	-0.09	-1.64	0.18	-0.12	-2.33
Dummy(ΔDivYield$_2$ >0)	0.29	0.25	-0.04	-0.77	0.23	-0.07	-1.26	0.21	-0.09	-1.64	0.18	-0.12	-2.33
Dummy(ΔDPS >0)	0.29	0.25	-0.04	-0.77	0.23	-0.07	-1.26	0.21	-0.09	-1.64	0.18	-0.12	-2.33

Online Appendix 8: Treatment effect on firms' propensity to increase dividends based on the full sample

This table reports the treatment effects of different dividend theories on firms' propensity to increase their dividends based on the full sample (both payers and non-payers). The dependent variable is *Dummy(ΔdivYield₁ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). In Columns (1) and (2), the sample of agency theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the agency theory treatment ($Agency_{theory}$ and $Agency_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). In Columns (3) and (4), the sample of bird-in-hand theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the bird-in-hand theory treatment ($Bird_{theory}$ and $Bird_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). In Columns (5) and (6), the sample of signaling theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the signaling theory treatment ($Signaling_{theory}$ and $Signaling_{theory+call}$) and 0 for those in the control groups ($Control_{null}$and $Control_{placebo}$). In Columns (7) and (8), the sample of tax clientele theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the tax clientele theory treatment (Tax_{theory} and $Tax_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). *Log(TA)* is the logarithm of total assets. *ROA* is the return on assets. *AssetGrowth* is total assets in 2021 minus total assets in 2020 scaled by total assets in 2020. *M/B* is the market value of equity scaled by total assets. *Cash/TA* is cash and cash equivalents scaled by total assets. *Leverage/TA* is long-term debt scaled by total assets. *CEODuality* is a dummy variable that equals 1 if a firm's CEO and chair of the board are the same person, and 0 otherwise. *Return* is a firm's annual stock return in 2020. *Volatility* is the standard deviation of a firm's monthly stock returns in 2020. *IndDirectors* is the percentage of independent directors. *Log(ExePay)* is the logarithm of 1 plus the total compensation of the top three executives. *ExeOwnership* is the percentage of shares owned by executives. *FirmAge* is the number of years since the establishment of the firm. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Agency theory		Bird-in-hand theory		Signaling theory		Tax clientele theory	
Theory	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
***Treatment* (Agency)**	**0.239***	**0.296****						
	(1.85)	**(2.05)**						
***Treatment* (Bird-in-hand)**			**0.018**	**-0.020**				
			(0.14)	**(-0.13)**				
***Treatment* (Signaling)**					**0.023**	**0.063**		
					(0.17)	**(0.43)**		
***Treatment* (Tax clientele)**							**0.026**	**-0.056**
							(0.20)	**(-0.38)**
Log(TA)		0.053		-0.014		-0.069		0.020
		(0.68)		(-0.18)		(-0.89)		(0.25)
ROA		15.451***		15.732***		17.824***		17.985***
		(7.65)		(7.68)		(8.02)		(8.34)
AssetGrowth		0.883***		1.217***		0.765**		0.419
		(2.80)		(3.61)		(2.45)		(1.37)
M/B		-0.325***		-0.273***		-0.451***		-0.332***
		(-4.80)		(-4.24)		(-6.80)		(-5.10)
Cash/TA		0.835		0.944		1.170**		0.783
		(1.49)		(1.60)		(1.99)		(1.36)
Leverage/TA		-0.614		-0.397		-0.471		-0.124
		(-1.17)		(-0.74)		(-0.85)		(-0.23)
Return		-0.585***		-0.215		-0.159		-0.420*

		(-2.58)		(-0.95)		(-0.74)		(-1.79)
Volatility		-1.493		-6.053***		-4.010***		-3.845***
		(-1.00)		(-3.62)		(-2.79)		(-2.58)
CEODuality		-0.181		-0.190		0.022		-0.046
		(-1.07)		(-1.11)		(0.13)		(-0.27)
IndDirectors		0.469		-0.228		0.307		1.940
		(0.35)		(-0.17)		(0.23)		(1.43)
Log(ExePay)		-0.014		-0.304**		0.027		-0.362***
		(-0.10)		(-2.40)		(0.30)		(-2.83)
ExeOwnership		0.358		-1.092*		0.071		0.085
		(0.65)		(-1.86)		(0.13)		(0.14)
FirmAge		0.000		-0.018		-0.011		-0.014
		(0.04)		(-1.30)		(-0.80)		(-1.04)
Industry FE	N	Y	N	Y	N	Y	N	Y
Observations	1,029	1,013	1,022	1,005	1,029	998	1,025	1,004

Online Appendix 9: Treatment effect on firms' propensity to increase dividends based on the subsample of non-payers

This table reports the treatment effects of different dividend theories on firms' propensity to increase their dividends based on the subsample of non-payers (i.e., firms that did not pay dividends in 2020). The dependent variable is *Dummy(ΔDivYield₁ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). In Columns (1) and (2), the sample of agency theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the agency theory treatment ($Agency_{theory}$ and $Agency_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). In Columns (3) and (4), the sample of bird-in-hand theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the bird-in-hand theory treatment ($Bird_{theory}$ and $Bird_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). In Columns (5) and (6), the sample of signaling theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the signaling theory treatment ($Signaling_{theory}$ and $Signaling_{theory+call}$) and 0 for those in the control groups ($Control_{null}$and $Control_{placebo}$). In columns (7) and (8), the sample of tax clientele theory treatment and control groups is used. *Treatment* equals 1 for firms receiving the tax clientele theory treatment (Tax_{theory} and $Tax_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). *Log(TA)* is the logarithm of total assets. *ROA* is the return on assets. *AssetGrowth* is total assets in 2021 minus total assets in 2020 scaled by total assets in 2020. *M/B* is the market value of equity scaled by total assets. *Cash/TA* is cash and cash equivalents scaled by total assets. *Leverage/TA* is long-term debt scaled by total assets. *CEODuality* is a dummy variable that equals 1 if a firm's CEO and the chair of the board are the same person, and 0 otherwise. *Return* is a firm's annual stock return in 2020. *Volatility* is the standard deviation of a firm's monthly stock returns in 2020. *IndDirectors* is the percentage of independent directors. *Log(ExePay)* is the logarithm of 1 plus the total compensation of the top three executives. *ExeOwnership* is the percentage of shares owned by executives. *FirmAge* is the number of years since the establishment of the firm. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Agency theory		Bird-in-hand theory		Signaling theory		Tax clientele theory	
Theory	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
***Treatment* (Agency)**	**-0.208**	**-0.181**						
	(-0.78)	**(-0.51)**						
***Treatment* (Bird-in-hand)**			**-0.344**	**-0.454**				
			(-1.26)	**(-1.27)**				
***Treatment* (Signaling)**					**-0.453**	**-0.161**		
					(-1.64)	**(-0.43)**		
***Treatment* (Tax clientele)**							**-0.668****	**-0.535**
							(-2.29)	**(-1.31)**
Log(TA)		0.418**		0.136		0.166		0.774***
		(2.04)		(0.63)		(0.81)		(3.06)
ROA		32.892***		19.452***		32.230***		28.051***
		(4.79)		(3.72)		(4.59)		(4.10)
AssetGrowth		2.179***		2.635***		2.039***		1.528**
		(2.70)		(3.05)		(2.69)		(2.12)
M/B		-0.568***		-0.553***		-0.480***		-0.697***
		(-3.19)		(-3.12)		(-3.07)		(-3.25)
Cash/TA		2.428		1.172		2.768*		2.407
		(1.58)		(0.78)		(1.67)		(1.42)
Leverage/TA		-3.341***		-3.427***		-2.840**		-7.074***

		(-2.62)		(-2.97)		(-2.22)		(-4.60)
Return		0.020		1.110**		0.127		1.469**
		(0.04)		(2.13)		(0.21)		(2.26)
Volatility		1.378		-2.061		-5.191		-10.189**
		(0.39)		(-0.55)		(-1.31)		(-2.21)
CEODuality		0.005		0.173		-0.155		0.101
		(0.01)		(0.41)		(-0.35)		(0.20)
IndDirectors		0.647		1.013		-2.931		-1.193
		(0.17)		(0.32)		(-0.83)		(-0.32)
Log(ExePay)		0.301		-0.882***		0.150		-0.741*
		(0.95)		(-2.66)		(0.42)		(-1.87)
ExeOwnership		-0.744		0.378		1.981		5.841***
		(-0.44)		(0.20)		(1.11)		(2.64)
FirmAge		-0.016		-0.026		-0.104***		-0.123***
		(-0.42)		(-0.74)		(-2.65)		(-2.74)
Industry FE	N	Y	N	Y	N	Y	N	Y
Observations	283	275	281	273	284	271	277	270

Online Appendix 10: Heterogeneous effects of the other three dividend theories

This table reports the results of how the treatment effects of the bird-in-hand, signaling, and tax clientele theories vary with ex-ante firm characteristics among past payers (i.e., firms that paid dividends in 2020). The dependent variable is *Dummy(ΔDivYield$_1$ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). *Treatment* equals 1 for firms in the treatment groups and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). Specifically, we test how the treatment effect of bird-in-hand theory varies with stock price volatility (measured by *Volatility* and *CGVolatility*) (Panel A); how the treatment effect of signaling theory varies with stock price performance and information transparency (measured by *Return* and *Dispersion*) (Panel B); and how the treatment effect of tax clientele theory varies with investors' shareholding period (measured by *Turnover* and *Tradable*) (Panel C). *Volatility* is the standard deviation of a firm's monthly stock returns in 2020. *CGVolatility* is the standard deviation of a firm's monthly capital gains yield (i.e., difference between month-end and start-of-month prices scaled by the start-of month price) in 2020. *Return* is a firm's annual stock return in 2020. *Dispersion* is the standard deviation of earnings forecasts by all financial analysts in 2020. *Turnover* is the value of shares traded scaled by total market value in 2020 (i.e., monthly average of the ratios of the value of shares traded scaled by market value). *Tradeable* is the value of total tradable shares scaled by total market value in 2020 (i.e., monthly average of the ratios of the value of total tradable shares scaled by market value). We divide firms in each industry into two groups based on the industry median of the above variables and re-estimate our baseline model for each subsample. The control variables include *Log(TA)*, *ROA*, *AssetGrowth*, *M/B*, *Cash/TA*, *Leverage/TA*, *Return*, *Volatility*, *CEODuality*, *IndDirectors*, *Log(ExePay)*, *ExeOwnership*, and *FirmAge*. Please refer to Online Appendix 3 for detailed variable definitions. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Bird-in-hand theory

Sample	*Volatility* < median	*Volatility* > median	*CGVolatility* < median	*CGVolatility* > median
	(1)	(2)	(3)	(4)
***Treatment* (Bird-in-hand)**	**0.180**	**-0.165**	**0.201**	**-0.180**
	(0.76)	**(-0.62)**	**(0.84)**	**(-0.68)**
Control, Industry FE	Y	Y	Y	Y
Observations	374	352	373	353

Panel B: Signaling theory

Sample	*Return* < median	*Return* > median	*Dispersion* < median	*Dispersion* > median
	(1)	(2)	(3)	(4)
***Treatment* (Signaling)**	**0.358**	**0.120**	**0.138**	**0.238**
	(1.36)	**(0.50)**	**(0.22)**	**(0.51)**
Control, Industry FE	Y	Y	Y	Y
Observations	341	387	112	126

Panel C: Tax clientele theory

Sample	*Turnover* < median	*Turnover* > median	*Tradeable* < median	*Tradeable* > median
	(1)	(2)	(3)	(4)
***Treatment* (Tax clientele)**	**0.003**	**0.430**	**0.080**	**0.320**
	(0.01)	**(1.61)**	**(0.34)**	**(1.27)**
Control, Industry FE	Y	Y	Y	Y
Observations	405	322	378	352

Online Appendix 11: Robustness tests for the other three dividend theories

This table presents four robustness tests for the treatment effects of the other three theories (bird-in-hand, signaling, tax clientele) based on past payers (i.e., firms that paid dividends in 2020). Column (1) reports the treatment effect with the exclusion of firms that announced their dividend proposals in the first week of our experiment (March 29, 2021 to April 2, 2021). Column (2) presents the results using the placebo treatment group ($Control_{placebo}$) as the control group. Columns (3) and (4) present the treatment effect using alternative measures of a firm's propensity to increase dividends (*Dummy(ΔDivYield₂ >0)* and *Dummy(ΔDPS >0)*). Columns (5) and (6) present the treatment effect using the percentage change in dividend payments as measures of a change in a firm's dividend policy (*ΔDivYield₁ / DivYield₁* and *ΔDPS / DPS*). *Dummy(ΔDivYield₁ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield₁* (dividend per share [*DPS*] scaled by the average stock price in the previous 12 months), is greater than its *DivYield₁* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔDivYield₂ >0)* equals 1 if a firm's dividend yield in 2021, *DivYield₂* (*DPS* scaled by the stock price in the month immediately before the announcement of a firm's dividend proposal), is greater than its *DivYield₂* in 2020, and 0 otherwise (lower or no change). *Dummy(ΔDPS >0)* equals 1 if a firm's *DPS* in 2021 is greater than its *DPS* in 2020, and 0 otherwise (lower or no change). *ΔDivYield₁ / DivYield₁* is *DivYield₁* in 2021 minus *DivYield₁* in 2020 scaled by *DivYield₁* in 2020. *ΔDPS / DPS* is *DPS* in 2021 minus *DPS* in 2020 scaled by *DPS* in 2020. The control variables include *Log(TA)*, *ROA*, *AssetGrowth*, *M/B*, *Cash/TA*, *Leverage/TA*, *Return*, *Volatility*, *CEODuality*, *IndDirectors*, *Log(ExePay)*, *ExeOwnership*, and *FirmAge*. Please refer to Online Appendix 3 for detailed variable definitions. The results are based on logit regressions in Columns (1)–(4), while the results in Columns (5)–(6) are based on ordinary least squares (OLS) regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Excluding firms that announced their dividend proposals in the first week of our experiment	Using the placebo treatment group as the control group	Using alternative measures of propensity to increase dividends		Using the percentage change in dividend payments as measures of a change in dividend policy	
Dependent variable	*Dummy(ΔDivYield₁ >0)*	*Dummy(ΔDivYield₁ >0)*	*Dummy(ΔDivYield₂ >0)*	*Dummy(ΔDPS >0)*	*ΔDivYield₁ / DivYield₁*	*ΔDPS / DPS*
	(1)	(2)	(3)	(4)	(5)	(6)
***Treatment* (Bird-in-hand)**	**0.097**	**0.162**	**-0.009**	**0.04**	**0.053**	**0.028**
	(0.54)	**(0.78)**	**(-0.05)**	**(0.24)**	**(0.67)**	**(0.34)**
Control, Industry FE	Y	Y	Y	Y	Y	Y
Observations	647	549	732	732	732	732
***Treatment* (Signaling)**	**0.158**	**0.194**	**0.199**	**0.133**	**0.009**	**-0.008**
	(0.89)	**(0.94)**	**(1.20)**	**(0.79)**	**(0.14)**	**(-0.11)**
Control, Industry FE	Y	Y	Y	Y	Y	Y
Observations	643	545	728	728	728	728
***Treatment* (Tax clientele)**	**0.179**	**0.251**	**0.188**	**0.001**	**0.004**	**-0.01**
	(0.98)	**(1.22)**	**(1.15)**	**(0.00)**	**(0.06)**	**(-0.13)**
Control, Industry FE	Y	Y	Y	Y	Y	Y
Observations	638	551	734	734	734	734

Online Appendix 12: Distinguishing between theory and call effects for the other three dividend theories

This table presents the treatment effect of different divided theories and that of the call to increase/initiate dividends based on past payers (i.e., firms that paid dividends in 2020). The dependent variable is *Dummy(ΔDivYield₁ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months), is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). In Columns (1) and (2), *Treatment* equals 1 for firms receiving the theory treatment ($Bird_{theory}$, $Signaling_{theory}$, and Tax_{theory}) and 0 for those in the control groups ($Control_{null}$and $Control_{placebo}$). In Columns (3) and (4), *Treatment* equals 1 for firms receiving the theory + call treatments ($Bird_{theory+call}$, $Signaling_{theory+call}$, and $Tax_{theory+call}$) and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). In Columns (5) and (6), *Treatment (theory only)* equals 1 for firms receiving the theory treatment and 0 for those receiving the theory + call treatments. The control variables include *Log(TA)*, *ROA*, *AssetGrowth*, *M/B*, *Cash/TA*, *Leverage/TA*, *Return*, *Volatility*, *CEODuality*, *IndDirectors*, *Log(ExePay)*, *ExeOwnership*, and *FirmAge*. Please refer to Online Appendix 3 for detailed variable definitions. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Sample	Theory treatment vs. control		Theory + call treatments vs. control		Theory treatment vs. theory + call treatments	
	(1)	(2)	(3)	(4)	(5)	(6)
***Treatment* (Bird-in-hand)**	**0.014**	**-0.115**	**0.252**	**0.251**		
	(0.07)	**(-0.55)**	**(1.36)**	**(1.20)**		
Treatment (theory only)					**-0.238**	**-0.427***
					(-1.11)	**(-1.72)**
Control, Industry FE	N	Y	N	Y	N	Y
Observations	558	550	557	550	367	364
***Treatment* (Signaling)**	**0.259**	**0.250**	**0.075**	**0.077**		
	(1.41)	**(1.22)**	**(0.40)**	**(0.37)**		
Treatment (theory only)					**0.184**	**0.194**
					(0.87)	**(0.81)**
Control, Industry FE	N	Y	N	Y	N	Y
Observations	561	549	559	547	372	360
***Treatment* (Tax clientele)**	**0.215**	**0.163**	**0.215**	**0.205**		
	(1.17)	**(0.80)**	**(1.17)**	**(0.98)**		
Treatment (theory only)					**0.000**	**0.031**
					(0.00)	**(0.13)**
Control, Industry FE	N	Y	N	Y	N	Y
Observations	561	553	561	549	374	366

Online Appendix 13: The role of the secretary of the board for the other three dividend theories

This table presents the importance of the role of the secretary of the board (SOB) for the treatment effects of the other three dividend theories for past payers (i.e., firms that paid dividends in 2020). The dependent variable is *Dummy(ΔDivYield$_1$ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). *Treatment* equals 1 for firms receiving the theory and theory + call treatments and 0 for those in the control groups ($Control_{null}$ and $Control_{placebo}$). The importance of the role of SOBs is measured using three variables, *Num SOBs*, *Log(SOB Compensation)*, and *Dummy (Alt. Communication)*. *Num SOBs* is the number of SOBs in a firm in 2020. *Log(SOB Compensation)* is the natural logarithm of the total compensation of all SOBs in a firm in 2020. *Dummy (Alt. Communication)* equals 1 if a firm has official WeChat or Weibo accounts in 2020, and 0 otherwise. The control variables include *Log(TA)*, *ROA*, *AssetGrowth*, *M/B*, *Cash/TA*, *Leverage/TA*, *Return*, *Volatility*, *CEODuality*, *IndDirectors*, *Log(ExePay)*, *ExeOwnership*, and *FirmAge*. Please refer to Online Appendix 3 for detailed variable definitions. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Moderator	*Num. SOBs*	*Log(SOB Compensation)*	*Dummy (Alt. Communication)*
	(1)	(2)	(3)
Treatment* (Bird-in-hand) × *Moderator	**0.198**	**0.259**	**-0.591**
	(0.40)	**(1.25)**	**(-1.64)**
Moderator	-0.417	-0.393*	0.454*
	(-1.20)	(-1.92)	(1.77)
Treatment (Bird-in-hand)	-0.155	-3.380	0.291
	(-0.27)	(-1.22)	(1.32)
Control, Industry FE	Y	Y	Y
Observations	719	718	696
Treatment* (Signaling) × *Moderator	**0.474**	**0.557*** **	**0.029**
	(1.03)	**(2.60)**	**(0.08)**
Moderator	-0.533	-0.514**	0.357
	(-1.53)	(-2.41)	(1.40)
Treatment (Signaling)	-0.356	-7.252**	0.150
	(-0.64)	(-2.54)	(0.67)
Control, Industry FE	Y	Y	Y
Observations	715	715	693
Treatment* (Tax clientele) × *Moderator	**0.296**	**0.033**	**-0.555**
	(0.59)	**(0.13)**	**(-1.57)**
Moderator	-0.453	-0.388*	0.487*
	(-1.29)	(-1.72)	(1.90)
Treatment (Tax clientele)	-0.142	-0.231	0.387*
	(-0.24)	(-0.07)	(1.77)
Control, Industry FE	Y	Y	Y
Observations	719	719	703

Online Appendix 14: Comparing different communication channels for the other three dividend theories

This table presents the treatment effects of different communication channels (online IR platforms, email, and telephone) for the other three dividend theories for past payers (i.e., firms that paid dividends in 2020). The dependent variable is *Dummy(ΔDivYield₁ >0)*, which equals 1 if a firm's dividend yield in 2021 (dividend per share [DPS] scaled by the average stock price in the previous 12 months) is greater than its dividend yield in 2020, and 0 otherwise (lower or no change). *Dummy(Telephone)* equals 1 if we successfully contact a firm during the experimental period at least once and 0 otherwise. *Dummy(OnlineIR)* equals 1 if we receive at least one response from a firm on its online IR platform during the experimental period and 0 otherwise. *Dummy(Email)* equals 1 if we receive at least one email from a firm during the experimental period and 0 otherwise. *Log(Telephone)* is the logarithm of the average number of characters in the telephone transcripts. *Log(OnlineIR)* is the logarithm of the average number of characters in a firm's response on its online IR platform. *Log(Email)* is the logarithm of the average number of characters in a firm's email. In Columns (1) and (2), all firms in receiving the bird-in-hand theory treatment ($Bird_{theory}$ and $Bird_{theory+call}$) are included in the analysis. In Columns (3) and (4), all firms receiving the signaling theory treatment ($Signaling_{theory}$ and $Signaling_{theory+call}$) are included in the analysis. In Columns (5) and (6), all firms receiving the tax clientele theory treatment (Tax_{theory} and $Tax_{theory+call}$) are included in the analysis. The control variables include *Log(TA)*, *ROA*, *AssetGrowth*, *M/B*, *Cash/TA*, *Leverage/TA*, *Return*, *Volatility*, *CEODuality*, *IndDirectors*, *Log(ExePay)*, *ExeOwnership*, and *FirmAge*. Please refer to Online Appendix 3 for detailed variable definitions. The results are based on logit regressions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Sample	Bird-in-hand theory		Signaling theory		Tax clientele theory	
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy(Telephone)	**0.036**		**0.004**		**0.060**	
	(0.14)		**(0.01)**		**(0.19)**	
Dummy(OnlineIR)	**0.286**		**0.393**		**0.128**	
	(1.04)		**(1.51)**		**(0.49)**	
Dummy(Email)	**-0.140**		**-0.659****		**0.221**	
	(-0.51)		**(-2.32)**		**(0.88)**	
Log(Telephone)		**0.052**		**0.050**		**0.086**
		(0.49)		**(0.53)**		**(1.25)**
Log(OnlineIR)		**0.062**		**0.082***		**0.008**
		(1.15)		**(1.83)**		**(0.17)**
Log(Email)		**-0.017**		**-0.103***		**0.089**
		(-0.28)		**(-1.75)**		**(1.54)**
Control, Industry FE	Y	Y	Y	Y	Y	Y
Observations	364	364	360	360	366	366

Online Appendix 15: Post-experiment survey (Multiple-choice questions)

Q1: Has your company received queries from investors concerning following issues in past two years? (Queries could be made via online platforms such as EasyIR and sseinfo.com, IR email, or IR telephone).

A. Corporate governance (e.g., concerns about firms' overinvestment and misuse of free cash flow)

B. High volatility of stock returns (e.g., concerns about risk of return on investments)

C. Insufficient information disclosure (e.g., requesting more corporate disclosure)

D. Dividend tax (e.g., inquiring whether dividends can be paid after they hold the stock for more than a year so that they can enjoy a zero dividend tax rate)

Q2 What responses do you have in mind to these queries?

A. Increase investment and lower cash holding

B. Increase stock repurchases or decrease seasoned equity offerings

C. Increase corporate information disclosure

D. Improve investor relation management and communicate timely with investors about new securities laws and regulations

E. Increase dividends, especially cash dividends.

Q3 How can your firm benefit from an increased level of cash dividend payout?

A. Enhancing investors' trust in firms' corporate governance, resulting in better investor collaboration with the firms' management team: for example, investors are more likely to vote in favor of the company's director decisions, or they have more patience when the company meets temporary problems.

B. Bringing a higher level of stable income to investors, reducing investors' perception of the firm's risk, and increasing the stock valuation of the firm.

C. Sending a positive signal of firms' financial healthy and future performance, reducing the information asymmetry, and enhancing investors' confidence in the firm's prospect.

D. Benefiting tax-exempt investors (such as long-term investors holding the stock for more than one year, who do not have pay taxes on dividend income according to China's current tax policy).