The effects of information asymmetry on shareholder participation: Effective monitoring or disruption?*

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Abstract

This study investigates the effects of information asymmetry on shareholder participation. We find that a drop in analyst coverage following brokerage house closures and mergers is associated with an increase in the number of shareholder proposals. This effect is more pronounced for firms with low analyst coverage, weak corporate governance, and low profitability. Furthermore, we observe a rise in the number of no-action letter (NAL) requests to the SEC, suggesting an increase in the number of proposals that management regards as disruptive. We also find an increase in NAL grants by the SEC, indicating that management requests are more likely to receive support from the SEC following a decline in analyst coverage. Finally, proposals submitted by individual proponents, but not institutions, increase. Overall, our findings suggest that information asymmetry encourages disruptive shareholder participation, providing a mechanism through which information asymmetry reduces corporate value.

Keywords: Shareholder proposals, information asymmetry, analyst coverage, shareholder participation, no-action letters

JEL classification: G12,O32

1. Introduction

A number of studies document that shareholder participation encourages managers to act in the interests of shareholders and thus increases corporate value (Del Guercio, Seery, and Woidtke (2008), González and Calluzzo (2018), Becht, Franks, Grant, and Wagner (2017)). It remains uncertain, however, whether shareholder participation is always beneficial to shareholders themselves. Although it is unlikely that shareholders would diminish a firm's value intentionally, not all shareholder participation may be value-enhancing (Prevost, Rao, and Williams (2012), Cai and Walkling (2011)). For example, shareholders may disrupt ordinary business by distracting managers while they tend to value-enhancing tasks (Matsusaka, Ozbas, and Yi (2021)) or may make proposals that advance their own interests at the expense of the interests of other shareholders (Romano (2001), Schwab and Thomas (1998), Matsusaka, Ozbas, and Yi (2019)). Furthermore, managers may sometimes make side deals that reduce corporate value to dissuade shareholders from disrupting business processes (Matsusaka and Ozbas (2017)). Such disruptive shareholder participation may be more pronounced where information asymmetry is severe, as investors that do not receive enough information about managerial decisions may be more seriously concerned about the potential for agency problems to arise. In this paper, we investigate whether severe information asymmetry encourages shareholder participation and assess whether such shareholder participation enhances monitoring or disrupts management.

In our analysis, we employ brokerage house closures and mergers between brokerage houses as a proxy for worsened information asymmetry, an identification strategy that has been used in a number of studies (Hong and Kacperczyk (2010), Kelly and Ljungqvist (2012), Derrien, Kecskés, and Mansi (2016), Derrien and Kecskés (2013), He and Tian (2013), Balakrishnan, Billings, Kelly, and Ljungqvist (2014)). The idea is that when brokerage houses close or merge with other brokerage houses, the number of analysts covering a particular firm may decrease, resulting in less information available to investors. To measure the level of shareholder participation, we use the number of shareholder proposals sent to a firm in a given year because the number of shareholder proposals is a straightforward and objective measure of the level of

shareholder interest and engagement with a firm's management. Using this empirical strategy, we find that shareholder participation rises as information asymmetry worsens. In particular, we compare two years before a given event (t=-1, -2) to two years after the event (t=+1, +2) by conducting a difference-in-differences (DID) analysis and find that losing an analyst increases the number of shareholder proposals by approximately 7.9%.

We conduct several cross-sectional analyses to strengthen our interpretation that shareholder participation increases when information asymmetry worsens. First, we find that the effects of a drop in analyst coverage are statistically significant for treated firms with low analyst coverage as opposed to those with high analyst coverage. Because the loss of one analyst is more significant for firms that are already subject to low analyst coverage, this result is consistent with the idea that aggravated information asymmetry is the driving force behind the increase in shareholder proposals. Second, we investigate whether a drop in analyst coverage generates more pronounced effects for firms with weak corporate governance because shareholders of firms whose governance practices are ineffective should be more concerned about reduced monitoring or increased information asymmetry than shareholders of firms that practice strong governance. Consistent with this expectation, the number of shareholder proposals increases to a greater extent for weak-governance firms following the loss of an analyst. We next consider profitability. Matsusaka, Ozbas, and Yi (2021) suggest that shareholders do not like proposals that target high-profitability firms because they disrupt operations that had been performing well. Based on this argument, we expect investors in less profitable firms to submit proposals in greater numbers than those in profitable firms when information asymmetry worsens. Consistent with this expectation, the increase in the number of shareholder proposals we observe is driven mostly by low-profitability firms.

Although we document that shareholder participation rises following worsened information asymmetry, it is challenging to identify whether such participation enhances monitoring or disrupts management. To explore this question, we utilize no-action letter (NAL) requests submitted to the Securities and Exchange Commission (SEC) as a proxy for the level of disruptive

shareholder participation. Firms may request NALs to exclude certain shareholder proposals from their proxy statements, which may indicate that managers believe the proposals are not beneficial to corporate value. Moreover, the process of requesting NALs is time-consuming and can divert management attention away from other tasks. This proposition is supported by Matsusaka, Ozbas, and Yi's (2021) finding that stock prices on average drop while waiting for SEC NAL decisions but rise when the SEC permits exclusion, which suggests that investors tend to view such proposals as diminishing value. Thus, we use the number of NAL requests as a proxy for disruptive shareholder participation and find that losing an analyst increases the number of NAL requests by approximately 5.1%, providing evidence that severe information asymmetry increases disruptive shareholder participation.

An alternative explanation for the increased NAL requests may be that management becomes more firmly entrenched under worsened information asymmetry and submits NAL requests even for proposals that are worthy of being included in a proxy statement. In this case, the increase in NAL requests does not necessarily imply an increase in proposals with disruptive contents. To address this concern, we examine three possible outcomes of shareholder proposals. The first possibility is that a firm submits an NAL request to the SEC and the SEC grants the NAL, resulting in the proposal's being dropped from the proxy statement. The second possibility is that the proposal appears on the proxy statement, while the third possibility is that the proponent withdraws the proposal. Our analysis reveals that NAL grants, after which proposals are dropped from proxy statements, increase significantly following a loss of analyst coverage. On the other hand, appearances of proposals on meeting agendas and withdrawals do not change significantly. These findings suggest that the SEC is more likely to side with management after a loss of analyst coverage, providing support for the proposition that disruptive shareholder participation has heightened following the loss of an analyst. Furthermore, we find that approval rates for proposals decrease, consistent with the notion that shareholder proposals that are put to a vote under more severe information asymmetry are less likely to gain support from shareholders.

Finally, we examine the characteristics of proponents of shareholder proposals. We classify shareholders into three groups: individuals, special interest groups, and institutions. Our analysis reveals that the rise in shareholder proposals we observe is driven mainly by individual shareholders, who are generally considered less effective than institutions at monitoring managerial practices and performance (Gillan and Starks (2000)).

Our study contributes to the literature that sheds light on the multifaceted effects of analyst coverage on corporate behavior and value. He and Tian (2013) observe that firm innovation is negatively impacted by analyst coverage. Kelly and Ljungqvist (2012) demonstrate that a loss of analyst coverage decreases firm value and suggest that liquidity represents a primary channel through which information asymmetry affects prices. Kim, Lu, and Yu (2019) find that greater analyst coverage is associated with lower stock price crash risk for covered firms. Yu (2008) provides evidence suggesting that firms with greater analyst coverage engage in lower levels of earnings management. Allen, Francis, Wu, and Zhao (2016) find a negative effect of analyst coverage on tax aggressiveness, suggesting that higher analyst coverage constrains corporate tax aggressiveness. Zhang, Tong, Su, and Cui (2015) find that greater analyst coverage is associated with higher levels of corporate social responsibility activities. Finally, Derrien and Kecskés (2013) show that a decrease in analyst coverage results in higher costs of capital and decreased investment. As such, prior studies generally document a positive role of analyst coverage. We extend this literature by identifying another channel through which the analyst coverage enhances firm value: mitigation of disruptive shareholder participation.

Our study is closely related to the literature on the connection between analyst coverage and corporate governance or monitoring. Dyck, Morse, and Zingales (2010) find that detecting fraud relies on equity holders' agents, including analysts, who account collectively for 24% of the cases revealed. Chen, Harford, and Lin (2015) show that financial analysts play a crucial role in scrutinizing managerial behavior by distributing public and private information to institutional and individual investors through research reports and media outlets, and this indirect monitoring helps investors detect managerial misbehavior. Irani and Oesch (2013)

demonstrate that a decline in analyst coverage diminishes financial reporting quality. They also find that the effects of analyst coverage on disclosure are more prominent in firms with weak shareholder rights, indicating the occurrence of a substitution effect between analyst monitoring and internal corporate governance mechanisms. We also find that the effect of a loss of an analyst is more pronounced in firms where governance is weak. Differing from Irani and Oesch (2013), however, our study primarily investigates the interaction between analyst coverage and another external governance mechanism, namely shareholder participation. Our findings indicate that shareholder participation may not be effective in situations of severe information asymmetry.

This paper is also related to the literature on shareholder proposals. A number of studies document positive effects of shareholder proposals on corporate value. For example, Cuñat, Giné, and Guadalupe (2012) investigate market reactions to governance proposals that pass or fail by small vote margins in annual meetings and report that passing a proposal generates significantly positive abnormal returns. Grewal, Serafeim, and Yoon (2016) show that filing shareholder proposals is effective at improving environmental, social, and governance (commonly known as 'ESG') performance. Renneboog and Szilagyi (2011) find that firms that demonstrate weak performance and governance structures are the main targets of shareholder proposals, implying that shareholder proposals can serve as a valuable means of external oversight. Buchanan, Netter, and Yang (2010) report that firms targeted by shareholder proposals are more likely to replace their CEOs and elect independent board chairs. Bebchuk (2005) suggests that the advantages of shareholder proposals stem from proactive measures taken by managers in anticipation of interventions rather than proposals on which votes are actually taken.

On the other hand, previous studies have identified various drawbacks of shareholder proposals. Matsusaka and Ozbas (2017) argue that managers may resort to making private agreements to avoid the costs associated with contesting a risky vote. According to Matsusaka, Ozbas, and Yi (2021), business groups claim that proposals require significant engagement with propo-

nents and other shareholders, taking time away from creating long-term value for a firm. A 2009 Business Roundtable survey estimates that an NAL request costs approximately 47 hours of time and $47,784 in direct costs (SEC 2010, p.280 n. 817). Prevost and Rao (2000) suggest that proposals put forth by public pension funds function as a signaling mechanism to indicate the failure of private negotiations with management to the market. The authors also find that firms receiving proposals for the first time experience a short-term decline in shareholder value, whereas firms targeted repeatedly experience negative wealth effects over more extended periods. Cziraki, Renneboog, and Szilagyi (2010) analyze shareholder proposals in Europe and report a significant negative abnormal return after proposals are voted on at general meetings. While we do not directly investigate whether shareholder proposals are beneficial to shareholder wealth, our findings suggest that proposals resulting from severe information asymmetry may not always add value. Our findings are consistent with the arguments put forward by a number of legal studies that oppose shareholder proposals (Lipton (2002), Stout (2007), Strine (2006)). Several legal scholars argue that proposal sponsors may pursue self-serving agendas or lack sufficient knowledge to make effective governance decisions. For example, Bainbridge (2006) contends that shareholders have little motivation to acquire the information necessary to participate effectively in corporate decision-making processes. Our results indicate that the SEC may play an important role in reducing the costs associated with disruptive shareholder proposals, ultimately benefiting the capital market.

The remainder of this paper proceeds as follows. We explain shareholder proposals, NALs, and our empirical strategy in section 2. We describe the data and variables in section 3. We present our empirical results in section 4 and conclude in section 5.

2. Shareholder proposals, NALs, and the study's empirical strategy

2.1. Shareholder proposals and NALs

The proposal process allows shareholders to submit proposals to be voted on at a company's annual meeting. To submit a proposal, shareholders must own a minimum number of stock shares, usually a small percentage of the company's outstanding shares, for a specified length of time. Shareholder proposals can cover a wide range of issues, including corporate governance, executive compensation, environmental and social policies, and other matters affecting shareholder interests.

Once a shareholder proposal is submitted, a company has the option to include it in its proxy statement and hold a vote at the annual meeting. The company can also, however, seek to exclude the proposal by requesting an NAL from the SEC. An NAL is a formal response from the SEC stating that it will not take enforcement action against the company if it excludes the shareholder proposal from its proxy materials.

To obtain an NAL, the company must demonstrate that the shareholder proposal violates one of the SEC's rules for proposals. In Rule 14a-8, the SEC lists possible grounds for excluding a proposal. There are two major categories: procedural requirements for submitting a proposal and substantive bases for exclusion. The former include a proponent ownership requirement (14a-8(b)), a limit to only one proposal per meeting (14a-8(c)), the length of a proposal and supporting statement (14a-8(d)), the timing of the submission of a proposal (14a-8(e)), the presence of a proposal's proponent(s) at a meeting (14a-8(h)), and insufficient documentary evidence (14a-8(f)). The latter include a judgment that a proposal involves an improper subject for action under state law (14a-8(i)(1)), a violation of state, federal, or foreign law (14a-8(i)(2)), false or misleading proposals and supporting statements (14a-8(i)(3)), association with redress of a personal claim or grievance or provisions that benefit the proponent(s) only (14a-8(i)(4)), deals with ordinary business operations (14a-8(i)(7)), conflicts with a company's proposal (14a-8(i)(9)), having been already substantially implemented (14a-8(i)(10)), duplication of another

proposal (14a-8(i)(11)), a proposal's addressing substantially the same subject as another proposal from a previous year that received low shareholder support (14a-8(i)(12)), and relates to specific amounts of dividends (14a-8(i)(13)). The SEC states that it does not judge the merits of a proposal in NAL decision-making.[1]

If the SEC grants an NAL, the company that requested it can exclude the shareholder proposal from its proxy materials and the proposal will not be voted on at the annual meeting. If the SEC denies the no-action request, however, the company must include the proposal in its proxy materials and hold a vote at the annual meeting—unless it seeks relief from a court. Some proposals are withdrawn by their proponents. Withdrawals may imply that the involved firm granted concessions to the proponent(s) in exchange for withdrawing a proposal (Matsusaka, Ozbas, and Yi (2019)). Matsusaka, Ozbas, and Yi (2021) find that proposals for which managers requested NALs that the SEC declined are less popular, inasmuch as only 17 percent received majority approval compared with 20 percent for all proposals.

2.2. Empirical strategy

Examining the impact of information asymmetry on shareholder participation empirically is challenging because of the potential for endogeneity to bias the results. To overcome this challenge, we adopt a quasi-natural experimental approach similar to that of Hong and Kacperczyk (2010) by exploiting mergers and closures of brokerage houses that reduce analyst coverage. The idea is as follows: When two brokerage houses merge, they may have redundant coverage of the same firm and subsequently lay off one of the analysts who covers that firm. Similarly, a firm loses an analyst when a brokerage house that covered it shuts down. As a result, mergers and closures of brokerage houses may result in declines in analyst coverage that are exogenous to an affected firm. As analysts are known to facilitate the flow of information, any decline in analyst coverage may exacerbate information asymmetry. Therefore, our treatment group comprises firms affected by brokerage house mergers and closures. For mergers, we identify

[1]Refer to Matsusaka, Ozbas, and Yi (2021) for details on the NAL process.

firms that are covered by both an acquirer and a target at some point in the year preceding the merger. For closures, we require the firms to have been covered by the brokerage houses in the year prior to closure.

To measure the level of shareholder participation, we use the number of shareholder proposals sent to a firm in a given year (Brav, Jiang, Partnoy, and Thomas (2008), Chen, Lin, and Low(2022), David, Bloom, and Hillman (2007), Hadani, Goranova, and Khan (2011)). We measure shareholder participation in this way because the number of shareholder proposals can be seen as a straightforward and objective measure of the level of shareholder interest and engagement with a company's management. Additionally, for the following reasons, we employ the number of NAL requests as a proxy for the level of disruptive shareholder participation. First, managers are likely to request NALs when they regard proposals as unworthy of inclusion in a proxy statement. Second, regardless of the reasons underlying an NAL request, requesting an NAL requires time and effort that can be used to enhance corporate value, as mentioned above.

We conduct DID analyses to investigate the effect of information asymmetry on shareholder participation in two ways: simple DID with no matching procedure and matching-DID. For the simple DID, we use all firms that operate in the same industry as a treated firm as control firms. For matching-DID, we follow Derrien and Kecskés (2013) and match each treated firm to non-treated firms that operate in the same industry, total asset quintile, Q quintile, and cash flow quintile as of one year before the event year. We then choose a firm that exhibits the least deviation in the number of analysts (hereafter, matched control firms). One matched control firm is selected for each treated firm. As such, we analyze two sets of stacked panels of sample firms. We compare changes in shareholder proposals in treated firms with those in (matched) control firms by comparing proposals two years before the event year (t=-1, -2) with those two years after the event year (t=+1, +2). We implement this empirical strategy by running the following pooled panel regression:

$$log(Proposals) = a_0 + a_1 AFTER \times TREATED + a_2 Controls + FEs + e \quad (1)$$

In our analysis, the primary dependent variable is the natural logarithm of the count of shareholder proposals ($log(Proposals)$). In some specifications, however, we consider the number of analysts, the number of NAL requests, outcomes of proposals, approval rates of the proposals put to a vote, or the identities of the proponents of proposals. *AFTER* is an indicator variable that equals one for the period after a brokerage house merger or closure (t=+1, +2) and zero for the period before the brokerage house merger or closure (t=-1, -2). *TREATED* is an indicator variable that equals one if a firm is affected by brokerage house mergers and closures and zero otherwise. The coefficient of interest is a_1, which captures the DID effect. Control variables (*Controls*) include firm size, cash flow, leverage, Tobin's Q, investments, cash holdings, and total numbers of proposals sent to industry peers. *FEs* indicates fixed effects. We control for event-firm fixed effects and event-year fixed effects using the cohort-stacking method of Gormley and Matsa (2011), as some firms are treated or included as a control firm multiple times. Standard errors are clustered at the event-firm level.

3. Data and Summary statistics

3.1. Data and variables

We obtain accounting information from Compustat and stock-return data from the Center for Research in Security Prices (CRSP). The entrenchment-index (E-index) is computed using the Investor Responsibility Research Center (IRRC, now Risk-Metrics) database. We collect data on mergers between brokerage houses from the SDC M&A database. For mergers, we identify firms on I/B/E/S that are covered by both an acquirer and a target at some point in the year preceding the merger. For closures, we require the sample firms to have been covered by the brokerage houses in the year prior to closure. Our identification strategy uses nine brokerage house mergers and two brokerage house closures between 2007 and 2012. The final

sample period runs from 2005 through 2014 because we analyze two years before the event year (t=-1, -2) and two years after the event year (t=+1, +2). We obtain information on shareholder proposals from the ISS Shareholder Proposals database and thus exclude firms that are not covered by it. As a result, our sample consists of 236 treated firms.

We combine two data sources to identify NAL requests because the ISS Shareholder Proposals database does not provide the total number of NAL requests.[2] We first hand-collect information on NAL requests from the SEC's EDGAR website, which provides NAL-request files in PDF format. Because the SEC provides this information for a period that begins in September 2007, we also collect NAL request information from the LexisNexis website for the sample period of 2005 through 2007.

Our main variable of interest is the number of shareholder proposals. We define $\#Proposals$ as the number of shareholder proposals, and $log(Proposals)$ as the natural logarithm of the number of shareholder proposals plus one. We define $\#Analysts$ as the number of analysts covering a firm. Similarly, $log(Analysts)$ is defined as the natural logarithm of the number of analysts covering a firm plus one. We also define $\#NALs$ as the number of NALs, and $log(NALs)$ as the natural logarithm of the number of NALs plus one. Firm size ($Size$) is the natural logarithm of total assets and leverage ($Leverage$) is the leverage ratio defined as the total debt over the total assets. Tobin's Q (Q) is the book value of debt and the market value of equity scaled by total assets, in which the market value of equity is the number of shares outstanding times the price of a share of stock. Cash flow ($Cashflow$) is calculated by dividing a firm's EBITDA by lagged total assets. Investment ($Investment$) is capital expenditures scaled by total assets. Cash holdings ($Cash$) is cash and cash equivalents scaled by total assets. $Proposals^{Ind}$ is the natural logarithm of the total number of proposals submitted to a firm's industry peers.

Following Matsusaka, Ozbas, and Yi (2021), we define profitability ($Profit$) as the income-

[2]The ISS Shareholder Proposals database provides information on proposals that received an NAL from the SEC, resulting in their exclusion from the proxy materials. However, it does not provide information on proposals that were denied NALs.

to-sales ratio. As a proxy for the level of corporate governance we employ the E-index, which is a measure of the level of entrenchment of a firm's board of directors (Bebchuk, Cohen, and Ferrell (2009)). This is a composite metric comprising six anti-takeover provisions, which include staggered boards, limitations on shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements for mergers and charter amendments. The E-index ($Eindex$) ranges from 0 to 6, with higher values indicating a higher level of entrenchment.

For firms that receive at least one proposal during the sample period, we define the following variables for further analyses. We create variables associated with whether a shareholder proposal is included in a proxy statement. The number of proposals that are omitted from a proxy statement, denoted as $log(Omitted)$, is defined as the natural logarithm of the number of NALs granted by the SEC plus one. The number of proposals that are voted on, $log(Voted)$, is defined as the natural logarithm of the number of shareholder proposals that are included in a proxy statement plus one. Lastly, we define $log(Withdrawn)$ as the natural logarithm of the number of shareholder proposals withdrawn by a proponent plus one.

Following Chen, Lin, and Low (2022), we divide proponents of proposals into three categories: individuals, special interests, and institutional investors. To be specific, special interests include proponents classified by ISS as religious organizations, special interest organizations, labor unions, and other groups. Institutional investors are composed of companies, public pension funds, investment funds, and SRI funds. We categorize the remaining proponents as individuals. The proponent variables, $log(Individual)$, $log(Special)$, and $log(Institution)$, are defined as the natural logarithm of the number of proponents classified as individuals, special interest groups, and institutional investors, respectively, plus one. Approval rate, $Approval^{\%}$, is defined as the average approval rate for voted proposals. If there is no proposal that is voted on in a given year, it is recorded as missing.

3.2. Summary statistics

Table I reports summary statistics for our stacked panel of sample firms, separately for treated firms, control firms, and matched control firms. Panel A presents the mean and median values for analyst coverage and shareholder proposals, in which we separate the $Before$ (t=-1, -2) period from the $After$ (t=+1, +2) period. The means of the number of analysts ($\#Analysts$) following a firm during the $Before$ ($After$) period are 19.6 (19.0), 10.8 (11.1), and 16.1 (16.2) for treated, control, and matched control firms, respectively. As such, the number of analysts decreases by 0.6 for treated firms but increases slightly for the other groups of firms. The means of the number of proposals ($\#Proposals$) for the $Before$ period are 1.31, 0.34, and 0.67 for treated, control, and matched control firms, respectively. On the other hand, treated firms on average report receiving 1.52 proposals while control and matched control firms on average report 0.44 and 0.75 proposals, respectively, during the $After$ period. In the last column, we report mean values of a proposal dummy ($ProposalDummy$) that equals one if a firm receives any shareholder proposal and zero otherwise. The mean values of the proposal dummy for the $Before$ ($After$) period are 0.38 (0.46), 0.17 (0.22), and 0.31 (0.33) for treated, control, and matched control firms, respectively. Panel B reports the summary statistics for treated and matched control firms prior to an event. All variables are measured in the years immediately preceding brokerage closures and mergers. We present the mean value of each variable for treated and matched control firms in the first two columns. We report the differences between the two groups in the third column and the corresponding t-statistics in the final column. Even though we select matched control firms based on size, there still exists a statistically significant difference in $Size$ between treated firms and matched control firms. Meanwhile, the differences in the other firm-specific variables, i.e., $Cashflow$, $Leverage$, Q, $Investment$, $Cash$, $Profit$, and $Eindex$, are statistically insignificant between treated firms and matched control firms. The results reported in Panel B suggest overall that matched control firms are similar to treated firms in all characteristics except for size.

Panel C reports summary statistics for firm-level characteristics, shareholder proposals, and

NAL requests during the sample period. The mean of the number of proposals ($\#Proposals$) is 0.46, while that of the number of analysts ($\#Analysts$) is 11.79. The mean of the number of NAL requests ($\#NALs$) is 0.14 during the sample period. With respect to firm-level characteristics, the mean value of cash flow ($Cashflow$) is 13.9%, and the mean value of Tobin's Q (Q) is 2.028. Similarly, our sample firms hold, on average, 18.7% of total assets in the form of cash and cash equivalents.

Panel D reports summary statistics for proposal variables and proponents variables. For this panel, we exclude firms that receive no proposals during our sample period as we include only firms that received at least one proposal in the analyses in which we use these variables. Regarding proposal outcomes, the majority of proposals go to votes, but a non-trivial portion of proposals are withdrawn. Specifically, 58.4% of proposals go to a vote, 31.2% are withdrawn, and 10.4% are omitted. In terms of types of proponents, special interest groups are the most frequent, followed by individuals. The average support for shareholder proposals in our sample firms is 39%, as indicated by the mean value of $Approval^{\%}$.

Table I About Here

4. Empirical results

4.1. Closures and mergers of brokerage houses and analyst coverage

Our empirical strategy is to use the number of analysts as a proxy for information asymmetry because analysts are known to function as monitors and be negatively associated with the level of information asymmetry. In particular, we use closures and mergers of brokerage houses as an instrument for increased information asymmetry. For our identification strategy to work, we need first to ensure that we observe a drop in analyst coverage following closures and mergers of brokerage houses. Following prior studies that use similar empirical strategies, we conduct a DID analysis of the number of analysts covering a firm.

The results are presented in Table II. In both Panels A and B, we control for event-firm fixed effects and event-year fixed effects for all columns and additionally control for firm characteristics for even-numbered columns. For Panel A, the dependent variable is the number of analysts, $\#Analysts$. We report the results of the DID analysis in columns (1) and (2). The coefficient on $AFTER \times TREATED$ is negative and statistically significant in both columns, suggesting that, following a brokerage house closure or merger, analyst coverage at treated firms drops to a significantly greater extent than in matched control firms. We report the results of matching-DID regressions in columns (3) and (4). The coefficient on $AFTER \times TREATED$ is negative and statistically significant in both columns. The coefficient shown in column (3) suggests a drop of about 0.90 in the number of analysts covering a firm, indicating that about one analyst decreases following a brokerage house closure or merger. The coefficient of interest remains statistically significant, but its magnitude decreases to 0.74 when we control for firm characteristics, as shown in column (4). The positive coefficients on *Size* in columns (2) and (4) suggest that large firms are generally covered by a larger number of analysts. The positive coefficients on *Cashflow* and the negative coefficients on *Leverage* suggest that profitable firms and low-leverage firms have more analysts following them.

For Panel B, the dependent variable is the natural logarithm of the number of analysts, $log(Analysts)$. As in Panel A, here we report the results of DID regressions in columns (1) and (2). The coefficient of interest, $AFTER \times TREATED$, is negative and statistically significant in both columns, suggesting that analyst coverage at treated firms drops following a brokerage house closure or merger. We report the results of matching-DID regressions in columns (3) and (4). The coefficient on $AFTER \times TREATED$ is negative and statistically significant in both columns, again suggesting that, following a brokerage house closure or merger, analyst coverage of treated firms drops to a greater extent than coverage of matched control firms. The coefficient shown in column (3) indicates a drop of about 7.4% in the number of analysts covering a firm. The results shown in this table suggest overall that the number of analysts drops following a brokerage house closure or merger, which provides a rationale for our empirical strategy.

TABLE II ABOUT HERE

4.2. Does information asymmetry affect shareholder participation?

Using the abovementioned identification strategy and our proxy for shareholder participation, we next examine how, as it worsens, information asymmetry affects shareholder participation. In particular, we employ the number of shareholder proposals as a proxy for the level of shareholder participation and conduct a DID analysis with and without matching procedures.

Table III presents the results. The dependent variable is $log(Proposals)$ for all columns. In columns (1) and (2) we report the results of DID regressions without matching and in columns (3) and (4) we report the results of matching-DID regressions. The coefficient on $AFTER \times TREATED$ is positive and statistically significant in all columns. The coefficient estimate shown in column (2) suggests that, following closures and mergers of brokerage houses, proposals of treated firms increased 5.5% more than those of control firms. Similarly, the coefficient estimate shown in column (4) suggests that, following brokerage closures and mergers, the number of proposals treated firms received increased 7.9% more than those matched control firms received. The coefficient on *Cashflow* is negative and statistically significant at the 1% level in column (2), suggesting that profitable firms receive fewer shareholder proposals. This is consistent with Matsusaka, Ozbas, and Yi's (2021) argument that proposals that target highly profitable firms are unpopular with shareholders as they can disrupt the smooth operations of successful businesses. The coefficient on $Proposals^{Ind}$ is positive and statistically significant at the 1% level in columns (2) and (4), suggesting the existence of time-varying industry effects. The results shown in this table indicate that shareholder proposals increase significantly following drops in analyst coverage, a finding that is consistent with the proposition that aggravated information asymmetry increases shareholder participation.

TABLE III ABOUT HERE

4.3. Prior trends

Identification in a DID setting relies on the parallel trends assumption, which states that treated and control firms follow similar trends in the absence of the treatment. To test this assumption, we compare the outcome variables for the treated and matched control firms annually prior to the treatment. In particular, we examine whether there is a differential trend in analyst coverage or the number of shareholder proposals between the treated firms and matched control firms from year -5 through year -1.

The results are presented in Table IV. The dependent variables are the natural logarithm of the number of analysts ($log(Analysts)$) for columns (1) and (2) and the natural logarithm of the number of proposals ($log(Proposals)$) for columns (3) and (4). $Year^t$ indicates a dummy variable that takes the value of one for year t and zero otherwise. The variables of interest are $Year^t \times TREATED$. The coefficient estimate for $Year^{-5} \times TREATED$ is omitted because of collinearity. As the results reported in the table indicate, none of the coefficients of interest is statistically significant. As such, there do not appear to be any differential trends in the number of analysts or shareholder proposals between the two groups of firms prior to the treatment.

TABLE IV ABOUT HERE

4.4. Cross-sectional analyses

We conduct cross-sectional analyses to examine whether a drop in analyst coverage generates more pronounced effects for firms that are expected to be more strongly affected when information asymmetry worsens. We consider three types of situations: firms have low pre-shock analyst coverage, firms practice weak corporate governance, and firms suffer from poor profitability.

4.4.1. Pre-shock analyst coverage

The effects of losing one analyst should be more pronounced on firms with low pre-shock analyst coverage than on firms with high pre-shock analyst coverage (Hong and Kacperczyk (2010)). Accordingly, we compare the impact of a decline in analyst coverage on treated firms with low initial analyst coverage to those with high pre-shock analyst coverage. To accomplish this, we partition our treated firms into two groups based on the median number of analysts prior to the event.

The results of the analyst-coverage analysis are presented in Table V. The dependent variable is $log(Proposals)$ for all columns. The results pertaining to firms with low analyst coverage are presented in the odd-numbered columns and those for firms with high analyst coverage are presented in the even-numbered columns. In columns (1) and (2), we report the results of DID regressions. The coefficient on $AFTER \times TREATED$ is positive and statistically significant only in column (1). The coefficients suggest that, following a brokerage house closure or merger, shareholder proposals rise by 10% in firms with low pre-shock analyst coverage, while shareholder proposals do not increase significantly in firms with high pre-shock analyst coverage.

We report the results of a matching-DID analysis in columns (3) and (4). The coefficient on $AFTER \times TREATED$ is positive and statistically significant in column (3) but insignificant in column (4). Specifically, the coefficient estimates reveal that following a decline in analyst coverage, shareholder proposals increase by 15.1% for firms with low initial analyst coverage, while no significant change is observed for firms with high pre-shock analyst coverage. As such, the results presented in this table provide evidence that the impact of a decline in analyst coverage is pronounced on firms with low pre-shock analyst coverage.

TABLE V ABOUT HERE

4.4.2. Corporate governance

We next explore whether the influence of information asymmetry depends on the quality of corporate governance. Our motivation for examining this relationship is grounded in Irani and Oesch's (2013) finding that the effect of analyst coverage on disclosure is more pronounced for firms that deploy weak governance structures. We expect shareholders of firms that suffer from weaker governance structures to be more apprehensive about agency problems than those that feature strong governance structures. To investigate this hypothesis, we evaluate whether treated firms with weak governance structures experience more substantial increases in shareholder proposals than their strong-governance counterparts. As a proxy for the quality of corporate governance, we employ the E-index. To construct weak and strong governance cohorts, we split our treated firms based on the median value of the pre-shock E-index.

The results of the governance test are presented in Table VI. The dependent variable is $log(Proposals)$ for all columns. The results pertaining to weak-governance firms are presented in the odd-numbered columns and those pertaining to strong-governance firms are presented in the even-numbered columns. In columns (1) and (2), we report the results of DID regressions. The coefficient on $AFTER \times TREATED$ is positive and statistically significant in column (1), while the coefficient of interest is negative and statistically significant at the 10% level in column (2), suggesting that increases in shareholder proposals are driven by weak-governance firms. The coefficient of interest reported in column (1) suggests that shareholder proposals increase by approximately 11.2% following the loss of an analyst for firms that suffer from weak governance. The number of shareholder proposals, however, decreases for strong-governance firms, as shown in column (2). Next, we conduct a matching-DID analysis, as shown in columns (3) and (4). The coefficient on $AFTER \times TREATED$ is positive and statistically significant only in column (3), suggesting that increases in shareholder proposals are pronounced only in weak-governance firms. According to the coefficient of interest, there is an approximately 19.1% increase in shareholder proposals following the loss of an analyst for firms with weak governance, whereas firms with strong governance do not experience any significant changes

in the number of shareholder proposals. As such, the results presented in this table suggest overall that the increase in shareholder participation is prevalent in treated firms that suffer from weak corporate governance structures.

TABLE VI ABOUT HERE

4.4.3. Profitability

We also investigate how a firm's performance interacts with the impact of information asymmetry. Shareholder proposals aimed at high-profitability firms may not be well-received by shareholders because they are thought to have the potential to disrupt successful operations (Matsusaka, Ozbas, and Yi (2021)). Conversely, shareholders of poorly performing firms may be more highly concerned about managerial decisions, particularly in cases where information asymmetry is amplified. Therefore, we hypothesize that, following the loss of an analyst, shareholder participation increases to a greater extent for low-profitability firms than for high-profitability firms. To examine this hypothesis, we categorize treated firms into two groups based on the median value of pre-shock profitability.

Table VII displays the results of the analysis. The dependent variable is $log(Proposals)$ for all columns. The odd-numbered columns present the results for firms with low profitability while the even-numbered columns present those for firms with high profitability. In columns (1) and (2), we report the results of DID regressions. The coefficient on $AFTER \times TREATED$ is positive and statistically significant only in column (1), suggesting that shareholder proposals increase by approximately 9.2% following the loss of an analyst for low-profitability treated firms. The results obtained from the matching-DID analysis are presented in columns (3) and (4). Again, the coefficient of interest is positive and statistically significant only for low-profitability firms. The coefficients indicate that the number of shareholder proposals rises by approximately 20.4% in low-profitability treated firms, while high-profitability treated firms do not experience any significant changes in shareholder proposals after a loss of analyst coverage.

The results shown in this table, therefore, suggest that shareholder participation tends to rise mostly for poorly performing firms when information asymmetry worsens.

TABLE VII ABOUT HERE

4.5. NAL requests

In this section, we examine whether the higher shareholder participation documented in this study indicates effective monitoring or disruptions of managerial activity. In so doing, we investigate changes in the number of NAL requests. The idea is as follows: If the increase in shareholder proposals observed in this study is attributed to shareholders' monitoring more effectively or providing valuable business ideas to management, managers would welcome such proposals and incorporate them into a firm's strategies by including them on proxy statements. If managers do not like proposals, however, they may send NAL requests to the SEC, hoping to have them granted, in which case the managers can drop such proposals from proxy statements. Accordingly, submission of a higher number of NAL requests indicates a rise in shareholder proposals that management is unwilling to include in proxy statements. On the other hand, it is possible that a rise in the NAL count may not indicate manager opposition but instead reflect the submission of highly similar proposals or already substantially implemented proposals. Nonetheless, the act of seeking NALs from the SEC can still cause disturbances for a firm's management. As such, we employ the number of NAL requests as a proxy for disruptive shareholder participation.

The results are presented in Table VIII, where the dependent variable is $log(NALs)$ for all columns. Columns (1) and (2) report the results of DID regressions without matching, while columns (3) and (4) report the results of matching-DID regressions. The coefficient on $AFTER \times TREATED$ is positive and statistically significant in all columns. The coefficient estimate shown in column (2) indicates that, following closures and mergers of brokerage houses, NAL requests for treated firms increased by 5.5% more than for control firms. Similarly, the coefficient

estimate shown in column (4) indicates that, following closures and mergers of brokerage houses, NAL requests for treated firms increased by approximately 5.1% more than for matched control firms. As such, the results presented in this table are consistent with the proposition that worsened information asymmetry increases disruptive shareholder participation.

TABLE VIII ABOUT HERE

4.6. Outcomes of shareholder proposals

It could be argued that the observed rise in NAL requests suggests that management becomes more firmly entrenched under worsened information asymmetry and submits NAL requests even for proposals that are worthy of being included in a proxy statement. If so, the contents of shareholder proposals are not disruptive, but rather managers request NALs more often following declines in analyst coverage. To examine this possibility, we analyze the outcomes of NAL requests following closures and mergers of brokerage houses. In cases where management provides well-grounded reasons for excluding a proposal from a firm's agenda, the SEC is likely to approve NAL requests. Conversely, if the SEC does not agree with the grounds for exclusion and thus deems that a proposal should be presented at a shareholder meeting despite management's reluctance, an NAL request is likely to be rejected. Additionally, shareholders may withdraw a proposal. Hence, we consider three possible outcomes for shareholder proposals: NAL grants (which result in exclusion from the proxy statement), proposals are voted on (which means inclusion in a proxy statement), and withdrawals of proposals by proponents (which result in exclusion from the proxy statement).

The results are presented in Table IX. For the analysis, we restrict the sample to firms that receive at least one proposal during the sample period. We report the results of DID regressions in columns (1)–(3) and the results of matching-DID regressions in columns (4)–(6). The dependent variable is $log(Omitted)$ for columns (1) and (4), $log(Voted)$ for columns (2) and (5), and $log(Withdrawn)$ for columns (3) and (6). In column (1), the coefficient on

AFTER × *TREATED* is positive and statistically significant. This estimate indicates that omitted proposals of treated firms increase in number by approximately 5.6% more than those of control firms. This finding suggests that the SEC is more likely to grant NALs after declines in analyst coverage. The coefficients on *AFTER* × *TREATED* reported in columns (2) and (3) are positive but statistically insignificant, however, implying that there are no significant changes in the numbers of voted-on proposals or withdrawn proposals. In columns (4)–(6), we present the results of the matching-DID analysis. In column (4), the coefficient on *AFTER* × *TREATED* is positive and statistically significant. This finding once again supports the notion that disruptive proposals are on the rise. The coefficients on *AFTER* × *TREATED* reported in columns (5) and (6) are statistically insignificant, however, suggesting that there are no significant changes in the numbers of voted-on or withdrawn proposals.

The findings displayed in this table indicate that, in response to worsened information asymmetry, NAL grant approval increases while the number of proposals voted on or withdrawn does not exhibit any significant changes. This result is inconsistent with the argument that managers are more likely to avoid proposing items that deserve to be presented at shareholder meetings. Instead, the results more strongly support the notion that the SEC is more inclined to agree with management justifications for excluding proposals following a decline in analyst coverage, which aligns with the hypothesis that information asymmetry increases disruptive shareholder participation.

Table IX About Here

Next, we examine the approval rates of proposals that undergo voting during shareholder meetings. If shareholder proposals are expected to benefit firms, they are likely to gain popularity and achieve high approval rates. Consequently, if the proposals are perceived as a form of heightened monitoring following the departure of an analyst, shareholders will consider them more significant, resulting in increased approval rates. On the other hand, if shareholders consider the proposals disruptive and therefore not expected to improve performance or en-

hance value, approval rates will fall. As such, we conduct a DID analysis of approval rates for proposals that are put to a vote.

The results are presented in Table X. The dependent variable is $Approval^{\%}$ for all columns. If there is no proposal that is voted on in a given year, it is recorded as missing. Columns (1) and (2) report the results of DID regressions without matching. The coefficient on $AFTER \times TREATED$ is negative and statistically significant in both columns, suggesting that approval rates on average drop following a decline in analyst coverage. Columns (3) and (4) report the results of matching-DID regressions. The coefficient on $AFTER \times TREATED$ is also negative and statistically significant in both columns. As such, the results reported in this table support the notion that shareholder proposals are less likely to gain support from shareholders when information asymmetry worsens.

TABLE X ABOUT HERE

4.7. Proponents of shareholder proposals

This section aims to examine whether some proponents of shareholder proposals are more likely to submit proposals following a decline in analyst coverage. To do so, we adapt the categorization scheme proposed by Chen, Lin, and Low (2022) for our study; following this scheme we group shareholder proponents into three categories: individuals, special interests, and institutions. Specifically, as noted above, special interests encompass proponents identified by ISS as religious organizations, special interest organizations, labor unions, and other groups, while institutional investors include companies, public pension funds, investment funds, and SRI funds. Among the three groups of proponents, individual shareholders are likely to prove less effective as monitors than institutions. For example, Gillan and Starks (2000) show that more favorable votes are cast for proposals sponsored by institutions or coordinated groups than are cast by individual investors. Boylanz, Cebula, Foley, and Liu (2013) reveal that individual investors are more likely to submit proposals that are excluded from proxy ballots.

The authors propose that such exclusion can be attributed primarily to the sponsors' lack of experience and knowledge, as individual investors are considered less skillful or knowledgeable than institutional investors.

The results of the analysis are presented in Table XI. For the analysis, we restrict the sample to firms that receive at least one proposal during the sample period. Columns (1)–(3) report the results of DID regressions and columns (4)–(6) report the results of matching-DID regressions. The dependent variable is the natural logarithm of one plus the number of shareholder proposals proposed by individuals, special interests, and institutions in columns (1) and (4), (2) and (5), and (3) and (6), respectively. In column (1), the coefficient on $AFTER \times TREATED$ is estimated at 0.058, indicating that proposals submitted by individuals in treated firms increased by approximately 5.8% more compared to control firms. Conversely, the coefficient on $AFTER \times TREATED$ in column (2) is not statistically or economically significant, indicating that there is no significant difference in the change of proposals submitted by special interests between treated firms and control firms. In column (3), however, the coefficient on $AFTER \times TREATED$ is statistically significant, suggesting that treated firms' proposals submitted by institutions increased by approximately 4%.

In the context of our matching analysis, the positive and statistically significant coefficient on $AFTER \times TREATED$ reported in column (4) indicates that proposals submitted by individual proponents in treated firms increased by approximately 10.4% more than in their matched control firms. Conversely, the coefficients reported in columns (5) and (6) are statistically insignificant, implying that proposals submitted by special interest groups and institutions in treated firms do not change significantly following the treatment. Thus, the findings of this analysis suggest that the observed rise in shareholder proposals can be attributed primarily to submissions by individual proponents. Considering that individual shareholders typically lack expertise and are more likely to submit disruptive proposals, these results are consistent with the notion that worsened information asymmetry leads to a rise in disruptive shareholder activism.

TABLE XI ABOUT HERE

5. Conclusion

In this study we investigate the impact of information asymmetry on shareholder participation using a quasi-natural experiment created by closures and mergers of brokerage houses as a source of exogenous variation in information asymmetry. As a proxy for shareholder participation, we use the number of shareholder proposals. Our results indicate that a decline in analyst coverage leads to an increase in shareholder proposals, particularly in firms with low analyst coverage, weak corporate governance, and poor performance. Furthermore, our analysis shows a significant increase in the number of NAL requests to the SEC from treated firms, suggesting that management perceives these proposals as disruptive. Examining the outcomes of shareholder proposals, we find that approval of NAL grants increases while the number of proposals voted on or withdrawn does not exhibit significant changes in response to worsened information asymmetry. This result is inconsistent with the proposition that managers attempt to drop proposals without proper grounds. Instead, the results support the notion that SEC agreement with management justifications for excluding proposals increases following aggravations of information asymmetry, which aligns with the hypothesis that the proposals can be disruptive. In addition, our analysis of approval rates for proposals voted on suggests that there is a decrease in the popularity of votes cast after the loss of an analyst, which is inconsistent with the possibility that value-enhancing proposals increase following aggravation of information asymmetry. Finally, we find that the observed increase in shareholder proposals following a decline in analyst coverage is driven primarily by submissions from individual proponents. Given that individual shareholders often lack expertise and are less effective monitors, our results support the idea that as information asymmetry worsens disruptive shareholder activism rises.

As such, our findings suggest that information asymmetry may encourage disruptive share-

holder participation, providing a channel through which information asymmetry reduces corporate value. In addition, our results indicate that analysts play an important role in mitigating disruptive shareholder participation by providing more information about a firm's operations, potentially enhancing value. Furthermore, the findings imply that the SEC's role benefits the capital market by mitigating disruptive shareholder participation that would consume more time and effort on the part of management and other shareholders.

The results of this study have important implications for both firms and regulators. First, the results suggest that firms should pay closer attention to the impact information asymmetry might have on shareholder activism, particularly in the context of low analyst coverage, weak governance, or poor performance, as these factors are found to exacerbate the effects of information asymmetry on disruptive shareholder participation. Furthermore, our findings suggest that the SEC's role in reviewing and approving NAL requests is important in mitigating the negative effects of disruptive shareholder participation. These findings highlight the importance of the SEC's role in promoting efficiency in capital markets and protecting the interests of all shareholders. Overall, our study highlights the need for firms to be proactive in managing information asymmetry as well as the need for regulators to continue to play an active role in promoting efficient and effective capital markets.

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Appendix : Variable Definitions

Variables	Definitions
$AFTER$	An indicator variable that equals one for the period following a brokerage house merger or closure (t=+1, +2) and zero for the period preceding the brokerage house merger or closure (t=-1, -2).
$TREATED$	An indicator variable that equals one if a firm is affected by an event and zero otherwise.
$\#Analysts$	The total number of analysts covering a firm in a given year.
$log(Analysts)$	The natural logarithm of the number of analysts covering a firm in a given year plus one.
$\#Proposals$	The total number of shareholder proposals in a given year.
$ProposalDummy$	An indicator variable that equals one if a firm receives any shareholder proposal in a given year and zero otherwise.
$log(Proposals)$	The natural logarithm of the number of shareholder proposals in a given year plus one.
$\#NALs$	The total number of NALs in a given year.
$log(NALs)$	The natural logarithm of the number of NALs in a given year plus one.
$Approval^{\%}$	The average approval rate for voted proposals in a given year.
$log(Omitted)$	The natural logarithm of the number of NALs granted by the SEC in a given year plus one.
$log(Voted)$	The natural logarithm of the number of shareholder proposals that are included in proxy statements in a given year plus one.
$log(Withdrawn)$	The natural logarithm of the number of shareholder proposals withdrawn by a proponent in a given year plus one.
$log(Individual)$	The natural logarithm of the number of proponents classified as individual investors in a given year plus one.

$log(Special)$	The natural logarithm of the number of proponents classified as special interest investors in a given year plus one, where special interest investors are religious organizations, special interest organizations, labor unions, and other groups.
$log(Institution)$	The natural logarithm of the number of proponents classified as institutional investors in a given year plus one, where institutional investors are companies, public pension funds, investment funds, and SRI funds.
$Profit$	Net income(ni) scaled by sales(revt).
$Eindex$	The total number of anti-takeover provisions (staggered boards, limitations on shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements for mergers and charter amendments) in a given year.
$Size$	The natural logarithm of total assets(at).
$Leverage$	Total debt(lt) scaled by total assets(at).
Q	The book value of debt(at-ceq) plus the market value of equity(prcc×cshpri) scaled by total assets(at).
$Cashflow$	Earnings before Interest, Taxes, Depreciation, and Amortization(ebitda) scaled by lagged total assets(at).
$Investment$	Capital expenditures(capx) scaled by total assets(at).
$Cash$	Cash and cash equivalents(che) scaled by total assets(at).
$Proposals^{Ind}$	The natural logarithm of the total number of proposals submitted to a firm's industry peers in a given year.
$Year^t$	An indicator variable that equals one for year t and zero otherwise.

Table I
Summary Statistics

This table presents summary statistics for sample firms. The sample consists of firm-level data for the period spanning 2005–2014. Panel A presents the mean and median values for analyst coverage and shareholder proposals, in which we separate the $Before$ (t=-1, -2) period from those that take place in the $After$ (t=+1, +2) period. Panel B reports the summary statistics for treated and matched control firms and the mean differences. These variables are measured as of t=-1. Panels C and D show summary statistics for firm-level characteristics and shareholder proposals for the sample firms. All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Analyst coverage and shareholder proposals in *Before* and *After* periods

		#Analysts		*#Proposals*		*ProposalDummy*
		Mean	Median	Mean	Median	Mean
Treated	$Before$	19.616	19.000	1.307	0.000	0.379
	$After$	19.008	19.000	1.523	0.000	0.460
Control	$Before$	10.807	9.000	0.337	0.000	0.174
	$After$	11.087	9.000	0.440	0.000	0.218
Matched	$Before$	16.096	16.000	0.673	0.000	0.310
Control	$After$	16.191	16.000	0.749	0.000	0.327

Panel B: Differences in firm characteristics at time t=-1

	Treated	Matched Control	difference	t-stat
Size	8.703	8.398	0.305	2.22**
Cashflow	0.192	0.200	-0.008	-0.80
Leverage	0.522	0.543	-0.021	-0.92
Q	2.408	2.368	0.039	0.28
Cash	0.072	0.065	0.007	0.87
Investment	0.159	0.152	0.007	0.47
$Proposals^{Ind}$	3.913	4.109	-0.196	-1.64
Profit	0.091	0.085	0.006	0.48
Eindex	0.123	0.154	-0.031	-0.61

Panel C: Shareholder proposals and firm-level characteristics						
	N	Mean	SD	P25	Median	P75
$\#Analysts$	10505	11.794	7.543	6.000	10.000	17.000
$log(Analysts)$	10505	2.346	0.697	1.946	2.398	2.890
$\#Proposals$	10505	0.455	1.174	0.000	0.000	0.000
$log(Proposals)$	10505	0.225	0.482	0.000	0.000	0.000
$\#NALs$	10505	0.137	0.565	0.000	0.000	0.000
$log(NALs)$	10505	0.075	0.269	0.000	0.000	0.000
$Size$	10505	7.491	1.539	6.476	7.506	8.473
$Cashflow$	10505	0.139	0.158	0.084	0.140	0.207
$Leverage$	10505	0.524	0.275	0.348	0.511	0.641
Q	10505	2.028	1.372	1.242	1.634	2.341
$Investment$	10505	0.056	0.075	0.018	0.033	0.064
$Cash$	10505	0.187	0.188	0.044	0.122	0.271
$Proposals^{Ind}$	10505	3.913	1.229	3.466	4.290	4.796
$Profit$	10505	-0.042	0.614	0.008	0.051	0.099
$Eindex$	5101	3.383	1.589	2.000	4.000	5.000
Panel D: Proposal outcome and proponent variables						
	N	Mean	SD	P25	Median	P75
$log(Omitted)$	4678	0.061	0.236	0.000	0.000	0.000
$log(Voted)$	4678	0.302	0.515	0.000	0.000	0.693
$log(Withdrawn)$	4678	0.138	0.307	0.000	0.000	0.000
$log(Individual)$	4678	0.124	0.333	0.000	0.000	0.000
$log(Special)$	4678	0.180	0.374	0.000	0.000	0.000
$log(Institution)$	4678	0.040	0.171	0.000	0.000	0.000
$Approval^{\%}$	1323	0.390	0.244	0.192	0.368	0.563

Table II
Analyst Coverage

This table presents the results of an analysis of changes in the number of analysts around mergers and closures of brokerage houses. The dependent variable is the number of analysts ($\#Analysts$) for Panel A and the natural logarithm of the number of analysts plus one ($log(Analysts)$) for Panel B. In both panels, we report the results of the DID regressions in columns (1) and (2) and those of the matching-DID regressions in columns (3) and (4). All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: dep var: $\#Analysts$				
	(1)	(2)	(3)	(4)
	Non-matching		Matching	
$AFTER \times TREATED$	-0.940***	-0.835***	-0.900**	-0.737**
	(0.283)	(0.268)	(0.403)	(0.360)
$Size$		3.615***		3.072***
		(0.160)		(0.396)
$Cashflow$		1.195**		6.737***
		(0.488)		(1.733)
$Leverage$		-2.514***		-3.630***
		(0.361)		(1.312)
Q		0.401***		0.128
		(0.083)		(0.135)
$Investment$		1.351		-0.405
		(1.050)		(3.396)
$Cash$		0.864		-0.673
		(0.578)		(1.634)
$Proposals^{Ind}$		-0.047		0.036
		(0.096)		(0.204)
Event-firm FE	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes
N	10505	10505	1768	1768
R^2	0.855	0.882	0.857	0.873

Panel B: dep var: $log(Analysts)$				
	(1)	(2)	(3)	(4)
	Non-matching		Matching	
$AFTER \times TREATED$	-0.084***	-0.068***	-0.074**	-0.057*
	(0.023)	(0.023)	(0.033)	(0.029)
$Size$		0.410***		0.218***
		(0.020)		(0.035)
$Cashflow$		0.176***		0.312***
		(0.060)		(0.114)
$Leverage$		-0.335***		-0.382**
		(0.053)		(0.159)
Q		0.051***		0.021*
		(0.015)		(0.011)
$Investment$		0.018		0.219
		(0.149)		(0.221)
$Cash$		0.262***		-0.108
		(0.072)		(0.119)
$Proposals^{Ind}$		-0.009		-0.007
		(0.012)		(0.021)
Event-firm FE	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes
N	10505	10505	1768	1768
R^2	0.760	0.804	0.785	0.807

Table III
Shareholder Proposals

This table presents the results of an analysis of changes in the number of proposals around mergers and closures of brokerage houses. The dependent variable is the natural logarithm of the number of proposals plus one ($log(Proposals)$). We report the results of the DID regressions in columns (1) and (2) and those of the matching-DID regressions in columns (3) and (4). All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
dep var: $log(Proposals)$	Non-matching		Matching	
$AFTER \times TREATED$	0.056***	0.055**	0.095**	0.079*
	(0.021)	(0.028)	(0.039)	(0.045)
$Size$		0.004		-0.027
		(0.012)		(0.043)
$Cashflow$		-0.093***		0.040
		(0.030)		(0.173)
$Leverage$		-0.039*		0.080
		(0.024)		(0.120)
Q		-0.003		-0.030**
		(0.004)		(0.014)
$Investment$		-0.033		0.117
		(0.075)		(0.309)
$Cash$		-0.085**		-0.237
		(0.040)		(0.155)
$Proposals^{Ind}$		0.115***		0.116***
		(0.011)		(0.028)
Event-firm FE	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes
N	10505	10505	1768	1768
R^2	0.564	0.572	0.662	0.667

Table IV
Prior Trends

This table presents the results of a parallel-trends analysis in which we compare treated and matched control groups of firms from year -5 to year -1. The dependent variable is the natural logarithm of the number of analysts plus one ($log(Analysts)$) for columns (1) and (2) and the natural logarithm of the number of proposals plus one ($log(Proposals)$) for columns (3) and (4). All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

dep var:	(1) $log(Analysts)$	(2) $log(Analysts)$	(3) $log(Proposals)$	(4) $log(Proposals)$
$Year^{-1} \times TREATED$	0.034	-0.018	-0.033	-0.041
	(0.098)	(0.082)	(0.066)	(0.061)
$Year^{-2} \times TREATED$	0.059	-0.012	0.004	0.002
	(0.096)	(0.081)	(0.054)	(0.051)
$Year^{-3} \times TREATED$	0.044	-0.016	-0.044	-0.022
	(0.092)	(0.078)	(0.048)	(0.047)
$Year^{-4} \times TREATED$	0.073	0.033	0.008	0.032
	(0.085)	(0.075)	(0.048)	(0.046)
$Size$		0.366***		-0.067
		(0.057)		(0.044)
$Cahsflow$		0.528**		-0.130
		(0.219)		(0.130)
$Leverage$		-0.177		-0.080
		(0.178)		(0.073)
Q		0.087***		-0.009
		(0.014)		(0.010)
$Investment$		-0.237		-0.492*
		(0.446)		(0.274)
$Cash$		0.048		0.194
		(0.190)		(0.138)
$Proposals^{Ind}$		0.002		-1.070***
		(0.027)		(0.066)
Event-firm FE	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes
N	1963	1963	1963	1963
R^2	0.762	0.811	0.559	0.684

Table V
Pre-shock Analyst Coverage

This table presents the results of an analysis of pre-shock analyst coverage and changes in the number of proposals around mergers and closures of brokerage houses. The dependent variable is the natural logarithm of the number of proposals plus one ($log(Proposals)$). We report the results of the DID regressions in columns (1) and (2) and those of the matching-DID regressions in columns (3) and (4). We separate treated firms into low- and high-analyst coverage firms based on the median value of the pre-shock number of analysts. Results of the analysis of firms with low pre-shock analyst coverage are presented in the odd-numbered columns and results of the analysis of firms with high pre-shock analyst coverage are presented in the even-numbered columns. All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Non-matching		Matching	
dep var: $log(Proposals)$	Low	High	Low	High
$AFTER \times TREATED$	0.100***	0.007	0.151**	0.045
	(0.036)	(0.042)	(0.064)	(0.067)
$Size$	0.013	-0.008	-0.022	-0.026
	(0.012)	(0.022)	(0.051)	(0.061)
$Cashflow$	-0.070**	-0.090	-0.176	0.245
	(0.029)	(0.070)	(0.217)	(0.315)
$Leverage$	-0.044*	-0.044	-0.127	0.332*
	(0.027)	(0.044)	(0.151)	(0.194)
Q	0.001	-0.028***	-0.007	-0.061**
	(0.002)	(0.008)	(0.016)	(0.025)
$Investment$	0.008	-0.059	-0.031	0.575
	(0.068)	(0.155)	(0.366)	(0.623)
$Cash$	-0.042	-0.114*	-0.461**	0.108
	(0.046)	(0.069)	(0.198)	(0.242)
$Proposals^{Ind}$	0.088***	0.147***	0.079**	0.154***
	(0.013)	(0.018)	(0.036)	(0.044)
Event-firm FE	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes
N	5367	5138	929	839
R^2	0.370	0.623	0.641	0.690

Table VI
Corporate Governance

This table presents the results of an analysis of corporate governance and changes in the number of proposals around mergers and closures of brokerage houses. The dependent variable is the natural logarithm of the number of proposals plus one ($log(Proposals)$). We report the results of DID regressions in columns (1) and (2) and those of matching-DID regressions in columns (3) and (4). We separate treated firms into weak- and strong-governance firms based on the median value of the pre-shock E-index. Results of the analysis of weak-governance firms are presented in the odd-numbered columns and results of the analysis of strong-governance firms are presented in the even-numbered columns. All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Non-matching		Matching	
dep var: $log(Proposals)$	Weak	Strong	Weak	Strong
$AFTER \times TREATED$	0.112***	-0.095*	0.191***	0.008
	(0.041)	(0.057)	(0.069)	(0.059)
$Size$	0.023	0.047	0.023	-0.061
	(0.029)	(0.031)	(0.066)	(0.062)
$Cashflow$	-0.012	-0.579***	0.311	-0.315*
	(0.129)	(0.140)	(0.278)	(0.190)
$Leverage$	-0.060	-0.018	0.160	0.024
	(0.061)	(0.094)	(0.141)	(0.179)
Q	-0.035**	0.011	-0.026	-0.029
	(0.016)	(0.011)	(0.022)	(0.021)
$Investment$	-0.116	0.442*	0.225	0.071
	(0.266)	(0.232)	(0.435)	(0.476)
$Cash$	-0.064	-0.164*	-0.162	-0.324*
	(0.091)	(0.096)	(0.253)	(0.190)
$Proposals^{Ind}$	0.128***	0.110***	0.108***	0.123***
	(0.018)	(0.024)	(0.041)	(0.037)
Event-firm FE	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes
N	3764	2581	949	819
R^2	0.641	0.554	0.647	0.689

Table VII
Profitability

This table presents the results of an analysis of profitability and changes in the number of proposals around mergers and closures of brokerage houses. The dependent variable is the natural logarithm of the number of proposals plus one ($log(Proposals)$). We report the results of DID regressions in columns (1) and (2) and those of matching-DID regressions in columns (3) and (4). We separate treated firms into low- and high-profitability firms based on the median value of the pre-shock profitability. Results of the analysis of low-profitability firms are presented in the odd-numbered columns and results of the analysis of high-profitability firms are presented in the even-numbered columns. All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Non-matching		Matching	
dep var: $log(Proposals)$	Low	High	Low	High
$AFTER \times TREATED$	0.092**	0.037	0.204***	-0.042
	(0.042)	(0.036)	(0.060)	(0.066)
$Size$	-0.008	0.015	0.005	-0.069
	(0.017)	(0.017)	(0.051)	(0.066)
$Cashflow$	-0.050	-0.170***	0.065	0.002
	(0.038)	(0.056)	(0.238)	(0.232)
$Leverage$	-0.125***	0.060*	-0.049	0.139
	(0.030)	(0.033)	(0.141)	(0.188)
Q	-0.001	-0.004	0.020	-0.045**
	(0.005)	(0.004)	(0.028)	(0.018)
$Investment$	-0.045	0.013	0.221	-0.027
	(0.103)	(0.110)	(0.438)	(0.428)
$Cash$	-0.137**	-0.029	-0.424	-0.150
	(0.057)	(0.058)	(0.265)	(0.193)
$Proposals^{Ind}$	0.122***	0.107***	0.089**	0.149***
	(0.015)	(0.016)	(0.035)	(0.048)
Event-firm FE	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes
N	5145	5360	883	885
R^2	0.503	0.622	0.627	0.688

Table VIII
NAL Requests

This table presents the results of an analysis of changes in the number of NAL requests around mergers and closures of brokerage houses. The dependent variable is the natural logarithm of the number of NAL requests plus one ($log(NALs)$). We report the results of DID regressions in columns (1) and (2) and those of matching-DID regressions in columns (3) and (4). All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
dep var: $log(NALs)$	Non-matching		Matching	
$AFTER \times TREATED$	0.055***	0.055***	0.055**	0.051**
	(0.017)	(0.017)	(0.022)	(0.025)
$Size$		0.013***		0.012
		(0.004)		(0.019)
$Cashflow$		-0.046***		0.049
		(0.011)		(0.081)
$Leverage$		-0.015		-0.034
		(0.010)		(0.046)
Q		0.000		-0.008
		(0.001)		(0.008)
$Investment$		-0.005		-0.080
		(0.034)		(0.111)
$Cash$		-0.046***		-0.117
		(0.015)		(0.085)
$Proposals^{Ind}$		0.014**		0.006
		(0.006)		(0.018)
Event-firm FE	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes
N	10505	10505	1768	1768
R^2	0.654	0.655	0.684	0.683

Table IX
Outcomes of Shareholder Proposals

This table presents the results of an analysis of changes in the outcomes of proposals around mergers and closures of brokerage houses. We report the results of DID regressions in columns (1)-(3) and those of the matching-DID regressions in columns (4)-(6). The dependent variable is the natural logarithm of the number of proposals omitted with SEC permission ($log(Omitted)$), voted on ($log(Voted)$), and withdrawn ($log(Withdrawn)$) plus one for columns (1) and (4), (2) and (5), and (3) and (6), respectively. All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
		Non-matching			Matching	
dep var:	$log(Omitted)$	$log(Voted)$	$log(Withdrawn)$	$log(Omitted)$	$log(Voted)$	$log(Withdrawn)$
$AFTER \times TREATED$	0.056**	0.040	0.038	0.047*	-0.022	0.022
	(0.022)	(0.034)	(0.028)	(0.028)	(0.047)	(0.037)
$Size$	-0.002	0.002	0.041***	-0.038	-0.088	-0.003
	(0.013)	(0.028)	(0.015)	(0.023)	(0.056)	(0.035)
$Cashflow$	0.006	-0.053	-0.104*	0.068	-0.013	-0.021
	(0.050)	(0.081)	(0.058)	(0.116)	(0.234)	(0.204)
$Leverage$	-0.021	-0.049	-0.071**	-0.069	-0.210*	-0.061
	(0.027)	(0.053)	(0.030)	(0.070)	(0.122)	(0.085)
Q	-0.000	-0.013*	0.003	-0.003	-0.033*	-0.004
	(0.002)	(0.007)	(0.004)	(0.008)	(0.018)	(0.012)
$Investment$	-0.071	-0.424**	0.210	-0.209	0.204	0.243
	(0.073)	(0.192)	(0.127)	(0.208)	(0.446)	(0.291)
$Cash$	-0.025	-0.108	-0.070	0.110	-0.174	-0.043
	(0.045)	(0.095)	(0.075)	(0.122)	(0.223)	(0.167)
$Proposals^{Ind}$	0.006	0.043***	0.030***	0.027**	0.019	0.015
	(0.006)	(0.013)	(0.007)	(0.013)	(0.026)	(0.015)
Event-firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	4678	4678	4678	1185	1185	1185
R^2	0.308	0.497	0.142	0.401	0.565	0.146

Table X
Approval Rates of Proposals

This table presents the results of an analysis of the approval rates of proposals around mergers and closures of brokerage houses. The dependent variable is the mean value of approval rates of voted-on proposals in a given year ($Approval^{\%}$). If there is no proposal that is voted on in a given year, $Approval^{\%}$ is recorded as missing. We report the results of DID regressions in columns (1) and (2) and those of matching-DID regressions in columns (3) and (4). All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
dep var: $Approval^{\%}$	Non-matching		Matching	
$AFTER \times TREATED$	-0.082**	-0.075**	-0.115**	-0.115**
	(0.036)	(0.038)	(0.049)	(0.049)
$Size$		0.001		-0.120
		(0.029)		(0.078)
$Cashflow$		0.191		0.334
		(0.181)		(0.270)
$Leverage$		-0.280***		-0.159
		(0.077)		(0.168)
Q		0.008		-0.014
		(0.008)		(0.013)
$Investment$		-0.527**		0.177
		(0.254)		(0.621)
$Cash$		0.034		0.011
		(0.104)		(0.199)
$Proposals^{Ind}$		0.002		0.018
		(0.015)		(0.024)
Event-firm FE	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes
N	1323	1323	366	366
R^2	0.655	0.661	0.585	0.583

Table XI
Proponents of Proposals

This table presents the results of an analysis of proponents of proposals around mergers and closures of brokerage houses. We report the results of DID regressions in columns (1)-(3) and those of matching-DID regressions in columns (4)-(6). Following Chen, Lin, and Low (2022), we divide proponents into three categories: individuals, special interests, and institutional investors. The dependent variable is the natural logarithm of the number of proponents classified as individuals ($log(Individual)$), special interests ($log(Special)$), and institutional investors ($log(Institution)$) plus one, in columns (1) and (4), (2) and (5), and (3) and (6), respectively. All variables are defined in the Appendix and are winsorized at 1% in both tails of the distribution. Numbers in parentheses are standard errors, which we cluster at the event-firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
		Non-matching			Matching	
dep var:	$log(Individual)$	$log(Special)$	$log(Institution)$	$log(Individual)$	$log(Special)$	$log(Institution)$
$AFTER \times TREATED$	0.058**	0.047	0.040**	0.104**	0.030	0.027
	(0.024)	(0.032)	(0.018)	(0.043)	(0.048)	(0.027)
$Size$	0.011	0.035*	0.009	-0.069**	0.003	-0.011
	(0.015)	(0.019)	(0.009)	(0.031)	(0.051)	(0.022)
$Cashflow$	-0.053	-0.160**	-0.004	-0.250	0.265	-0.011
	(0.057)	(0.069)	(0.033)	(0.167)	(0.234)	(0.107)
$Leverage$	-0.052	-0.030	0.023	-0.004	-0.035	-0.091*
	(0.038)	(0.037)	(0.016)	(0.089)	(0.133)	(0.053)
Q	0.001	-0.011*	-0.003	0.010	-0.028	0.003
	(0.003)	(0.006)	(0.002)	(0.012)	(0.018)	(0.007)
$Investment$	-0.030	-0.135	-0.062	0.137	-0.032	-0.207
	(0.088)	(0.145)	(0.085)	(0.215)	(0.463)	(0.214)
$Cash$	-0.125***	-0.051	-0.036	-0.050	-0.101	-0.127
	(0.044)	(0.059)	(0.042)	(0.137)	(0.193)	(0.096)
$Proposals^{Ind}$	0.019*	0.031**	0.013*	0.011	-0.016	0.022
	(0.011)	(0.012)	(0.007)	(0.027)	(0.028)	(0.021)
Event-firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Event-year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	4678	4678	4678	1185	1185	1185
R^2	0.529	0.396	0.163	0.609	0.440	0.146