Investor Coalitions as Information Intermediaries: Evidence from Nature Action 100

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October 2025

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Abstract

In recent years, institutional investors launched several high-profile investor coalitions, including Climate Action 100+ and Nature Action 100 (hereafter, NA100). These coalitions aim to address perceived gaps in firm disclosures and actions on environmental risks. Unlike prior coalitions that engaged primarily in private engagement, these high-profile environment-focused coalitions follow a dual strategy of drawing public attention to the target firms. In this study, I use the setting of NA100, an investor coalition that targets 100 large firms and their tier 1 suppliers (hereafter, collectively referred to as target firms), to investigate whether the coalition's activities provide information to the capital markets. To test this, I first examine whether target firms respond to the public revelation of NA100. I find that target firms experience negative abnormal returns ranging from -0.94% to -1.13% on average, or a $276 billion to $322 billion total decline in market value. I then investigate alternative explanations for the market response. Consistent with NA100's actions serving as a source of information, I show that the negative market response varies negatively with the availability of nature-related information from target firms and their information intermediaries prior to the initiation of the coalition. Further analysis suggests that expected costs are unlikely to be a plausible alternative explanation for the market response. Overall, my study provides important new insights into a novel role that investor coalitions play, that of information intermediation.

1. Introduction

Investors rely on information to estimate the future cash flows that a firm is expected to generate and to assess the risks inherent in those cash flows. Among the various potential sources of information, firm disclosures are arguably the most important to investors (e.g., Campbell et al., 2014; Hope et al., 2016; Lyle et al., 2023). However, in recent years, many investors have voiced concerns about the limited disclosures on environmental risks (e.g., Fitzgeorge-Parker & Gambetta, 2025). Consistent with these concerns, several empirical studies document limited voluntary disclosures on these risks in the United States, Europe, and international settings (e.g., Giglio et al., 2023; von Zedlitz, 2023; Senni et al., 2024). In this context, it is possible that investors would benefit from other sources of information that reveal firm exposures to environmental risks. This study investigates a novel potential source, the publicly observable activities of investor coalitions.

Institutional investors initiate investor coalitions, such as Climate Action 100+ (hereafter, CA100+) and Nature Action 100 (hereafter, NA100), when they view gaps in firm disclosures and real activities related to environmental risks (i.e., Climate Action 100+, 2017; NA100, 2022). To address these concerns, the investor coalitions identify a group of highly exposed firms and engage with them to pressure for more disclosure and action (e.g., NA100, 2023b). A key feature of these investor coalitions is that they employ a dual engagement strategy that incorporates public activities, which are visible to other capital market participants, alongside private engagement (e.g., NA100, 2023a; NA100, 2023b). The public activities of these investor coalitions could serve as an informative signal to other capital market participants – i.e., those investors who are not part of the investor coalition. In other words, other investors may learn about underlying, but previously undisclosed, risks from the public activities of investor

coalitions. In this study, I examine these public activities and test whether they provide informative signals to other investors.

I use the setting of NA100 to examine whether such coalitions serve as a source of information. NA100 is a high-profile investor coalition that aims to drive more disclosure and action on nature risks (i.e., NA100, 2022). It is backed by more than 230 institutional investors, who collectively represent more than $30 trillion in assets under management (e.g., NA100, 2023b). In comparison to other similar coalitions, NA100 provides an opportune setting for two reasons. First, compared to reporting on other environmental risks, firm disclosures on nature risks are at an early stage of development (e.g., Giglio et al., 2023; von Zedlitz, 2023; Senni et al., 2024). Any information revealed by the coalition to the other investors is, therefore, more likely to be material, meaning the information effects are likely to be detectable. Second, most investor coalitions target a small number of firms. This limits the power of the tests and makes a rigorous empirical analysis more difficult to conduct. However, this is less of a concern in my setting because NA100 extends its focus to the tier 1 suppliers of its direct target firms, which allows for an examination of a larger sample (NA100, 2023a).[1]

To address my research question, I conduct an event study around the public revelation of NA100. I first examine the, on average, share price response of targeted firms. Then, I perform additional analyses to verify the wide dissemination of information and to confirm that my tests capture a market response to NA100. Finally, I conduct a series of tests to examine whether the market response reflects other investors learning about targeted risks from the public revelation of the investor coalition and/or other alternative explanations. Collectively, the results suggest that NA100's public revelation communicated information, that was unavailable from other

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[2] I refer to the 100 firms directly targeted by NA100 as direct target firms and their tier 1 suppliers as indirect target firms. References to target firms includes both direct and indirect target firms.

sources, to the capital markets. These findings are thus consistent with the investor coalition playing the role of an information intermediary.

In my first analysis, I predict a negative market response for target firms around the public revelation of NA100. Target share prices may decline for two reasons. First, NA100 claims that it targets firms that have undisclosed material nature risk exposures (i.e., NA100, 2023a; NA100, 2024b). The coalition's public announcement may therefore reveal these underlying, but previously undisclosed, nature risks to other investors. In other words, the negative market response may reflect a discount rate adjustment as the market incorporates new information about these nature risk exposures. This is consistent with other investors learning from the public revelation of the investor coalition. Second, a negative market response could also arise from a cash flow channel. Specifically, the literature suggests that institutional investor engagement tends to induce firms to make disclosure and/or real changes (e.g., Boone & White, 2015; Azar et al., 2021; Flammer et al., 2021). If the target firms are expected to incur future net costs from such engagement, this could also lead to a negative market response. Finally, another plausible alternative is that there is no observable market response, on average, if the market already prices nature risks, if the risks of focus are long-term risks, or if no real costs are expected to manifest from targeting because investor signatories do not hold enough ownership in target firms to induce changes (e.g., Heinkel et al., 2001; Berk & van Binsbergen, 2025). It therefore remains an empirical question as to whether target share prices would respond to the public revelation of NA100.

To examine the market response, I identify three key events pertaining to the public revelation of NA100. Around each date, I calculate abnormal returns. Normal returns are estimated using the market model with each firm's domestic market index. After aggregating

abnormal returns around the three events, I document average declines ranging from -0.94% to -1.13%, on average, or between $276 billion to $322 billion in total for the directly targeted firms and their tier 1 suppliers. The results strongly support the inference that target firms experienced negative abnormal returns around the investor coalition announcement dates.

I next conduct two additional analyses to confirm that I capture a market response to NA100. First, I verify the dissemination of news related to NA100 using Google search trend patterns. Consistent with the widespread dissemination of NA100 news, I observe spikes in search volume for 'Nature Action 100' around the event dates. Second, I confirm that the results vary cross-sectionally in a predictable manner. As expected, I find that the results are driven by firms in industries that are most highly exposed to nature risks, consistent with the notion that the event study returns relate to the public revelation of the investor coalition.

Next, I perform a series of analyses to examine whether the market response reflects information intermediation and/or other alternative explanations. First, I assess whether there is a differential response for target firms that provided more nature-related disclosures prior to the coalition's announcement. If information intermediation explains the market response, one would expect the public revelation of the investor coalition to be less (more) informative for firms that previously provided more (less) nature-related disclosures. Using multiple proxies for nature-related disclosures, I show that the negative market response is less (more) pronounced for firms that provided more (less) nature-related disclosures before the public revelation of NA100, consistent with the negative market response being explained by the coalition's role as an information intermediary.

Second, I assess whether the market response varies with the richness of the target firm's information environment, alternatively captured by financial analyst and ESG rating agency

following, prior to the public revelation of NA100. If the market response to NA100 is due to a deficit of nature-related information about the targeted firms, the response should be less (more) pronounced when there is more (less) information about the target firms from other information intermediaries. Consistent with this, I show that the negative market response is less (more) pronounced for firms with more (less) coverage by financial analysts and ESG rating agencies, respectively. The findings are again consistent with the investor coalition serving as an information intermediary to the capital markets, revealing the targeted firms' underlying nature-related risks when this information is not available from other sources.

Finally, an alternative explanation for the negative market response is that investors expect there to be net costs imposed by NA100's engagement activities. To assess this, I examine changes in analysts' forecasted earnings for the target firms around the naming of the direct target firms. A reduction in forecasted earnings would be consistent with analysts expecting that NA100 engagement will lead to future real direct costs. Inconsistent with this explanation, I find no change in the one-, two-, and three-year-ahead earnings forecasts for the target firms. Interestingly, however, I document downward revisions to target price forecasts, suggesting that the target price revisions are driven by non-earnings/non-cashflow components – i.e., the discount rate. Taken together, these tests suggest that analyst forecast revisions are driven by the revelation of risk-related information by the investor coalition, rather than being driven by expected costs from increased disclosures or other real effects.

My paper makes several contributions. First, I contribute to the literature that examines institutional investor activism related to ESG issues (e.g., Boone & White, 2015; Azar et al., 2021; Flammer et al., 2021), particularly the nascent stream within this literature that focuses on investor coalitions (i.e., Doidge et al., 2019; Dimson et al., 2021). In contrast to the prior

literature that examines the implications of investor coalitions for change in firm disclosures and actions (i.e., Doidge et al., 2019; Dimson et al., 2021), I examine investor coalitions' role as information intermediaries. I provide evidence of a high-profile investor coalition serving as an information intermediary to the rest of the capital market participants.

I also contribute to the literature that examines information intermediaries, which has focused on traditional players such as credit rating agencies, financial analysts, and the news media (e.g., Bushee et al., 2010; Driskill et al., 2020; deHaan et al., 2023), as well as new players such as activist short-sellers, ESG rating agencies, and social media (Brendel & Ryans, 2021; Berg et al., 2022; Chen et al., 2024). While prior studies investigate various information intermediaries, only one prior study examines institutional investors in this role (Berger et al., 2024). My setting differs from the other study's setting in two important ways. First, in the other study's setting, hedge fund managers present fundamental arguments for why they believe firms are under- or over-valued, and these fundamental-based arguments have a direct link to firm value. By contrast, NA100's public revelation relates to nature risks, and the link between environmental risks and firm value is less clear (e.g., Bolton & Kacperczyk, 2021; Aswani et al., 2024; Garel et al., 2024). Second, hedge fund managers provide significant incremental information as they make recommendations based on an analysis of firm disclosures, financial statements, and analysts' forecasts. In my context, investor coalitions provide less incremental information as their public activities are mainly related to the public revelation of target firms that they perceive to have gaps in disclosures and actions. My contribution is to document that investor coalitions, exemplified by NA100, may serve as information intermediaries to other less informed investors about undisclosed or otherwise less salient or less understood nature risks.

Finally, my study has important implications for standard setters. Recently, in response to investor demand, the International Sustainability Standard Board (hereafter, ISSB) initiated a research project on nature-related disclosures (i.e., IFRS Foundation, 2024). My study can inform the ISSB's deliberations in at least two ways. First, I provide evidence that NA100 fills an information void on nature-related disclosures (i.e., a void that could be filled with ISSB's prescribed disclosures). Second, the evidence I provide suggests that firm-provided nature-related disclosures are value-relevant to investors.

2. Background Information

Background on NA100[2]

NA100 is the most prominent investor coalition on nature risks. It is backed by more than 230 institutional investors, which together represent over $30 trillion in assets under management or advice. The coalition aims to drive greater disclosure and action on nature risks. To achieve this goal, NA100 identifies 100 firms that, in the view of investors, are among the most highly exposed to nature risks in their direct operations and supply chains. Those 100 firms are direct targets of NA100 (hereafter, direct target firms). Additionally, NA100 indirectly targets the tier 1 suppliers of the 100 named firms (hereafter, indirect target firms). I include both direct and indirect target firms in my analysis.

NA100 differs from the investor coalitions examined by prior literature (i.e., Dimson et al., 2015; Doidge et al., 2019; Dimson et al., 2021) in two ways. First, the investor coalitions examined in prior literature engage target firms on issues that are consistent with shareholder value maximization (Gosling et al., 2024). In contrast, NA100 adopts a double materiality

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[2] Appendix B provides a graphical timeline of NA100.

perspective, engaging target firms on both financially material and non-financially material issues (NA100, 2024a). It is, therefore, unclear whether the changes being sought are value-enhancing. Second, investor coalitions examined in the literature primarily operate through private engagement, whereas NA100 incorporates a significant public element into its engagement activities.

I use NA100, a prominent nature-related coalition, to examine whether such coalitions act as an information intermediary to the capital markets. My analysis focuses on three key events pertaining to the public revelation of NA100. First, on December 11, 2022, NA100 announced the formation of their initiative and the associated goal of driving greater firm ambition and action on nature and biodiversity loss (NA100, 2022).[3] Second, on June 26, 2023, NA100 revealed the eight sectors that it intends to target and provided their expectations of the target firms (NA100, 2023a).[4] Third, on September 26, 2023, NA100 announced the names of the target firms, sent them a letter outlining the coalition's expectations, and detailed the selection process for target firms based on the following four principles (NA100, 2023b):

1. The firm was identified as a high-impact firm.[5]

2. The firm operates in one of eight sectors that are important to the reversal of nature loss.

3. The firm has a large market capitalization within the sector.

4. Firms from both developed and emerging markets are considered.

Background on Nature Risks and their Disclosure

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[3] NA100 was announced during the 15th Conference of the Parties to the United Nations Convention on Biological Diversity.
[4] The eight key sectors are biotechnology and pharmaceuticals, chemicals, household and personal goods, consumer goods retail, food, food and beverage retail, forestry and paper, and metals and mining. NA100 considers these sectors to be important for nature and biodiversity loss because of their high dependence and impact on nature.
[5] The identification of high-impact firms was based on a study, released as part of the preparatory work for the initiative, that demonstrated the tools NA100 would use to select the target firms.

Nature risks are the potential negative impacts posed to a firm that arise from its dependence and/or impact on nature (TNFD, 2023). It is noteworthy that four nature risks are among the top ten long-term global risks, as identified by the World Economic Forum's 2025 Global Risks Report (Elsner et al., 2025). These are biodiversity loss and ecosystem collapse, critical change to earth systems, natural resource shortage, and pollution. At the level of the firm, nature risks can arise in two ways: physical risks and transition risks (TNFD, 2023). Physical risks arise from the loss of ecosystem services upon which the firm's economic activities depend (i.e., they arise from the dependence of the firm on nature). Examples include increased costs for firms in the food industry resulting from the decline in bee pollinator populations (e.g., Plume, 2021) and operational disruptions to auto manufacturers caused by water scarcity (e.g., Allyn, 2022). Physical risks are likely to be material to many firms, as the World Economic Forum estimates that more than half of global GDP is moderately or highly dependent on nature (World Economic Forum, 2020). Transition risks arise from changes in regulations, laws, and investor or consumer preferences (i.e., they arise from the negative impact of the firm on nature). Transition risks are also likely to be material for many firms, as many jurisdictions are introducing laws to protect nature. Examples of new laws are the EU Deforestation Law and the EU Nature Restoration Law. Together, physical and transition risks could create material risks to many firms.

Nature risks can arise from the direct operations and/or supply chains of firms. For example, 3M Company, a NA100 direct target firm, recently settled a water pollution lawsuit for $10.3 billion (Friedman & Giang, 2023).[6] This provides an example of the materialization of a nature risk in the direct operations of a firm. However, the vast majority of nature risks lie within

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[6] 3M Company's market cap as of June 22, 2023, was $55.4 billion, suggesting that nature risks, including risks related to litigation or mitigation, are likely to be material for many firms.

firms' supply chains (e.g., Garel et al., 2024). These are situations where the dependence or negative impact on nature of a supplier firm creates a negative outcome for the customer firm. For example, JBS, another direct target firm, was subject to legal penalties, supply contract terminations by customers, divestment by major debt and equity investors, and delays to its IPO in the US after allegations of purchasing cattle from suppliers engaged in Amazon deforestation (BloombergNEF, 2023). Consistent with the importance of supply chains, many of the disclosures requested by NA100 relate to the direct target firm's supply chains (NA100, 2024a). For example, NA100 requests that direct target firms assess and disclose the material risks that arise from their suppliers' dependence and impacts on nature. They also request disclosure on whether direct target firms have nature-related criteria for their tier 1 suppliers, and that direct target firms provide technical and/or financial assistance to their suppliers to reduce their dependence and impact on nature.[7] In summary, physical and transition risks can arise from the firms' direct operations, but most nature risks are located in firms' supply chains.

Investor coalitions generally claim that firms fail to disclose and take action on environmental risks. In the context of nature risks, the concerns about disclosure are apparent. For example, even though NA100's direct target firms are identified to be some of the most highly exposed to nature risks, Senni et al. (2024) find that 92% of their nature-related disclosures are on their positive impacts on nature, with little mention of their negative impacts. Giglio et al. (2023) examine the nature-related disclosures of US firms. They document that only 4.2% of firms acknowledge nature risks in their 10-K statements. Perhaps more surprisingly, a recent examination of nature-related disclosures in Europe, a jurisdiction characterized by heightened awareness and sensitivity to sustainability reporting, suggests that nature reporting is

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[7] Appendix A provides a complete list of disclosures requested by NA100 from the direct target firms.

still at an early stage of development there (von Zedlitz, 2023). Moreover, consistent with NA100's concerns, many institutional investors want more information on nature risks. For example, a recent survey found that 76% of global asset managers and owners support the mandatory disclosure of nature-related information (Fitzgeorge-Parker & Gambetta, 2025). A similar 77% indicated that they would like to see the ISSB launch a dedicated standard for nature-related disclosures. In summary, the concerns highlighted by NA100 related to firms' nature-related disclosures are well supported by other evidence.

3. Theory and Hypothesis Development

Market Response to NA100

The market value of a firm reflects investors' assessment of the firm's future cash flows and the risks inherent in those cash flows. Theory suggests that investors rely on a firm's voluntary disclosures to assess the firm's exposure to risks (e.g., Heinle & Smith, 2017; Smith, 2024). This is also supported by empirical evidence that suggests that investors respond to risk disclosures in annual reports (e.g., Campbell et al., 2014; Hope et al., 2016; Lyle et al., 2023). In summary, theory and empirical evidence suggest that voluntary disclosures provided by a firm are an important source of information that helps investors assess a firm's exposure to risks.

I first examine whether and how the share prices of target firms respond to the announcements of NA100. If market prices reflect the present value of a firm's future cash flows, a market response to NA100 could be driven by changes to investor perceptions of risk (i.e., a discount rate effect), changes in investor expectations about the target firms' future cash flows (i.e., a cash flow effect) stemming from the coalition's engagement, or both. I expand on these possibilities in the following discussion.

It is unclear, ex ante, whether and how the share prices of target firms will respond to the initiation of NA100. On the one hand, prior literature documents positive market responses to investor coalitions that engage on general ESG issues (i.e., Doidge et al., 2019; Dimson et al., 2021). This suggests that investor coalitions pressure firms to make value-enhancing changes that increase future cash flows, thereby leading to a positive market response. If changes requested by the NA100 are similarly viewed to be value-enhancing, they could lead to a positive market response for the target firms.

On the other hand, NA100 could lead to a negative market response because it differs from other investor coalitions in at least two key ways. First, other investor coalitions mainly operate through private engagement with their target firms, where NA100 additionally exerts public pressure on its target firms. The public engagement activities conducted by NA100 could, therefore, serve as a source of information for other less-informed investors. In other words, NA100 could play the role of an information intermediary by revealing underlying, but previously undisclosed, risks. In response, investors may adjust their discount rates, resulting in target firms experiencing negative abnormal returns around the initiation of NA100.

Second, other investor coalitions typically focus on changes that are consistent with shareholder value maximization (i.e., Gosling, 2024). In contrast, NA100 engages target firms on both financially material and non-financially material issues (NA100, 2024a). It is hence less clear whether the coalition will pressure firms to make value-enhancing changes. Target firms may therefore experience a negative market response if they are expected to be pushed by NA100's engagement activities into an off-equilibrium level of spending that reduces their future net cash flows.

A final plausible alternative that there is no market response to NA100 announcements. This could occur for at least three reasons. First, nature risks may already be priced in by the market (i.e., there is no "news" content in the announcements). Second, even if they are not priced, survey evidence suggests that nature risks are expected to materialize over the long term (i.e., Giglio et al., 2023). This may lead to a muted or no market response if the present value of highly uncertain expected future costs arising from nature risk materialization is negligible. Finally, NA100 may lack sufficient backing to force costly changes (e.g., Heinkel et al., 2001; Berk & van Binsbergen, 2025).

Following from the preceding arguments, I make no directional prediction on the market response for the target firms and present the first hypothesis in the null form.

H1: There is no stock price reaction for target firms around the initiation of NA100.

Information Intermediation versus Expected Costs?

As highlighted earlier, a negative market response can be consistent with two explanations. One explanation suggests that investor coalitions could play an information intermediary role, revealing risks that lead to an increase in the discount rate. Another explanation is that the response is driven by investor expectations that net costs will be imposed on the target firms as a result of the coalition's engagement. To investigate information intermediation as an explanation, I conduct two tests. First, the argument for information intermediation suggests that NA100 is informative because there is little information available on nature risks from other sources. To test this explanation, I examine how the market response varies for firms that previously provided more nature-related disclosures prior to the coalition's announcement. Specifically, if information intermediation drives the market response, one would

expect the negative market response to be less (more) pronounced for firms that provided more (less) nature-related disclosures prior to the coalition's announcements. I advance the second hypothesis as follows.

H2: The negative stock price reaction is less (more) pronounced for target firms that previously provided more (less) nature-related disclosures.

Second, I assess whether the market response varies with the richness of the target firms' information environment, alternatively captured by financial analyst and ESG rating agency following. If the response to NA100 is due to a deficit of nature-related information about the targeted firms, the response should be less (more) pronounced when there is more (less) information available about the target firms from other information intermediaries. I advance the third hypothesis as follows.

H3: The negative stock price reaction is less (more) pronounced when there is more (less) information available about the target firms from other information intermediaries.

Finally, I conduct one test to investigate expected costs as an explanation. Specifically, I examine how sophisticated investors, for which I use analysts as a proxy, respond to the naming of target firms. I focus on analysts because their revisions to earnings and target prices are readily observable. If NA100's engagement activities are expected to impose future real direct costs on target firms, one would expect to observe downward revisions to both target prices and earnings forecasts around the naming of target firms. However, downward adjustments to target prices with no corresponding adjustments to forecasted earnings would be more consistent with an assessed risk adjustment, which I interpret to suggest that the coalition revealed or made more salient target firms' exposures to nature-related risks. I advance the fourth and fifth hypotheses as follows.

H4: Analysts revise downward their earnings forecasts for the target firms around the naming of the target firms.

H5: Analysts revise downward their target price forecasts for the target firms around the naming of the target firms.

4. Data

My sample consists of direct target firms, indirect target firms (i.e., direct target firms' tier 1 suppliers), and control firms. I identify the direct target firms from NA100's website, and the indirect target firms using the FactSet Revere database. Table 1 summarizes the sample selection process. I start with 60,288 firms with a major common equity security in Datastream. The starting sample includes 98 direct target firms, 2,770 indirect target firms, and 57,420 control firms.[8] I require the necessary market variables from WRDS World Indices and Datastream, fundamental variables from Compustat, analyst variables from IBES, and that each country have at least five target firms. The final sample is 10,474 firms: 95 direct target firms, 1,353 indirect target firms, and 9,026 control firms.

Table 2 provides the sample composition by country and industry in panels A and B, respectively. The sample is international, and it includes firms from both developed and emerging markets. The United States, China, and Japan have the largest number of target firms. Target firms are concentrated in industrials, healthcare, information technology, materials, consumer discretionary, and consumer staples industries.

Table 3 provides summary statistics for the sample. A few of the variables are not available for all observations. First, the Bloomberg environmental disclosure score is only

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[8] Two target firms drop out because their major security is not a common equity security.

available for 7,654 firm observations. Second, the industry-level nature risk measures (*NATRISK*) from Giglio et al. (2023) are unavailable for the following three GIC groups: 2540, 4040, and 6020. Finally, the firm-level measure of nature disclosures in 10-K statements (*NET_NATURE*) from Giglio et al. (2023) is available for 88% of the U.S. firms. The remaining variables are available for the whole sample.

5. Empirical Design and Results

<u>Market Response to NA100</u>

My main dependent variable of interest is cumulative abnormal returns, calculated as follows: First, equation (1) estimates normal returns using the market model with the firm's domestic market index based on a 90-day estimation window (-120,-30). Next, equation (2) calculates abnormal returns, $AR_{i,t}$, as the difference between raw and normal returns for firm *i* on day *t*. Finally, equation (3) then aggregates abnormal returns over a seven-day event window. My choice of a seven-day event window is consistent with prior literature examining how investors respond to nature-related events (e.g., Garel et al., 2024; Kalhoro & Kyaw, 2024). Following the methodology employed in the prior literature to examine settings with multiple event dates (e.g., Zhang, 2007; Grewal et al., 2019; Amiraslani et al., 2024), I aggregate abnormal returns around each of the three events (i.e., *ABRET71+ABRET72+ABRET73=ABRET7*).[9]

$$\hat{R}_{i,t} = \alpha_i + \beta_i\, R_{m,t} + \varepsilon_{i,t}\ (1)$$

$$AR_{i,t} = R_{i,t} - \hat{R}_{i,t}\ (2)$$

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[9] I exclude the returns for firms with confounding earnings announcements in the event window to avoid contamination of the results.

$$ABRET7_i(-1, 5) = \sum_{t=-1}^{t=5} AR_{i,t} \quad (3)$$

To test H1, whether there is a stock price reaction around the initiation of the investor

coalitions and its direction, I run the following regression:

$$ABRET7_i = \alpha0 + \alpha1\ DIRECT\_TARGET_i/INDIRECT\_TARGET_i/TARGET_i$$
$$+ \alpha2\ LNMVE_{i,t-1} + \alpha3\ BTM_{i,t-1} + \alpha4\ ROA_{i,t-1} + \alpha5\ MOMENTUM_{i,t-1}$$
$$+ Industry\ fixed\ effects + Country\ fixed\ effects + \varepsilon_i \quad (4)$$

where *ABRET7$_i$* are the aggregate abnormal returns for firm *i* around the initiation of

NA100, *DIRECT_TARGET$_i$*, *INDIRECT_TARGET$_i$*, and *TARGET$_i$* are indicator variables equal

to one if firm *i* is a direct target firm, an indirect target firm, and a direct target firm or an indirect

target firm, respectively, and zero otherwise. Further, I control for potential drivers of short-run

returns: size, book-to-market, profitability, and momentum. *LNMVE$_{i,t-1}$* is the natural logarithm

of the market value of equity. *BTM$_{i,t-1}$* is the book value of common equity scaled by the market

value of common equity. *ROA$_{i,t-1}$* is net income before extraordinary items scaled by total assets.

MOMENTUM$_{i,t-1}$ is defined as the six-month price momentum. All variables are winsorized at

1%. Finally, I include *industry-fixed effects* to compare firms within a given industry, *country-*

fixed effects to compare firms within a given country, and cluster standard errors at the country

level. A positive (negative) α1 would suggest a positive (negative) market response around the

initiation of the investor coalition.

Table 4 provides the results. Column (1) regresses *ABRET7* on *DIRECT_TARGET*,

INDIRECT_TARGET, and controls. The coefficient on *DIRECT_TARGET* is negative and

significant at the 10% level despite the limited power of this test due to the small number (i.e.,

95) of direct target firm observations. Notably, direct targeted firms' tier 1 suppliers also

experience a significant negative reaction to the announcements.[10] The coefficient of -1.1%

implies a $216 billion total drop in the market value of firms indirectly being targeted by NA100.

In columns (2) to (4), the direct and indirect firms are pooled into a single variable

TARGET. Consistent with the results from column (1), the baseline results in column (2) indicate

that target firms experience negative abnormal returns, as evidenced by the significant negative

coefficient on *TARGET*. Column (3) adds industry and country fixed effects, and the coefficient

of *TARGET* remains reliably negative. Finally, in column (4), I show that the results are robust

when using an entropy-balancing approach.[11] Overall, the tests provide robust evidence of a

negative market response for the target firms around the initiation of the investor coalition.

Additional Tests

To confirm that I capture a market response to the public revelation of NA100, I perform

two additional tests. First, to confirm that information related to NA100 was disseminated

around the NA100 event dates, I examine Google search trend patterns. Figure 1 summarizes

Google search trend patterns on the search term "Nature Action 100". I observe spikes in search

volume around three key event dates, which confirms the widespread dissemination of

information related to the initiation of the investor coalition. Second, I confirm that the event

period abnormal returns vary in the manner expected. Specifically, I examine whether the

negative market response varies with exposure to nature risk. I measure exposure to nature risk

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[10] As a falsification test, I also examine customers of the direct target firms (untabulated). Customer firms should experience no response for at least two reasons. First, nature risks are more heavily concentrated in the upstream, rather than the downstream portion, of the value chain (e.g., World Economic Forum, 2020). Second, prior literature suggests that customers have a significant influence over their suppliers, but suppliers have little to no influence over their customers (e.g., Schiller, 2018; Dai et al., 2021; She, 2022). Consequently, the market may expect NA100's engagement to impose costs on suppliers, but not customers, of direct target firms. In line with expectations, I find no response for the customers of the direct target firms.
[11] I entropy balance the target firms with the control firms on the first three moments of all control variables.

using *NATRISK*. *NATRISK* is derived from Giglio et al. (2023), who construct this measure from survey responses of finance professionals, regulators, and academics.[12] *NATRISK* is defined as the share of survey respondents who select a given industry as being particularly affected by nature risks. It can be defined based on exposure to physical risks, transition risks, or both. I interact *NATRISK* with *TARGET* from equation (4). Table 5 provides the results. As shown, the coefficient on *TARGET* becomes insignificant, whereas the coefficient on the interaction term is negative and significant for the measures based on physical risks and average risks. The results confirm that the negative market response to the investor coalition is driven by firms in industries with high risk exposure, especially those with physical risk exposure. Overall, the results of both additional analyses are consistent with the event study tests capturing a market response to the investor coalition.

Information Intermediation versus Expected Costs?

To assess whether the negative market response is driven by information intermediation (i.e., a discount rate effect) or expected costs (i.e., a negative cash flow effect), I conduct a series of tests. First, I examine how the market response varies for firms that provide more nature-related disclosures prior to the public revelation of NA100. I define a new variable, *NATDISC*, to capture the extent to which firms provide nature-related disclosures. *NATDISC* can alternatively be *TNFD*, *BG_DISCLOSURE_SCORE*, and *NET_NATURE*. The first proxy is based on TNFD adoption. The TNFD is a voluntary reporting framework that firms can use to report on nature-

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[12] Giglio et al. (2023) provide two other industry-level measures of nature risk. One measure is based on holdings of biodiversity-related funds. I do not use this measure because prior literature suggests that ESG funds invest in firms that have worse social and environmental performance (e.g., Raghunandan & Rajgopal, 2022). Further, the other measure is based on firms' responses to the CDP questionnaire. It aggregates the self-reported nature risk disclosures of 633 U.S. firms to the industry-level. I do not use this measure because many firms may not acknowledge their exposure to nature risks which could significantly distort the measure.

related risks. TNFD adopter firms are presumed to provide more disclosure related to on their exposures to nature risks compared to non-adopter firms. Consistent with this, a recent examination of Japanese firms suggests that TNFD adopters have better nature-related disclosures than firms that did not adopt the TNFD (Yakabi, 2024). I define an indicator variable, $TNFD_i$, to be equal to one if firm i is a TNFD adopter, and zero otherwise. The second proxy is based upon the Bloomberg environmental disclosure score, which is increasing in the amount of environmental disclosures provided by the firm. I define an indicator variable, $BG\_DISCLOSURE\_SCORE_i$, is an indicator variable set equal to one if firm i has an above-median Bloomberg environmental disclosure score, and zero otherwise. The third proxy, NET_NATURE is based on firm disclosures in the 10-K statement (Giglio et al., 2023).[13] These are only available for U.S. firms, so I limit my examination to U.S. firms when using this proxy. NET_NATURE_i is the number of negative nature sentences minus the number of positive nature sentences in firm i's 10-K statement.[14]

Table 6 provides the results. The coefficient on the interaction term is positive for each of $TNFD$, $BG\_DISCLOSURE\_SCORE$, and NET_NATURE in columns (1) to (3), respectively. These findings suggest that the negative market response is less (more) pronounced for firms that provided more (less) nature-related disclosures prior to the initiation of the coalition. The results provide support for H2 that the negative stock price reaction is less (more) pronounced for target

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[13] Nature disclosures in the 10-K statements are important in this setting because they are shareholder targeted disclosures.

[14] Giglio et al. (2023) provide two other firm-level measures of nature disclosures. The first measure is an indicator that equals one if the firm mentions nature in at least two sentences in the 10-K statement. The problem with this measure is that it does not distinguish between disclosures on nature risks versus nature opportunities. The second measure is an indicator that equals one if the firm mentions nature in at least two sentences and at least one of them is about regulation. The problem with this measure is that it only captures firm disclosures on nature transition risks. I use the NET_NATURE because it captures physical and transition risk disclosures. Further, NET_NATURE distinguishes between risk disclosures (i.e., negative sentences), and opportunity disclosures (i.e., positive sentences).

firms that have more (less) nature-related disclosures prior to the public revelation of NA100.

More broadly, this result provides support for the notion that NA100 serves as an information intermediary to other capital market participants. Specifically, the negative response is driven by firms that provide less disclosure, which is consistent with the investor coalition being a source of information to investors when firm disclosures are lacking.

Second, I examine how the market response varies with the availability of information about target firms from other information intermediaries, alternatively captured using *ANALYST_COVERAGE* and *ESG_COVERAGE*. *ANALYST_COVERAGE$_i$* is the number of analysts following firm *i*. *ESG_COVERAGE* is an indicator variable equal to one if firm *i* is covered by Bloomberg, and zero otherwise. Table 7 provides the results. The coefficient on the interaction term is positive for *ANALYST_COVERAGE* and *ESG_COVERAGE*, supporting H3 that the negative stock price reaction is less (more) pronounced when there is more (less) information about the target firms from other information intermediaries. These results provide further support for the notion that NA100 serves as an information intermediary. Specifically, the negative response is stronger when there is likely to be less information available about a firm's exposure to risk from other information intermediaries, which is consistent with the investor coalition being a source of information to other capital market participants.

Finally, I examine how analysts revise their forecasts in response to the naming of target firms using the following regression.

$$OUTCOME_{i,t} = \alpha0 + \alpha1 \ DIRECT\_TARGET_i/INDIRECT\_TARGET_i/TARGET_i$$
$$+ \alpha2 \ LNMVE_{i,t-1} + \alpha3 \ BTM_{i,t-1} + \alpha4 \ MOMENTUM_{i,t-1}$$
$$+ \alpha5 \ OUTCOME_{i,t-1}$$
$$+ Industry \ fixed \ effects + Country \ fixed \ effects + \varepsilon_{i,t} \ (5)$$

where *OUTCOME$_{i,t}$* is either *REVMEANEST1$_{i,t}$*, *REVMEANEST2$_{i,t}$*, or *REVMEANEST3$_{i,t}$*, *REVPTG$_{i,t}$*, which capture the percentage change in one-year ahead earnings forecasts, two-year

ahead earnings forecasts, three-year ahead earnings forecasts, and price target forecasts, respectively, for firm i from the month before to the month after the naming of the direct target firms. Following prior literature (e.g., Bradshaw et al., 2021), I control for $LNMVE_{i,t-1}$, $BTM_{i,t-1}$, $MOMENTUM_{i,t-1}$, and the lag of $OUTCOME_{i,t}$. All variables are winsorized at the 1% level. I include *industry-fixed effects* to compare firms within a given industry, *country-fixed effects* to compare firms within a given country, and cluster standard errors at the country level. A negative $\alpha1$ would suggest downward revisions to analyst forecasts around the naming of target firms.

Table 8 provides the results. As shown, the coefficient on *TARGET* is insignificant in columns (1) to (3), which suggests that analysts did not revise their one-, two-, and three-year-ahead earnings forecasts around the naming of target firms. Hence, there is no support for H4, and the results are inconsistent with the expected costs explanation. In contrast, the coefficient is negative and significant in column (4), which suggests that analysts did revise their price target forecasts downward around the naming of target firms, providing support for H5. Further, the downward revision to the price target forecasts, with no change in earnings forecasts, is consistent with the analyst price target revisions being driven by a discount rate effect, as opposed to a negative cash flow effect. Overall, the results of this analysis provide further support for the investor coalition being a source of information to analysts.

Taken together, the results are consistent with the market response being driven by information intermediation, as opposed to the market responding to expected costs imposed by the investor coalition's engagement activities. Specifically, the first and second analyses suggest that the public revelation of the investor coalition was more informative for firms that provide less nature-related disclosures and firms with lower coverage by other information intermediaries, which is consistent with the investor coalition serving as an information

intermediary to the capital markets, revealing the targeted firms' underlying nature-related risks. The third test shows that analysts do not revise their earnings forecasts around the public revelation of the investor coalition, inconsistent with the expected costs explanation. However, analysts do revise their target price forecasts downward. The combined evidence is consistent with price target revisions are being driven by risk revelation, as opposed to negative cash flow news, which suggests that NA100 serves as a source of information to analysts about target firm exposures to nature-related risks.

6. Conclusion

This study uses the setting of NA100 to investigate a potentially novel role for investor coalitions, that of information intermediation. I first examine whether and how the share prices of targeted firms respond to NA100 announcements. I provide robust evidence of a negative market response for the target firms. Further analyses provide evidence that the negative market response is more likely to be driven by NA100 having revealed the nature-related *risk* exposures of the target firms rather than expected disclosures or real cost stemming from the coalition's engagement. Specifically, I find that the negative market response is stronger for firms that provide less nature-related disclosures prior to the public revelation of the coalition, which is consistent with the investor coalition being an information intermediary. Further, I find that the negative market response is stronger for firms with lower coverage by other information intermediaries, which is again consistent with the investor coalition serving as an information intermediary. Finally, I analyses of analyst forecast revisions suggest that analysts do not anticipate material costs associated with the investor coalition's engagement activities, but they do revise their price target forecasts downward, consistent with the notion that the analyst price

target revisions are driven by the non-earnings component of price (i.e., a risk adjustment to the discount rate). Overall, my study provides compelling new evidence to suggest that investor coalitions serve as information intermediaries by revealing risks to other capital market participants.

References

Allyn, B. (2022, November 3). *Tesla's first European factory needs more water to expand. Drought stands in its way.* NPR. https://www.npr.org/2022/11/03/1131695382/tesla-ev-electric-vehicles-europe-germany-drought-climate-change-factory

Amiraslani, H., Chen, X., Ormazabal, G., & Pope, P. F. (2024). Climate Disclosure Regulation and Investor Wealth. *Available at SSRN*.

Aswani, J., Raghunandan, A., & Rajgopal, S. (2024). Are carbon emissions associated with stock returns?. *Review of Finance*, *28*(1), 75-106.

Atta-Darkua, V., Glossner, S., Krueger, P., & Matos, P. (2023). Decarbonizing institutional investor portfolios: helping to green the planet or just greening your portfolio?. *Available at SSRN*.

Azar, J., Duro, M., Kadach, I., & Ormazabal, G. (2021). The big three and corporate carbon emissions around the world. *Journal of Financial Economics*, *142*(2), 674-696.

Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, *26*(6), 1315-1344.

Berger, P. G., Lee, H., Madelaine, A., & Shin, J. (2024). Institutional Investors as Information Suppliers: Evidence from Charity-Hosted Investment Conferences. *Available at SSRN*.

Berk, J. B., & Van Binsbergen, J. H. (2025). The impact of impact investing. *Journal of Financial Economics*, *164*, 103972.

BloombergNEF. (2023, December 9). *When the bee stings*. BloombergNEF. https://assets.bbhub.io/professional/sites/24/BNEF_Nature-Risk.pdf

Bolton, P., & Kacperczyk, M. (2021). Do investors care about carbon risk?. *Journal of Financial Economics*, *142*(2), 517-549.

Boone, A. L., & White, J. T. (2015). The effect of institutional ownership on firm transparency and information production. *Journal of Financial Economics*, *117*(3), 508-533.

Bradshaw, M. T., Lock, B., Wang, X., & Zhou, D. (2021). Soft information in the financial press and analyst revisions. *The Accounting Review*, *96*(5), 107-132.

Brendel, J. & Ryans, J. (2021). Responding to activist short sellers: Allegations, firm responses, and outcomes. *Journal of Accounting Research*, *59*(2), 487-528.

Bushee, B. J., Core, J. E., Guay, W., & Hamm, S. J. (2010). The role of the business press as an information intermediary. *Journal of Accounting Research*, *48*(1), 1-19.

Campbell, J. L., Chen, H., Dhaliwal, D. S., Lu, H. M., & Steele, L. B. (2014). The information content of mandatory risk factor disclosures in corporate filings. *Review of Accounting Studies*, *19*(1), 396-455.

Chen, H., De, P., Hu, Y., & Hwang, B. H. (2014). Wisdom of the crowds: The value of stock options transmitted through social media. *The Review of Financial Studies*, *27*(5), 1367-1403.

Climate Action 100+. (2017, December 12). *Global Investors Launch New Initiative To Drive Action on Climate Change By World's Largest Corporate Greenhouse Gas Emitters*. Climate Action 100+. https://www.climateaction100.org/news/global-investors-launch-new-initiative-to-drive-action-on-climate-change-by-worlds-largest-corporate-greenhouse-gas-emitters/

Dai, R., Liang, H., & Ng, L. (2021). Socially responsible corporate customers. *Journal of Financial Economics*, *142*(2), 598-626.

deHaan, E., Li, J., & Watts, E. M. (2023). Retail bond investors and credit ratings. *Journal of Accounting and Economics*, *76*(1), 101587.

Driskill, M., Kirk, M. P., & Tucker, J. W. (2020). Concurrent earnings announcements and analysts' information production. *The Accounting Review*, *95*(1), 165-189.

Dimson, E., Karakaş, O., & Li, X. (2015). Active ownership. *The Review of Financial Studies*, *28*(12), 3225-3268.

Dimson, E., Karakaş, O., & Li, X. (2021). Coordinated engagements. *Available at SSRN*.

Doidge, C., Dyck, A., Mahmudi, H., & Virani, A. (2019). Collective action and governance activism. *Review of Finance*, *23*(5), 893-933.

Elsner, M., Atkinson, G., & Zahidi, S. (2025). The global risks report 2025 20th edition. Cologny, Switzerland: World Economic Forum.

Fitzgeorge-Parker, L., & Gambetta, G. (2025, June 12). *RI Nature and Investors Survey 2025: Results*. Responsible Investor. https://www.responsible-investor.com/ri-nature-and-investors-survey-2025-results/

Flammer, C., Toffel, M. W., & Viswanathan, K. (2021). Shareholder activism and firms' voluntary disclosure of climate change risks. *Strategic Management Journal*, *42*(10), 1850-1879.

Friedman, L. & Giang, V. (2023, June 22). *3M reaches $10.3 billion settlement in 'Forever Chemicals' suits*. The New York Times. https://www.nytimes.com/2023/06/22/business/3m-settlement-forever-chemicals-lawsuit.html

Garel, A., Romec, A., Sautner, Z., & Wagner, A. F. (2024). Do investors care about biodiversity?. *Review of Finance*, *28*(4), 1151-1186.

Giglio, S., Kuchler, T., Stroebel, J., & Zeng, X. (2023). Biodiversity risk. *Available at SSRN*.

Grewal, J., Riedl, E. J., & Serafeim, G. (2019). Market reaction to mandatory nonfinancial disclosure. *Management Science*, *65*(7), 3061-3084.

Grigg, A., Bor, A. M., and Hertog, I. (2023, April 13). *Top 10 biodiversity-impact ranking of company industries*. Finance for Biodiversity Foundation. https://www.financeforbiodiversity.org/wp-content/uploads/Top10_biodiversity-impact_ranking.pdf

Hastreiter, N. (2024). Can investor coalitions drive corporate climate action? *Available at SSRN*.

Heinkel, R., Kraus, A., & Zechner, J. (2001). The effect of green investment on corporate behavior. *Journal of Financial and Quantitative Analysis*, *36*(4), 431-449.

Heinle, M. S., & Smith, K. C. (2017). A theory of risk disclosure. *Review of Accounting Studies*, *22*(4), 1459-1491.

Hoepner, A. G., Oikonomou, I., Sautner, Z., Starks, L. T., & Zhou, X. Y. (2024). ESG shareholder engagement and downside risk. *Review of Finance*, 28(2), 483-510.

Hope, O. K., Hu, D., & Lu, H. (2016). The benefits of specific risk-factor disclosures. *Review of Accounting Studies*, *21*(4), 1005-1045.

IFRS Foundation. (2024, April 23). *ISSB to commence research projects about risks and opportunities related to nature and human capital*. IFRS Foundation. https://www.ifrs.org/news-and-events/news/2024/04/issb-commence-research-projects-risks-opportunities-nature-human-capital/

Kalhoro, M. R., & Kyaw, K. (2024). Manage biodiversity risk exposure?. *Finance Research Letters*, *61*, 104989.

Lyle, M. R., Riedl, E. J., & Siano, F. (2023). Changes in risk factor disclosures and the variance risk premium. *The Accounting Review*, *98*(6), 327-352.

Nature Action 100. (2022, December 11). *At COP15, investors announce Nature Action 100 to tackle nature loss and biodiversity decline.* Nature Action 100. https://www.natureaction100.org/at-cop15-investors-announce-nature-action-100-to-tackle-nature-loss-and-biodiversity-decline/

Nature Action 100 (2023a, June 26). *Nature Action 100 releases investor expectations to support urgent corporate action on nature loss.* Nature Action 100. https://www.natureaction100.org/nature-action-100-releases-investor-expectations-to-support-urgent-corporate-action-on-nature-loss/

Nature Action 100 (2023b, September 26). *Nature Action 100 announces companies, start of investor engagement process to catalyze greater action on nature loss.* Nature Action 100. https://www.natureaction100.org/nature-action-100-announces-companies-start-of-investor-engagement-process-to-catalyze-greater-action-on-nature-loss/

Nature Action 100. (2024a, April 25). *Nature Action 100 company benchmark indicators*. Nature Action 100. https://www.natureaction100.org/media/2024/04/Nature-Action-100-Benchmark-Indicators-2024-1.pdf

Nature Action 100. (2024b, October 28). *At COP16, Nature Action 100 reveals results of its first benchmark assessments of corporate action on nature*. Nature Action 100. https://www.natureaction100.org/first-company-benchmark-release/

Plume, K. (2021, August 19). *Insight: Stung by climate change: drought-weakened bee colonies shrink U.S. honey crop, threaten almonds*. Reuters. https://www.reuters.com/world/us/stung-by-climate-change-drought-weakened-bee-colonies-shrink-us-honey-crop-2021-08-19/

Raghunandan, A., & Rajgopal, S. (2022). Do ESG funds make stakeholder-friendly investments?. *Review of Accounting Studies*, *27*(3), 822-863.

Schiller, C. (2018). Global supply-chain networks and corporate social responsibility. *Available at SSRN*.

Senni, C. C., Vaghefi, S., Schimanski, T., Manekar, T., & Leippold, M. (2024). Using AI to Assess the Decision-Usefulness of Corporates' Nature-related Disclosures. *Available at SSRN*.

Segal, M. (2024, July 31). *Deutsche Bank, BASF launch finance program tying rates for suppliers to sustainability performance*. ESG Today. https://www.esgtoday.com/deutsche-bank-basf-launch-finance-program-tying-rates-for-suppliers-to-sustainability-performance/#:~:text=Under%20the%20new%20program%2C%20the,qualify%20for%20preferential%20interest%20rates.

She, G. (2022). The real effects of mandatory nonfinancial disclosure: Evidence from supply chain transparency. *The Accounting Review*, *97*(5), 399-425.

Smith, K. (2024). Risk information, investor learning, and informational feedback. *Review of Accounting Studies*, *29*(1), 237-275.

TNFD. (2023). Recommendations of the taskforce on nature-related financial disclosures. *Taskforce on Nature-related Financial Disclosures.*

von Zedlitz, G. (2023). Mind the gap?! The current state of biodiversity reporting. *Available at SSRN.*

World Economic Forum. (2020). Nature risk rising: Why the crisis engulfing nature matters for business and the economy. *World Economic Forum.*

Yakabi, K. (2024). Assessing the Changes in Nature-Related Disclosures: Text Analysis in Japanese Corporate Annual Reports. *Available at SSRN.*

Zhang, I. X. (2007). Economic consequences of the Sarbanes–Oxley Act of 2002. *Journal of Accounting and Economics*, *44*(1-2), 74-115.

Appendix A: NA100 Company Benchmark Indicators

<u>Indicator 1: Ambition</u>

Investor Expectation: Publicly commit to minimize contributions to key drivers of nature loss and to conserve and restore ecosystems at the operational level and throughout the value chain by 2030.

Sub-indicator	Metric
1.1. The company has a commitment to avoid and reduce key drivers of nature loss and/or to restore and regenerate ecosystems throughout its value chain.	**1.1.a.** The company commits to avoid and reduce its contributions to key drivers of nature loss and/or restore and regenerate ecosystems.
	1.1.b. The company commitment explicitly extends to the company's value chain

<u>Indicator 2: Assessment</u>

Investor Expectation: Assess and publicly disclose nature-related dependencies, impacts, risks, and opportunities at the operational level and throughout the value chain.

Sub-indicator	Metric
2.1. The company publicly discloses the location of all assets and activities in its direct operations and upstream and downstream value chain that are situated in or adjacent to ecologically sensitive locations.	**2.1.a.** The company publicly discloses all locations where it has assets and activities within its direct operations that are situated in or adjacent to ecologically sensitive locations.
	2.1.b. The company publicly discloses all locations of assets and activities within the

	upstream portion of its value chain that are situated in or adjacent to ecologically sensitive locations.
	2.1.c. The company publicly discloses all locations of assets and activities within the downstream portion of its value chain that are situated in or adjacent to ecologically sensitive locations.
2.2. The company assesses and publicly discloses its material dependencies and impacts on nature within its own operations and throughout its value chain.	**2.2.a.** The company undertakes and publicly discloses the results of an assessment of its material dependencies on nature in its direct operations.
	2.2.b. The company undertakes and publicly discloses the results of an assessment of its material dependencies on nature in the upstream portion of its value chain.
	2.2.c. The company undertakes and publicly discloses the results of an assessment of its material dependencies on nature in the downstream portion of its value chain.
	2.2.d. The company undertakes and publicly discloses the results of an assessment of its

	material impacts on nature in its direct operations.
	2.2.e. The company undertakes and publicly discloses the results of an assessment of its material impacts on nature in the upstream portion of its value chain.
	2.2.f. The company undertakes and publicly discloses the results of an assessment of its material impacts on nature in the downstream portion of its value chain.
2.3. The company assesses and publicly discloses the risks and opportunities stemming from material dependencies and impacts on nature.	**2.3.a.** The company undertakes and publicly discloses the results of an assessment of the material risks stemming from material dependencies and impacts on nature.
	2.3.b. The company undertakes and publicly discloses the results of an assessment of its material opportunities stemming from material dependencies and impacts on nature.

Indicator 3: Targets

Investor Expectation: Set time-bound, context-specific, science-based targets informed by risk assessments on nature-related dependencies, impacts, risks, and opportunities. Disclose annual progress against targets.

Sub-indicator	Metric
3.1. The company has comprehensive and measurable targets to avoid and reduce key drivers of nature loss and to restore and regenerate ecosystems.	**3.1.a.** The company publicly discloses targets to manage nature-related dependencies, impacts, risks, and/or opportunities.
	3.1.b. The company targets pertain to avoiding and reducing drivers of nature loss.
	3.1.c. The company targets pertain to restoring and regenerating ecosystems.
3.2. The company's targets pertain to its material nature-related impacts and dependencies, are validated by an impartial and independent third party, and are designed in an integrated manner that takes account of the company's climate targets.	**3.2.a.** The company publicly discloses that its targets pertain to its material nature-related dependencies and impacts.
	3.2.b. The company's targets have been validated by an independent third party.
	3.2.c. The company explains how its nature-related targets support, align, or integrate with its climate change targets.
3.3. The company publicly discloses its progress toward its targets on an annual basis.	**3.3.a.** The company publicly discloses its progress toward its nature-related targets within the last reporting year, with reference to the baseline or reference condition.

Indicator 4: Implementation

Investor Expectation: Develop a company-wide plan on how to achieve targets. The design and implementation of the plan should prioritize rights-based approaches and be developed in collaboration with Indigenous Peoples and local communities when they are affected. Disclose annual progress against the plan.

Sub-indicator	Metric
4.1. The company publicly discloses a strategy for achieving its nature targets.	**4.1.a.** The company publicly discloses a strategy setting out the actions it intends to take to achieve its nature-related targets.
	4.1.b. The company publicly discloses progress on its strategy in the last reporting year.
	4.1.c. The company explains how the actions it intends to take on nature support, align, or integrate with its actions on climate.
4.2. The company respects and upholds the rights of Indigenous Peoples and local communities.	**4.2.a.** The company commits to recognize and respect the rights of Indigenous Peoples and local communities.
	4.2.b. The company facilitates full, meaningful, and effective participation through free, prior, and informed consent (FPIC) of Indigenous Peoples and local communities in the planning and

	implementation of activities that have the potential to impact their rights.
	4.2.c. The company ensures equitable access for Indigenous Peoples and local communities to land, resources, and territory where they hold rights or interests.
	4.2.d. The company ensures equitable benefit sharing with Indigenous Peoples and local communities arising from using land and/or natural resources where they hold rights or interests.
	4.2.e. The company publicly discloses that it requires its tier 1 suppliers to recognize and respect the rights of Indigenous Peoples and local communities and to obtain their free, prior, and informed consent.
4.3. The company's fiscal policies are aligned with achievement of its nature-related targets.	**4.3.a.** The company publicly discloses how it has allocated expenditure to achieve its nature targets in the last fiscal year.
	4.3.b. The company publicly discloses forward-looking guidance on how it intends to allocate expenditure to achieve its nature targets.

Indicator 5: Governance

Investor Expectation: Establish board oversight and disclose management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.

Sub-indicator	Metric
5.1. The company board has clear oversight over its nature-related dependencies, impacts, risks and opportunities, including implications for and engagement with Indigenous Peoples and local communities.	**5.1.a.** The company publicly discloses evidence of board or board committee oversight of the management of nature-related dependencies, impacts, risks, and opportunities.
	5.1.b. The company publicly discloses evidence of board or board committee oversight of the management of its impacts on and engagement with Indigenous Peoples and local communities.
5.2. The board has sufficient expertise to oversee issues pertaining to nature-related dependencies, impacts, risks, and opportunities, including how the company's actions on nature impact Indigenous Peoples and local communities.	**5.2.a.** The company publicly discloses evidence that its board has sufficient expertise to oversee issues pertaining to nature-related dependencies, impacts, risks, and opportunities.
	5.2.b. The company publicly discloses evidence that its board has sufficient expertise to oversee the company's impacts on and

	engagement with Indigenous Peoples and local communities.
5.3. Responsibility for assessing and managing nature-related issues is assigned at the senior executive level, and executive remuneration arrangements incorporate performance on nature targets.	**5.3.a.** The company's chief executive officer or at least one other senior executive is responsible for assessing and managing the company's nature-related dependencies, impacts, risks, and opportunities.
	5.3.b. The company's chief executive officer or at least one other senior executive is responsible for assessing and managing the company's impacts on, and engagement with, Indigenous Peoples and local communities.
	5.3.c. The company's chief executive officer or at least one other senior executive has long-term remuneration arrangements that directly link compensation to achieving the company's nature targets.

Indicator 6: Engagement

Investor Expectation: Engage with external parties including actors throughout the value chain, including trade associations, policy makers, and other stakeholders to create an enabling environment for implementing the plan and achieving targets.

Sub-indicator	Metric
6.1. The company engages with its value chain to help achieve its nature targets.	**6.1.a.** The company has nature-related criteria for its tier 1 suppliers.
	6.1.b. The company provides financial and/or technical assistance to suppliers to adopt practices that reduce its impacts and dependencies on nature.
	6.1.c. The company engages its corporate customers on addressing nature-related impacts and dependencies associated with processing, use, or end-of-life treatment of sold products.
	6.1.d. The company engages its end-user consumers in a shift towards products, services, and/or behaviors with lower nature-related impacts and dependencies.
6.2. The company publicly discloses direct lobbying activities and any expectations for	**6.2.a.** The company commits to conducting its direct lobbying activities in accordance with the goals of The Biodiversity Plan.

associations that it is a member of which are not aligned with The Biodiversity Plan.	**6.2.b.** The company reviews its own nature policy positions' alignment with The Biodiversity Plan and discloses how it has advocated for these positions through its lobbying activities.
	6.2.c. The company commits to advocate for lobbying activities aligned with The Biodiversity Plan within the trade associations they belong to.
	6.2.d. The company publicly discloses the actions it has taken to ensure alignment of its trade associations' nature policy positions and lobbying activities with The Biodiversity Plan.
6.3. The company identifies and engages with key stakeholders on nature-related issues and incorporates the outcomes of these activities in its strategy and operations.	**6.3.a.** The company publicly discloses the process for identifying relevant stakeholders across its value chain and the process for engaging with stakeholder groups.
	6.3.b. The company demonstrates that engagement with stakeholders informs its actions to address nature-related issues.
6.4. The company has a grievance and redress mechanism through which individuals and	**6.4.a.** The company has a mechanism for individuals and communities to raise

communities may raise complaints or concerns that they have been adversely impacted by the company's actions pertaining to nature.	complaints or concerns that they are or may be adversely impacted by the company, or for them to raise complaints of adverse impacts to nature.
	6.4.b. The company discloses a list of grievances submitted.
	6.4.c. The company has a policy of non-reprisal against complainants, including human rights defenders, whistle-blowers, and community spokespersons.

Appendix B: Timeline of NA100

9/26/2023

NA100 announces names of target firms

12/11/2022

NA100 launched at COP15

6/26/2023

NA100 releases investor expectations and key sectors
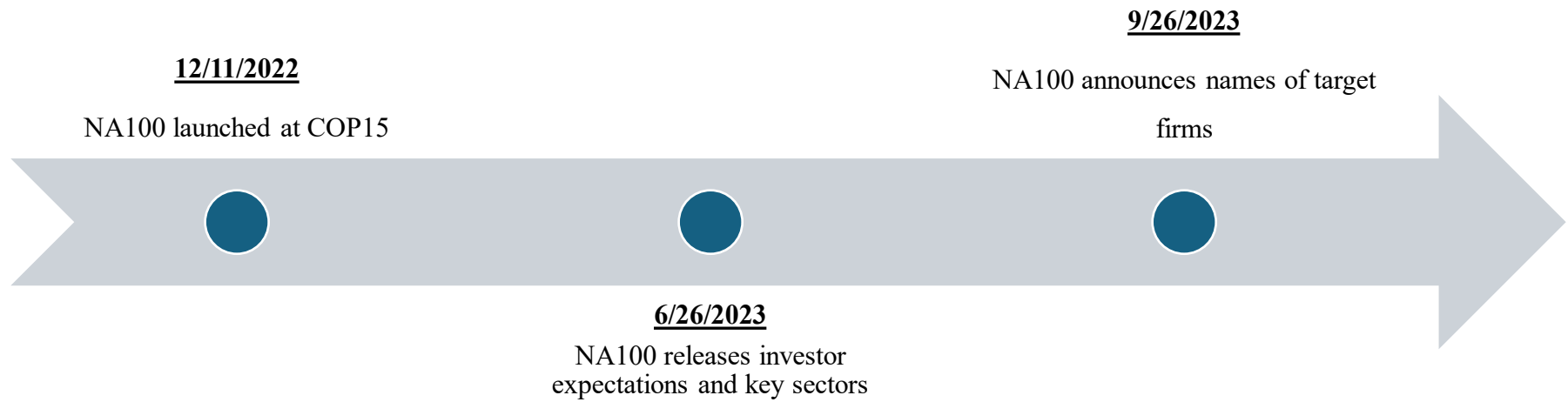
Appendix C: Variable Definitions

Variable	Definition	Source
ABRET71	Abnormal returns over the window [-1,5] around the first event. Normal returns are estimated using the market model with the domestic index using a 120 day estimation window [-120,-30].	Datastream
ABRET72	Abnormal returns over the window [-1,5] around the second event. Normal returns are estimated using the market model with the domestic index using a 120 day estimation window [-120,-30].	Datastream
ABRET73	Abnormal returns over the window [-1,5] around the third event. Normal returns are estimated using the market model with the domestic index using a 120 day estimation window [-120,-30].	Datastream
ABRET7	ABRET71+ABRET72+ABRET73+ABRET74	Datastream
ANALYST_COVERAGE	The number of analysts following the firm.	IBES
BG_DISCLOSURE_SCORE	The Bloomberg Environmental Disclosure score.	Bloomberg
BTM	Book value of common equity/market value of common equity.	Compustat/Datastream
DIRECT_TARGET	Indicator set equal to one where the firm is a direct target firm; zero otherwise.	NA100's website
ESG_COVERAGE	Indicator set equal to one where the firm is covered by Bloomberg; zero otherwise.	Bloomberg
INDIRECT_TARGET	Indicator set equal to one where the firm is a supplier to a direct target firm; zero otherwise.	FactSet Revere
LNMVE	The natural logarithm of the market value of equity.	Datastream
MOMENTUM	Stock returns over the past six months, skipping the most recent month.	Datastream

MVE	The market value of equity.	Datastream
NATRISK (AVERAGE)	The simple average of NATRISK (TRANSITION) and NATRISK (PHYSICAL).	Giglio et al., 2023
NATRISK (TRANSITION)	The share of survey respondents who select an industry as being particularly affected by nature transition risks.	Giglio et al., 2023
NATRISK (PHYSICAL)	The share of survey respondents who select an industry as being particularly affected by nature physical risks.	Giglio et al., 2023
NET_NATURE	Number of negative biodiversity sentences minus the number of positive biodiversity sentences in the firm's 10K statement.	Giglio et al., 2023
REVISIONMEANEST1	Percentage change in the one year ahead earnings forecast from the month before to the month after the announcement of direct target firm names.	IBES
REVISIONMEANEST2	Percentage change in the two year ahead earnings forecast from the month before to the month after the announcement of direct target firm names.	IBES
REVISIONMEANEST3	Percentage change in the three year ahead earnings forecast from the month before to the month after the announcement of direct target firm names.	IBES
REVISIONPTG	Percentage change in price target from the month before to the month after the announcement of direct target firm names.	IBES
ROA	Income before extraordinary items scaled by total assets.	Compustat
TARGET	Indicator set equal to one where the firm is a direct target firm or a supplier to a direct target firm; zero otherwise.	NA100's website/FactSet Revere

| TNFD | Indicator set equal to one where the firm is a TNFD adopter or a supplier to a TNFD adopter; zero otherwise. | TNFD's website |

Figure 1: Timeline of Google Search Trends

This figure presents interest in Nature Action 100 based on Google Search Trends from November 1, 2022 to October 31, 2023. Based on Google, "numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough. data for this term." The search term is Nature Action 100 worldwide. Vertical lines show events related to the announcement of Nature Action 100.
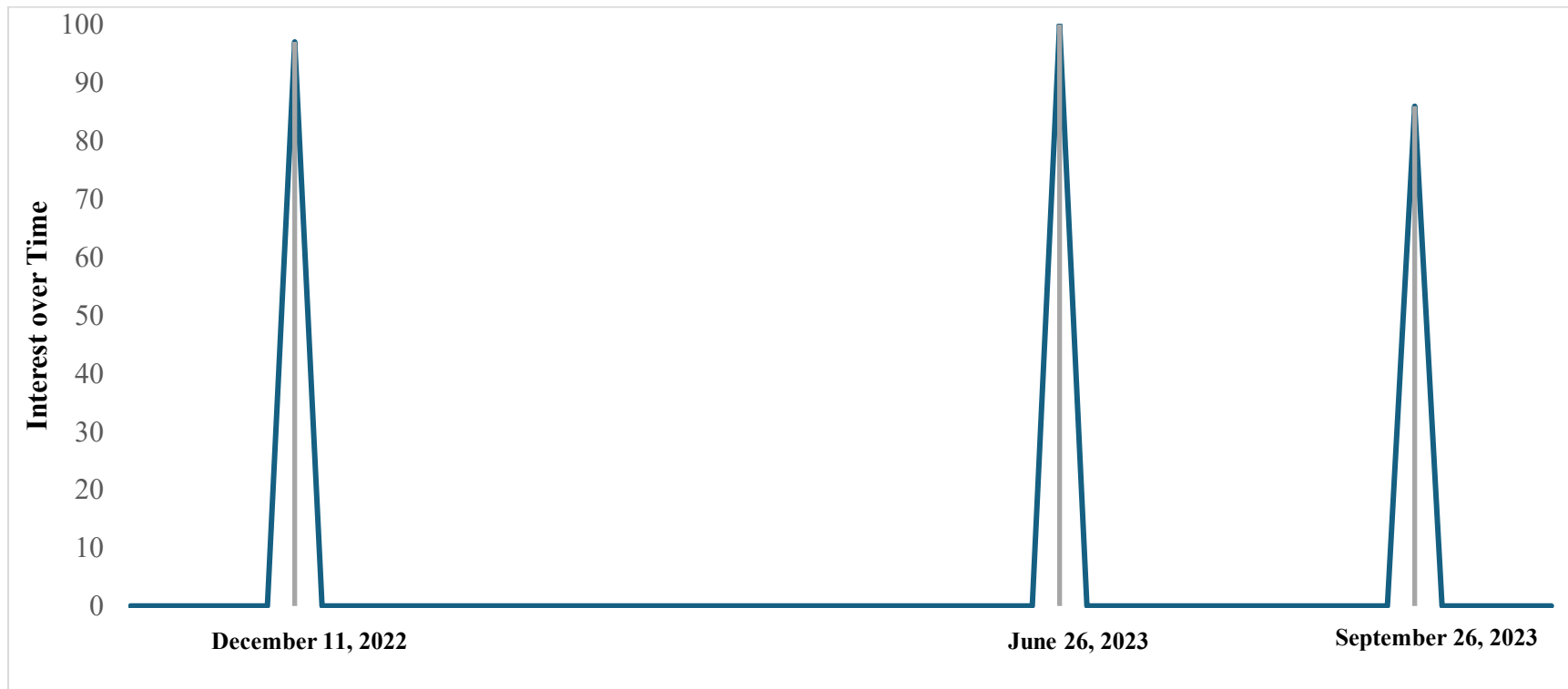
Table 1: Sample Selection

	Total	Direct Targets	Indirect Targets	Controls
All major equity securities in Datastream	60,288	98[15]	2,770	57,420
Less: missing Datastream and/or WRDS variables	(27,180)	(1)[16]	(312)	(26,867)
Less: missing Compustat variables	(928)	-	(22)	(906)
Less: missing IBES variables	(21,518)	(2)[17]	(1,068)	(20,448)
Less: countries with less than five target firms	(188)	-	(15)	(173)
Sample	10,474	95	1,353	9,026

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[15] I lose Alibaba Group and Sociedad Química y Minera because their major equity securities are ADR and preferred shares, respectively.

[16] I lose DSM-Firmenich SA because it only started trading on April 21, 2023.

[17] I lose Vale SA and Amcor PLC. I lose Vale SA because I did not find price target and earnings information for it in IBES. I lose Amcor PLC because I could not compute changes in the three-year ahead earnings forecast for it.

Table 2: Sample Composition

Panel A: Sample composition by country

Country Code	Direct Targets	Indirect Targets	Control Firms	Total
AU	2	44	275	321
BE	1	5	59	65
BR	2	8	127	137
CA	3	29	313	345
CH	3	17	119	139
CL	-	6	20	26
CN	6	143	1,358	1,507
DE	2	33	270	305
DK	1	7	40	48
ES	-	6	70	76
FI	2	14	120	136
FR	3	56	232	291
GB	8	76	425	509
HK	2	30	407	439
ID	2	14	71	87
IN	3	33	359	395
IT	-	15	174	189
JP	5	108	861	974
KR	1	49	361	411
MX	2	12	41	55
MY	1	15	188	204
NL	1	14	52	67
NO	-	14	175	189
NZ	-	5	61	66

PL	-	9	85	94
SE	1	29	287	317
SG	1	9	88	98
TH	-	15	175	190
TW	1	10	165	176
US	41	513	1,985	2,539
ZA	1	15	63	79
Total	95	1,353	9,026	10,474

Panel B: Sample composition by industry

GIC Sector	Direct Targets	Indirect Targets	Control Firms	Total
10	0	39	328	367
15	28	158	856	1,042
20	4	246	1,624	1,874
25	13	168	1,426	1,607
30	39	120	512	671
35	11	234	1,198	1,443
40	0	98	1,236	1,334
45	0	221	1,296	1,517
50	0	24	205	229
55	0	33	238	271
60	0	12	107	119
Total	95	1,353	9,026	10,474

GIC Sectors: 10=Energy, 15=Material, 20=Industrials, 25=Consumer Discretionary, 30=Consumer Staples, 35=Health Care, 40=Financials, 45=Information Technology, 50=Communication Services, 55=Utilities, 60=Real Estate.

Notes: This table presents the sample composition by country in panel A and by industry in panel B.

Table 3: Summary Statistics

	count	mean	sd	p25	p50	p75
ABRET71	10,474	-0.29	5.47	-2.73	-0.11	2.31
ABRET72	10,474	0.03	5.74	-2.56	0.03	2.73
ABRET73	10,474	-0.36	5.51	-2.92	-0.18	2.35
ABRET7	10,474	-0.62	9.62	-5.13	-0.37	4.47
ANALYST_COVERAGE	10,474	7.29	6.29	2.00	5.00	10.00
BG_DISCLOSURE_SCORE	7,654	33.97	22.45	15.46	35.10	50.86
BTM	10,474	0.59	0.61	0.19	0.39	0.77
DIRECT_TARGET	10,474	0.01	0.09	0.00	0.00	0.00
ESG_COVERAGE	10,474	0.73	0.44	0.00	1.00	1.00
INDIRECT_TARGET	10,474	0.13	0.34	0.00	0.00	0.00
LAG_REVMEANEST1	10,474	-0.03	0.21	-0.02	0.00	0.01
LAG_REVMEANEST2	10,474	-0.01	0.13	-0.02	0.00	0.01
LAG_REVMEANEST3	10,474	-0.00	0.15	-0.02	0.00	0.01
LAG_REVPTG	10,474	0.00	0.07	-0.01	0.00	0.02
LNMVE	10,474	21.27	1.76	20.13	21.28	22.41
MOMENTUM	10,474	0.01	0.28	-0.14	0.01	0.16
MVE	10,474	7,424.24	17,855.60	550.99	1,749.07	5,415.74
NATRISK (AVERAGE)	9,815	0.20	0.14	0.09	0.19	0.32
NATRISK (PHYSICAL)	9,815	0.19	0.16	0.06	0.13	0.29
NATRISK (TRANSITION)	9,815	0.21	0.14	0.09	0.20	0.34
NET_NATURE	2,231	0.01	0.23	0.00	0.00	0.00
REVMEANEST1	10,474	-0.05	0.25	-0.05	0.00	0.01
REVMEANEST2	10,474	-0.03	0.17	-0.04	0.00	0.01
REVMEANEST3	10,474	-0.02	0.18	-0.04	0.00	0.01
REVPTG	10,474	-0.02	0.09	-0.04	0.00	0.01
ROA	10,474	0.01	0.16	0.00	0.04	0.08
TARGET	10,474	0.14	0.35	0.00	0.00	0.00
TNFD	10,474	0.02	0.15	0.00	0.00	0.00

Notes: This table provides summary statistics. Variables are defined in Appendix C.

Table 4: Market Response to the Investor Coalition

	(1) ABRET7	(2) ABRET7	(3) ABRET7	(4) ABRET7
DIRECT_TARGET	-1.52*			
	(.82)			
INDIRECT_TARGET	-1.11***			
	(.24)			
TARGET		-1.13***	-.94***	-.97***
		(.24)	(.25)	(.22)
LNMVE	.22	.22	.25	.31*
	(.15)	(.14)	(.18)	(.17)
BTM	.35	.35	.1	.09
	(.29)	(.29)	(.29)	(.38)
ROA	9.21***	9.21***	4.57***	4.52***
	(1.12)	(1.12)	(1.59)	(1.34)
MOMENTUM	3.87***	3.87***	3.76***	3.72**
	(1.29)	(1.29)	(1.19)	(1.38)
_cons	-5.54	-5.48	-6	-7.34*
	(3.36)	(3.27)	(3.82)	(3.7)
Observations	10,474	10,474	10,474	10,474
R-squared	.05	.05	.09	.13
Industry fixed effects	No	No	Yes	Yes
Country fixed effects	No	No	Yes	Yes
Entropy balancing	No	No	No	Yes

Standard errors are in parentheses
*** p<.01, ** p<.05, * p<.1

Notes: This table provides regression results using the dependent variable *ABRET7*. Column 1 regresses *ABRET7* on *DIRECT_TARGET*, *INDIRECT_TARGET*, and controls. Column 2 regresses *ABRET7* on *TARGET* and controls. Column 3 adds industry and country fixed effects. Column 4 employs an entropy-balancing approach. In all columns, standard errors are clustered at the country level. Variables are defined in Appendix C.

Table 5: Additional Tests

	(1) AVERAGE	(2) PHYSICAL	(3) TRANSITION
TARGET	-.28	-.19	-.58
	(.36)	(.33)	(.37)
TARGET *NATRISK	-3.31**	-3.87***	-1.77
	(1.35)	(1.18)	(1.42)
LNMVE	.31*	.31*	.3
	(.18)	(.18)	(.18)
BTM	-.15	-.15	-.15
	(.39)	(.39)	(.39)
ROA	4.65***	4.68***	4.62***
	(1.35)	(1.34)	(1.37)
MOMENTUM	3.84***	3.84***	3.85***
	(1.28)	(1.27)	(1.28)
_cons	-7.26*	-7.33*	-7.14*
	(3.89)	(3.9)	(3.86)
Observations	9,815	9,815	9,815
R-squared	.14	.14	.14
Industry fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Entropy balancing	Yes	Yes	Yes

Standard errors are in parentheses
*** *p<.01, ** p<.05, * p<.1*

Notes: This table provides regression results using the dependent variable *ABRET7*. The table shows regressions of *ABRET7* on *TARGET* and *TARGET*NATRISK*. Standard errors are clustered at the country level. Variables are defined in Appendix C.

Table 6: Information Intermediation versus Expected Costs? Firm Nature-Related Disclosures

	(1) TNFD	(2) BG_DISCLOSURE_SCORE	(3) NET_NATURE
TARGET	-1.00***	-1.13**	-1.12***
	(.22)	(.46)	(.43)
NATDISC	-.84***	.37	-.91
	(.29)	(.28)	(1.27)
TARGET*NATDISC	1.24*	.88*	3.80**
	(.66)	(.45)	(1.82)
LNMVE	.31*	.06	.32**
	(.17)	(.11)	(.14)
BTM	.10	.16	-.84
	(.39)	(.41)	(.65)
ROA	4.52***	4.52*	1.67
	(1.35)	(2.24)	(1.5)
MOMENTUM	3.72**	3.15***	4.67***
	(1.38)	(1.14)	(.67)
_cons	-7.36*	-2.26	-7.67**
	(3.79)	(2.48)	(3.15)
Observations	10,474	7,654	2,231
R-squared	.13	.14	.23
Industry fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Entropy balancing	Yes	Yes	Yes

Standard errors are in parentheses
*** *p<.01, ** p<.05, * p<.1*

Notes: This table provides regression results using the dependent variable *ABRET7*. The table shows regressions of *ABRET7* on *TARGET*, *NATDISC*, and *TARGET*NATDISC*. Where applicable, standard errors are clustered at the country level. Variables are defined in Appendix C.

Table 7: Information Intermediation versus Expected Costs? Other Information Intermediaries

	(1) ANALYST_COVERAGE	(2) ESG_COVERAGE
TARGET	-1.32***	-2.79**
	(.33)	(1.1)
COVERAGE	-.01	-.62
	(.03)	(.57)
TARGET*COVERAGE	.04*	2.30*
	(.02)	(1.21)
LNMVE	.26	.26**
	(.24)	(.11)
BTM	.11	.08
	(.37)	(.41)
ROA	4.37***	4.34***
	(1.39)	(1.55)
MOMENTUM	3.7**	3.71**
	(1.4)	(1.4)
_cons	-6.23	-5.89**
	(5.03)	(2.56)
Observations	10,474	10,474
R-squared	.13	.13
Industry fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Entropy balancing	Yes	Yes

Standard errors are in parentheses
*** *p<.01, ** p<.05, * p<.1*

Notes: This table provides regression results using the dependent variable *ABRET7*. The table shows regressions of *ABRET7* on *TARGET*, *COVERAGE*, and *TARGET*COVERAGE*. Standard errors are clustered at the country level. Variables are defined in Appendix C.

Table 8: Information Intermediation versus Expected Costs? Analyst Forecast Revisions

	(1) REVMEANEST1	(2) REVMEANEST2	(3) REVMEANEST3	(4) REVPTG
TARGET	-.007	-.004	-.006	-.004*
	(.007)	(.006)	(.005)	(.002)
LNMVE	.006*	.005**	.002	0
	(.003)	(.002)	(.002)	(.001)
BTM	-.005	.001	.003	.011**
	(.007)	(.006)	(.005)	(.004)
MOMENTUM	.102***	.087***	.103***	.142***
	(.026)	(.023)	(.018)	(.019)
REVMEANEST1$_{t-1}$	.213***			
	(.067)			
REVMEANEST2$_{t-1}$		.104*		
		(.054)		
REVMEANEST3$_{t-1}$			-.056	
			(.039)	
REVPTG$_{t-1}$				-.063*
				(.031)
_cons	-.162**	-.142***	-.075**	-.026
	(.062)	(.046)	(.035)	(.021)
Observations	10,474	10,474	10,474	10,474
R-squared	.113	.079	.054	.252
Industry fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Entropy balancing	Yes	Yes	Yes	Yes

Standard errors are in parentheses
*** *p<.01, ** p<.05, * p<.1*

Notes: This table provides regression results using the dependent variable *OUTCOME*. The table shows the regression of *OUTCOME* on *TARGET*. Standard errors are clustered at the country level. Variables are defined in Appendix C.