Investor Alignment in Divestment Decisions and Firm Behavior: Evidence from Publicly Disclosed Exclusion Lists*

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We study the consequences of portfolio exclusion announcements by Norges Bank Investment Management (NBIM), examining their relationship to shareholder wealth, investor behavior, and subsequent firm outcomes. Market participants respond negatively to the exclusion disclosures with an average abnormal return of -0.5% over a three-day window surrounding the announcement. Using a novel dataset of exclusion decisions by 86 major institutional investors, we document substantial institutional alignment in exclusion decisions. Firms excluded by NBIM face five times more institutional investor exclusions than other excluded firms in our dataset. Exclusion timing by other investors relative to NBIM's decisions varies systematically, with shorter time gaps for larger, geographically proximate investors, and firms with higher prior ESG performance. Exclusions with broader institutional alignment, particularly among asset owners, are associated with significant improvements in firms' environmental and social performance. However, when exclusions occur without broader institutional alignment, firms experience deteriorating environmental and social performance. This suggests that divestments through exclusion by a notable investor are linked to short-term market perceptions and ownership structures, while improvements in firms' environmental and social behavior are observed primarily when there is alignment in investors' divestment decisions.

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1. Introduction

Institutional investors can influence corporate behavior through engagement, voting, and divestment. While engagement and voting allow investors to directly shape corporate policies, divestment works indirectly by attempting to affect firm behavior through market pressure and signaling effects. Theory suggests that individual divestment has a limited price impact, as divested shares can be purchased by other investors less focused on environmental and social issues (E&S) at minimal price discounts (Kahn et al., 2024; Berk & van Binsbergen, 2025; Edmans et al., 2022). Yet, these limitations can be overcome through alignment in investor action. When a critical mass of socially responsible investors align in their exit decisions, they can generate sufficient price pressure to meaningfully influence corporate policies (Broccardo et al., 2022).

This contrast between individual and coordinated divestment aligns with mixed empirical evidence on divestment effectiveness. While Gantchev et al. (2022) document changes in E&S behavior following divestments, Kahn et al. (2024) find limited impact of divestments on firms' E&S practices. This raises a crucial question: Are publicly announced portfolio exclusions – the most severe form of divestment – associated with achieving the critical mass of aligned investors necessary for divestment effectiveness?

While individual exits may have limited direct market impact, publicly announced exclusions could influence firm behavior through two additional channels. First, they can signal the social undesirability of the investment altering market perceptions about a firm's E&S practices and provide indications of heightened environmental or social risks, potentially triggering policy responses. Second, and more importantly, they may facilitate institutional alignment by reducing coordination costs among investors with similar preferences and concerns. They also provide detailed documentation of E&S violations that lower information

acquisition costs and create public legitimacy for subsequent divestment decisions that help institutional investors justify their exclusion decisions to stakeholders and governance bodies. These mechanisms may help overcome the collective action problems that typically limit the effectiveness of individual divestment decisions.

In this paper, we examine how publicly disclosed exclusions by Norges Bank Investment Management (NBIM) relate to market perceptions, patterns of institutional alignment, ownership structures, and ultimately firm behavior. NBIM divests from companies whose products or conduct are deemed harmful to the environment, human rights, or society. We focus on NBIM because its position as one of the world's largest and most ESG-conscious investors provides an ideal setting to study patterns of institutional alignment in divestment decisions, with many investors referencing NBIM's exclusion list in their investment policies.[1] Additionally, NBIM's exclusion process, which separates divestment execution from public disclosure, allows us to isolate announcement effects from trading impacts.

We begin our analysis by examining the short-term market reaction to NBIM's exclusions, documenting a significantly negative cumulative abnormal return of -0.5% during the three days surrounding exclusion disclosures. Divestments for environmental reasons are perceived more negatively by market participants than those for social reasons. While these market responses suggest that exclusions convey meaningful information about firms' environmental and social risks, the magnitude is relatively limited and therefore potentially not sufficient to incentivize changes in firm behavior.

[1] There is substantial evidence that other funds follow NBIM's exclusions. For instance, data from Storebrand (2022) show that their fund managers regularly consider NBIM's exclusion decisions in their own investment processes. This practice is widespread among institutional investors - numerous major investment funds explicitly incorporate NBIM's exclusion list into their investment guidelines, including funds from AQR, T. Rowe Price, Templeton, State Street, and various funds from Nordea Asset Management. Many of these funds implement the 'NBIM list' as a binding exclusionary investment policy. Moreover, concurrent empirical research suggests that NBIM has an influence on the decisions of other shareholders. For instance, Fahlenbrach et al. (2023) document that pre-disclosure of voting decisions by NBIM influences other shareholders' voting behavior.

Next, we examine the alignment of other investors with NBIM's exclusion decisions. We employ a novel, partly hand-collected, dataset comprising the exclusion lists of 86 major institutional investors in 16 countries that cover 6,217 excluded firms across 131 countries. We find that firms on NBIM's exclusion list are excluded by five times more institutional investors compared to the average excluded firm in this dataset. This alignment is particularly pronounced among larger and more distant investors. We also document systematic variation in the time gap between NBIM's exclusion decisions and subsequent exclusions by other investors. This gap is significantly shorter for asset owners, larger investors, and those geographically closer to NBIM, as well as for firms with better ESG performance. These patterns of institutional alignment resemble findings from the collaborative engagement literature, where geographic proximity and shared values are associated with collective action (Dimson et al., 2023).

We then explore the short-term firm-level ownership changes around the exclusion disclosures by comparing firms that NBIM divested from with a matched control group. Importantly, NBIM's divestment is completed before the exclusion announcement and, therefore, observed ownership changes are not attributable to NBIM's own trading. We find that excluded firms face significant divestments from other asset owners such as sovereign wealth funds and pension funds, with ownership stakes shifting toward asset managers that are potentially less ESG-conscious. The magnitude of these ownership changes is larger for exclusions that are associated with broader institutional alignment in divestment decisions.

In the last step, we analyze the relationship between exclusions and changes in firm behavior. Exclusions tied to broader institutional alignment are associated with E&S performance improvements and reduced sales growth. Conversely, when exclusions occur without substantial institutional alignment, firms exhibit decreases in E&S performance. This pattern is consistent with theoretical predictions about the role of investor composition and

collective action for divestment effectiveness (e.g., Broccardo et al., 2022): without broad institutional alignment, the limited number of divesting investors appears insufficient to create incentives for improvement, while the shift toward less E&S-conscious investors may alter corporate priorities.[2]

Our study contributes to two different streams in the accounting and finance literature. First, we add to the literature on the influence of socially responsible investors on firm behavior (e.g., Edmans et al., 2022; Gantchev et al., 2022; Heath et al., 2023). The extent to which socially responsible investors can effectively influence firm behavior remains an open question with recent evidence providing mixed findings (Kölbel et al., 2020). Furthermore, analytical models show that investors can lower asset prices with divestments, incentivizing firms to align their policies with investor preferences (e.g., Broccardo et al., 2022; Gollier & Pouget, 2022; Heinkel et al., 2001). However, these models also indicate that a large proportion of investors using the same criteria to divest would be required to incentivize meaningful firm policy changes. Consistent with these models, our findings show that NBIM's publicly announced exclusions that are associated with broader patterns of institutional alignment in divestment decisions are linked to improvements in firms' E&S performance. However, when exclusions occur without substantial institutional alignment, we observe deteriorating E&S performance, consistent with theoretical predictions about reduced incentives for improvement when ownership shifts to less ESG-conscious investors without meaningful costs. Thus, our findings provide empirical evidence supporting theoretical predictions about the importance of collective action, as improvements in firm behavior are associated with broader patterns of institutional alignment in divestment decisions.

[2] We find corroborating evidence for this explanation from market reactions to re-investment announcements of NBIM after an exclusion. These re-inclusions are associated with negative market reactions of similar magnitude to the initial exclusions, indicating that shareholder composition and preferences have fundamentally shifted after the exit of NBIM to accommodate the firm's behavior and not vice versa.

Second, we contribute to the literature on coordinated investor behavior and information cascades in financial markets (e.g., Dimson et al., 2023; Bikhchandani et al., 1992). While previous research has primarily focused on coordinated engagement efforts, our study documents systematic patterns of institutional investor alignment in exclusion decisions following NBIM's public announcements. We find that this alignment is particularly pronounced among investors sharing similar characteristics and geographic proximity, suggesting both information sharing and shared values facilitate the achievement of the critical mass necessary for divestment effectiveness.

The paper proceeds as follows. Section 2 provides the institutional background on NBIM and the different divestment decisions. In Section 3, we review prior literature and develop our empirical predictions. In Sections 4 and 5, we detail our research design, data, and sample. Section 6 provides details on the empirical results and Section 7 concludes.

2. Institutional Background

2.1. Ethical Exclusion Process

Sovereign Wealth Funds (SWFs) are government-owned investment funds. The total assets under management of SWFs worldwide are growing rapidly. Global SWF managed assets are worth about USD 12.9 trillion as of January 2025.[3] Norway's Government Pension Fund Global (GPFG), managed by NBIM, is the world's largest single shareholder, with more than USD 1.8 trillion in assets under management at the end of 2024. Established to manage Norway's oil and gas wealth, NBIM operates with a long-term perspective, aiming to both improve firm performance and foster responsible business practices through active ownership, engagement, and exclusion of firms with unethical products or practices.

[3] Source: https://globalswf.com/

NBIM's ethical guidelines are issued by the Norwegian Parliament and Ministry of Finance, which also created the independent Council on Ethics. The Council submits exclusion or observation recommendations to Norges Bank's Executive Board, which assesses risks and decides whether to exclude firms, place them under observation, or pursue other active ownership strategies.[4] The Council periodically reassesses all decisions, potentially revoking exclusions if firms demonstrate ethical improvements.

NBIM manages the operational aspects of the fund, including the sale of excluded firms' securities. After all stakes have been sold, NBIM discloses the decision on its website; concurrently, the Council on Ethics publishes the recommendation report outlining the reason for the decision on its website.[5] Therefore, NBIM divests before the information about the exclusion is disclosed. This is important to our setting, as the divestment by NBIM itself is less prone to bias the market reaction to the decision announcement. NBIM's exclusions have had an overall negative impact on returns of -1.7 percentage points since 2006.

Using the example of NHPC Ltd., we illustrate the timeline of NBIM's exclusion process (see also Appendix B-1). In August 2019, NHPC and the authorities in Assam State signed a Memorandum of Understanding concerning the construction of Hydropower projects. The Council of Ethics is aware that it would 'harm local people's livelihoods and important biodiversity' after the project is completed and operational.[6] NHPC's 2021 Annual report shows that the project was 72% completed by June 2021. On 24 February 2022, the Council of Ethics submitted its recommendation report to Norges Bank's Executive Board to exclude NHPC from

[4] Before 2015, the Ministry of Finance was responsible for overseeing the assessment of the recommendation reports and making the decision of exclusion. However, the Ministry delegates the decision-making power to Norges Bank's Executive Board after 2015. Besides, Norges Bank's Executive Board can also make exclusion or observation decisions based on its own initiative under the product-based coal criterion. In 2022, the Guidelines were amended so that Norges Bank can make decisions on its own initiative based on the conduct-based greenhouse gas criterion (NBIM, 2023). To date, there are no public decisions on exclusion or observations of companies based on this conduct-based greenhouse gas criterion.

[5] While NBIM's exclusion process remains confidential until the divestment announcement, we cannot fully exclude the possibility of informal information sharing before the public announcement.

[6] See also Council of Ethics. Recommendation Report (24 February, 2022, Page 12). https://files.nettsteder.regjeringen.no/wpuploads01/sites/275/2022/09/NHPC-Ltd-ENG.pdf

the investment portfolio. The Executive Board assessed the report and decided to exclude NHPC from the portfolio and NBIM sold its shares. Finally, the exclusion was publicly disclosed on 7 Sept 2022.

However, NBIM also makes risk-based adjustments to its portfolio. This process includes adjustments to NBIM's portfolio based on the financial riskiness of the company (e.g., fraud or default risk considerations, financial ESG risks). There are fixed boundaries on how NBIM can alter its investment portfolio to reflect these financial risk-related concerns. These risk-based divestments are not publicly disclosed and are financial decisions. Risk-based divestments have historically generated positive portfolio returns (+0.44 percentage points between 2012 and 2023). However, we note that NBIM's investment portfolio includes about 8,500 firms worldwide (except Norway), which is relatively representative of the global stock market.

2.2. Ethical Exclusion Categories

NBIM's exclusion decisions fall into two main categories. First, product-based exclusions target companies manufacturing certain weapons, tobacco, cannabis, or coal and oil-based energy (NBIM, 2022b).[7] Second, conduct-based exclusions address firms demonstrating unacceptable risks of severe ethical violations, such as environmental damage, excessive greenhouse gas emissions, human rights violations, or gross corruption (NBIM, 2022b). This can be illustrated by the observation of Supermax Corp Bhd following the poor living and working conditions of its employees, including long working hours and restrictions on workers' freedom of movement.[8]

[7] Bulk exclusions, such as the simultaneous exclusion of 52 companies under the coal criterion in April 2016, could affect our analysis by introducing cross-sectional dependence. To address this, we account for clustering effects in our event study methodology and include controls for bulk exclusion events, such as a binary variable controlling for coal-exclusions, in our investor alignment and firm outcome analyses. Additionally, we perform robustness tests excluding the largest bulk events, confirming that our main findings are not driven by these occurrences.

[8] See also: Council on Ethics. Recommendation report: https://etikkradet.no/supermax-corp-bhd-2/

We classify these exclusions along two dimensions: the underlying concern (environmental versus social) and the basis for exclusion (product versus conduct). For example, coal production falls under product-environmental, while human rights violations are classified as conduct-social. In our sample, eight firms face exclusion for both environmental and social violations. Appendix B-2 provides detailed categorization criteria and examples.

3. Empirical Predictions

While institutional investors can influence firm behavior through both voice and exit mechanisms, divestments with public announcements represent a particularly severe form of exit strategy. These announcements can signal concerns about firm value, raise stakeholder awareness, and increase regulatory scrutiny.[9] NBIM's exclusion decisions are particularly noteworthy given its prominence as the world's largest single shareholder and its established track record of responsible investment. Prior studies examining NBIM's exclusions document modest but significant market responses showing abnormal returns between -0.3% and -0.7% (Atta-Darkua, 2022; Al Ayoubi & Enjolras, 2021). This aligns with evidence from other divestment campaigns, such as the Fossil Free movement, where announcements triggered average abnormal returns of -0.2% (Becht et al., 2023). While these market reactions may appear modest, the public nature of NBIM's exclusions and their substantial media attention suggest they could have broader implications for market perceptions and stakeholder awareness.

Empirical Prediction 1: NBIM's exclusion announcements lead to negative market reactions.

Beyond market reactions, public exclusions may also facilitate alignment among institutional investors in their divestment decisions. Theory on divestments and evidence from

[9] While the earlier literature on SWF investment (e.g., Dewenter et al., 2010) mostly documents that SWF investments are accompanied with positive market reactions and divestments with negative market reactions, the more recent evidence points to positive but, compared to other investors, lower announcement returns of SWF investments (Bortolotti et al., 2015). More recent studies even indicate decreases in firm monitoring that result in lower reporting quality (Godsell, 2022).

coordinated engagement suggest that alignment among investors with shared preferences can amplify the impact of their actions (Dimson et al., 2023; Broccardo et al., 2022).

NBIM's public exclusion announcements could support this alignment in three ways. First, they provide a signal about environmental and social risks that may trigger regulatory or reputational concerns. Second, they represent visible decisions that may correspond with similar assessments by other investors with shared preferences, similar to patterns of social preference alignment in voting (e.g., Bolton et al., 2020) that potentially help to overcome collective action problems. Third, public commitments may enhance the credibility of divestment threats by making reversals more costly.

Investor characteristics may shape this institutional alignment. Asset owners like pension funds and SWFs tend to have longer investment horizons and greater commitment to environmental and social objectives compared to asset managers (Liang & Renneboog, 2020). Geographic proximity and shared institutional characteristics can also facilitate alignment by reducing information asymmetries and fostering common understanding of ESG risks (Dimson et al., 2023). Based on these arguments, we expect to observe stronger patterns of institutional alignment in exclusion decisions among investors sharing similar characteristics:

Empirical Prediction 2: NBIM's exclusions are associated with greater alignment among institutional investors with similar preferences, resulting in a shift in shareholder composition.

The ultimate impact of exclusions on firm behavior is likely associated with the extent of this institutional alignment. Divestments can affect firm behavior by reducing risk-sharing capacity and increasing the cost of capital (Heinkel et al., 2001), but this mechanism requires a sufficient mass of divesting investors. Recent theoretical work shows that individual divestments are ineffective because other investors purchase divested shares at minimally lower prices, creating insufficient pressure to alter firms' cost of capital (Berk & van Binsbergen, 2025). Broccardo et al. (2022) formalize this challenge, demonstrating that exit

strategies become effective only when a critical mass of coordinated investors is achieved. Similar to coordinated engagement, where collective action increases pressure on target firms (Dimson et al., 2023; Doidge et al., 2019), exclusions associated with broader institutional alignment may create stronger incentives for firms to improve their environmental and social practices. Many asset owners, particularly pension funds and sovereign wealth funds, combine long-term investment horizons with strong ESG commitments (Dimson et al., 2023), suggesting they may play an important role in achieving alignment in responsible divestment decisions among investors. When exclusions occur without substantial institutional alignment, the shift toward investors less concerned with E&S issues may be associated with reduced pressure for improvement. Thus, we expect to observe stronger relationships between exclusions and firm outcomes when they are associated with broader patterns of institutional alignment.

Empirical Prediction 3: NBIM's exclusion decisions are associated with greater improvements in firms' ESG performance when accompanied by broader institutional alignment.

4. Research Design

We start our analysis with an event study to test whether market participants react to NBIM's exclusion, observation, or re-inclusion (revocation) announcements. Using the market model and the estimation window [-270, -20] prior to the event (MacKinlay, 1997; Corrado, 2011), we assess whether cumulative abnormal returns (CARs) differ significantly from zero in the event windows [-1, 1] and [-2, 2] surrounding the exclusion announcements.[10] In addition, we divide the total sample into different groups according to the divestment type (exclusion, observation, or revocation), and the underlying concern (environmental- or society-based decision) to provide evidence for Prediction (1).

[10] Appendix F provides additional details on the methodology employed in the event study.

In the next step, we use the exclusion list dataset to analyze the alignment of other investors' exclusions with NBIM's divestment. Therefore, we estimate the following firm-level regression using the sample of all 6,217 firms that appear on any exclusion list in our dataset (whether excluded by NBIM, other investors, or both) to test Prediction (2) by examining whether firms excluded by NBIM face significantly more exclusions from other investors:

$$No.Exclusions_i = \alpha + \beta_1 NBIM\ Exclusion_i + \gamma_c + \varepsilon_i, \quad (1)$$

Where *No. Exclusions*$_i$ is a count variable capturing the total number of exclusions of firm *i* among the 86 institutional investors in our dataset. *NBIM Exclusion*$_i$ takes the value of '1' if a firm is excluded by NBIM, and '0' otherwise. In additional specifications, we decompose *NBIM Exclusion*$_i$ into two non-overlapping variables based on their stated rationale. *NBIM Environmental Exclusion*$_i$ takes the value of '1' if NBIM excluded the firm for environmental reasons, and '0' otherwise. *NBIM Social Exclusion*$_i$ takes the value of '1' if NBIM excluded the firm for social reasons, and '0' otherwise. In these specifications, we also control for the exclusion reasons of other investors by including *Environmental Exclusion*$_i$ that takes the value of '1' for firm exclusions by other investors (but not NBIM) that were based on environmental considerations, and '0' for exclusions based on social reasons (the reference category). Furthermore, we include country fixed effects to account for time-invariant differences in exclusion patterns driven by country-specific factors such as regulatory frameworks and ESG priorities, which may vary significantly across the 131 countries in our sample.

We then estimate which exclusion-level and institutional investor characteristics facilitate this alignment. Prediction (2) suggests that investors with similar preferences to NBIM are more likely to align their exclusion decisions with NBIM. We therefore focus on NBIM's exclusions as our unit of observation and estimate the following exclusion-level analysis to identify institutional features (e.g., investment horizon, ESG preferences) and

exclusion characteristics that are associated with broader institutional alignment in divestment decisions:

$$High - Alignment\ Exclusion_k = \alpha + \beta_1\ Asset\ Owner\ Ratio_k + \beta_2\ Major\ Investors_k + \beta_3\ Investor\ Distance_k + \beta_4\ ESG\ Score_{k,t-1} + \beta_5\ CAR[-1,1]_k + \beta_6\ Coal\ Exclusion_k + \beta_7\ NBIM\ Environmental\ Exclusion_k + \sum Controls_{k,t-1} + \varepsilon_k, \quad (2)$$

Where *High-Alignment Exclusion*$_k$ is defined as '1' if the number of investors aligning their exclusion decision with NBIM exceeds the median value (13) and '0' otherwise. We focus on two main categories of explanatory variables: The first category captures investor characteristics based on the literature on coordinated engagements (Dimson et al., 2023; Doidge et al., 2019). *Asset Owner Ratio* is the ratio of asset owners' holdings to asset managers' holdings at the beginning of the event year. *Major Investors* is a binary variable that is defined as '1' if the average assets under management of investors divesting from firm *k* after NBIM announcements exceeds the median assets under management, and 0 otherwise. *Investor Distance* is a binary variable that is defined as '1' if the average distance between aligned investors and NBIM exceeds the median distance, and 0 otherwise. The second category encompasses exclusion features, including the market reaction to NBIM's exclusion announcement (*CAR [-1,1]*), and the exclusion rationale, which we capture through binary indicators for *Coal Exclusion* and *NBIM Environmental Exclusion*. We control for the exclusion rationale to ensure that our findings are not solely driven by coal-based bulk-exclusions.

Furthermore, we include the following portfolio firm characteristics that could affect institutional alignment (Kotter & Lel, 2011): The *ESG Score* of the excluded firm, *ROE* is net income divided by total equity, *Sales Growth* is the change in sales compared to the previous year, *Capex* is capital expenditures divided by total assets, *Leverage* is total debt divided by

the market value of equity, *Size* is the logarithm of total assets. We measure these variables at the beginning of the year. Furthermore, we cluster standard errors at the firm level to account for residual correlation within firms.

Next, we explore the temporal patterns of institutional alignment in exclusion decisions, examining the time elapsed between NBIM's announcements and other investors' exclusion decisions. For this analysis, our unit of observation changes from NBIM's exclusion decisions to individual exclusion decisions made by other institutional investors. This analysis helps to provide additional evidence on both the prevalence and timing of institutional alignment in exclusion decisions to provide further evidence for Prediction (2). We estimate the following OLS regression to examine how the timing of exclusion decisions varies across different types of institutional investors and what characteristics are associated with these temporal patterns:

$$Exclusion\ Timing\ Difference\ from\ NBIM_{i,j} = \alpha + \beta_1 Asset\ Owner_{i,j} + \beta_2 Larger\ Investor_{i,j} + \beta_3 High\ \ Distance\ Investor_{i,j} + \beta_4 ESG\ SCORE_i + \beta_5 CAR[-1,1]_i + \beta_6 Coal\ Exclusion_i + \beta_7 NBIM\ Environmental\ Exclusion_i + \sum Controls_i + \varepsilon_{i,j}, \quad (3)$$

Exclusion Timing Difference from NBIM$_{i,j}$ represents the number of years that investor *j*'s exclusion of firm *i* lags behind NBIM's exclusion decision. *Asset Owner* takes the value of '1' if the investor is an asset owner and '0' otherwise. *Larger Investor* takes the value of '1' for investors whose assets under management exceed the median. *High Distance Investor* takes the value of '1' for investors that are more distant from NBIM than the median. All other variables are defined as in equation (2). We cluster standard errors at the excluded firm level to account for residual correlation within exclusion decisions.

In the last step, we investigate the firm-level implications of the exclusion events using a difference-in-differences approach with a matched control group. This design allows us to account for time trends and industry-wide shocks that might confound our long-term analysis

of firm outcomes. To construct our control group, we employ a one-to-one matching with replacement following Bartov and Tsui (2000). We match on the firm's headquarters country and industry. Additionally, we require that NBIM held an investment position in the control firm during the test window of the matched firm to ensure comparability. We then select the matched control firm with the closest total assets. Our detailed sample selection procedures are presented in Appendix C-2. Using this matched sample, we analyze changes in firms' ownership structure over a two-year window, spanning one year before and one year after NBIM's exclusion announcement using the following difference-in-differences model:

$$Ownership_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Post_{i,t} \times Treated_i + \sum Controls_{i,t} + \gamma_i + \delta_t + \varepsilon_{i,t}, \quad (4)$$

Where *Ownership* is the ownership percentage by shareholder-type of firm *i* in month *t*. We categorize shareholders into three main groups based on their institutional role: *Asset Owners* (pension funds, sovereign wealth funds), A*sset Managers* (investment advisors, multi-strategy investment firms), and *Dual-Role Investors* that may engage in both asset management and ownership functions (banks and trusts, insurance companies). We aggregate all remaining shareholder types under *Other Investors*. Appendix A provides more information about the types of investors in each category. *Post* takes the value of '1' for all periods from NBIM's exclusion announcement onward, and '0' otherwise. *Treated* takes the value of '1' for firms excluded by NBIM and '0' otherwise. Our difference-in-differences coefficient of interest is β_2 and captures the effect of NBIM's exclusion announcement on ownership across the four shareholder categories relative to our control group.

We include the same control variables as in our previous analysis in equation (2), but measure them contemporaneously rather than using lagged values, as ownership changes and firm characteristics are likely to be simultaneously determined in response to the exclusion

event.[11] In addition, we include firm-fixed effects (γ_i) and month-fixed effects (δ_t) to control for unobserved heterogeneity at the firm level and common shocks in specific periods. We cluster standard errors at the firm level to account for serial correlation in ownership patterns within firms.

In our final analysis, we examine whether NBIM's exclusions are associated with changes in firm outcomes. We analyze changes in firms' ESG performance using monthly data over a 48-month window surrounding the exclusion by NBIM. For all other firm outcomes, we employ annual data covering three years before and after the event. More specifically, we estimate the following difference-in-differences model:

$$Firm\ Outcome_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Post_{i,t} \times Treated_i + \sum Controls_{i,t} + \gamma_i + \delta_t + \varepsilon_{i,t}, \quad (5)$$

Where *Firm Outcome* represents financial and non-financial performance measures of firm *i* in time *t*. For non-financial performance, we examine a firm's overall *ESG Score* as well as its individual environmental (*E Score*), social (*S Score*), and governance (*G Score*) component scores employing data from LSEG (formerly called Thomson Reuters: Refinitiv). Financial performance is measured using *ROE*, *Capex*, *Sales Growth*, and *Leverage*. We employ the same set of control variables as in our ownership analysis but exclude the respective control variable that we use as a dependent variable. The period fixed effects structure varies by the frequency of our outcome measures: we employ month fixed effects for ESG performance analyses, which are measured monthly, and year fixed effects for financial performance measures, which are observed annually. Standard errors are clustered at the firm level.

[11] Our results are statistically and economically robust if we lag the control variables.

5. Data and Sample

5.1. NBIM Exclusions

Our analysis draws on several data sources. First, we collect NBIM's exclusions, observations, and revocation disclosure dates from NBIM's press releases and annual reports, identifying 291 events between April 2002 and September 2022. After merging with stock return data from LSEG, our sample includes 270 events for firms with available stock market data, comprising 229 exclusion and observation events, and 41 revocation events. These events concern 225 firms across 33 countries.[12]

Table 1, Panel A, provides summary statistics for the 229 exclusions. NBIM's exclusions fall into two main categories: product-based (141 events) and conduct-based (88) exclusions. Of the total events, 122 relate to environmental damage and 99 to societal concerns, with 8 conduct-based events citing both environmental and societal reasons.

Panel B shows the same categorization for non-permanent exclusions. Among the 41 revocations that led to NBIM's reinvestment, 19 were product-based and 22 conduct-based. Of these revocations, 28 followed exclusions, 11 followed observation periods, and 2 firms experienced a cycle of exclusion, revocation, and re-exclusion.

[Table 1 near here]

5.2. Other Investors Exclusions

To better understand the exclusion dynamics of other investors around NBIM exclusion announcements, we exploit a novel dataset from *Financial Exclusion Tracker,* an NGO-financed project. This dataset covers exclusions by 86 large institutional investors other than NBIM across 16 countries, encompassing 30,760 exclusions by 6,217 issuers from 131

[12] Some firms are first placed under observation and later excluded. Two firms are excluded, re-invested, and excluded again.

countries. As this dataset lacks precise exclusion dates, we manually collect this information from the historical exclusion lists of the investors through searching investors' websites, Google, and the Wayback Machine. The *Financial Exclusion Tracker* dataset includes 6,655 exclusions related to 227 firms excluded by NBIM. We remove NBIM's own exclusions and duplicate exclusions. Our final dataset contains 5,372 exclusions[13] from 86 investors, for which we can determine whether they occurred prior to or after NBIM's exclusion announcement for 2,761 exclusions (447 pre-NBIM and 2,314 post-NBIM). Appendix C-1 illustrates the sample selection process in greater detail.

For our analysis of investor characteristics, we manually collect data on investor type, geographical distance from Oslo, and the latest available assets under management (AUM). We determine investor type (asset owner or asset manager) using classifications from the investors' websites, supplemented by information from Climate Action 100+ and Top1000Funds. Of the 75 financial institutions with available exclusion timing, 23 are asset owners and 52 are asset managers.

5.3. Firm Outcomes

Finally, for our analysis of firm outcomes, we obtain monthly ESG scores, ownership data, and yearly financial performance metrics from LSEG. We then construct a matched control sample using one-to-one matching based on country, industry, and NBIM portfolio inclusion during the event window. We prioritize firms with the smallest difference in total assets with available data in both the *Financial Exclusion Tracker* and LSEG. This process yields 72 matched pairs, though our final sample varies by analysis due to data availability: 51 pairs for ESG and financial performance analysis and 48 pairs for ownership analysis. Appendix C-2 illustrates the matching process.

[13] The exclusion list sample includes 165 (17) firms from the NBIM exclusion (observation) list that we can match with the exclusion lists of other investors.

6. Results

6.1. Market Reactions to NBIM Exclusions, Observations, and Revocations

We begin our analysis by examining market reactions to NBIM's exclusions and observations. Table 2, Panel A, documents a CAR of -0.50% for the three-day event window and -0.59% for the five-day event window, consistent with estimates from prior studies (Lindset & Nguyen, 2020; Al Ayoubi & Enjolras, 2021). Notably, the threat of exit (observation events) is associated with an average CAR of -0.95%, almost double the reaction to actual exit disclosures. However, this difference is not statistically significant at conventional levels of significance, likely due to the small number of observations.

In Table 2, Panel B, we present the market reaction to permanent exclusions, temporary exclusions, and reinvestment announcements. Our results suggest that markets react similarly to temporary and permanent exclusions.[14] Notably, even reinvestment announcements by NBIM are also associated with significantly negative market reactions (CAR -0.65%). This pattern is consistent with theoretical predictions that divestment can lead to changes in investor composition (Berk & van Binsbergen, 2025; Broccardo et al., 2022), as the negative reaction to reinvestment could reflect concerns about potential conflicts between environmental and social priorities and the preferences of the firm's new investor base.

Finally, in Table 2, Panel C, we observe that environmental-based exclusions and observations are associated with stronger market reactions (CAR -0.72%) compared to social decisions (CAR -0.26%).[15]

[Table 2 near here]

6.2. Institutional Alignment in Exclusion Decisions

[14] The difference in abnormal returns in the three-day window is 0.05 percentage points (statistically insignificant)
[15] We note that these group comparisons in Table 2 are not statistically significant at conventional levels.

We continue our analysis by examining patterns of institutional alignment in exclusion decisions based on our exclusion list dataset. Six institutions – KLP, Danske Bank, Pensioenfonds Rail & OV, Pensioenfonds Vervoer, Achmea, and Akademiker Pension – align more than 100 exclusion decisions each with NBIM, with a majority of their exclusion decisions occurring after NBIM's announcement. Among the five most active excluding institutions in our sample, more than 50% of their exclusion decisions occur after NBIM's disclosure (see Appendix D).

We also document systematic differences in the prevalence of institutional alignment. On average, 28 (14) other investors exclude the same firms that NBIM permanently excluded (placed under observation). Among 2761 exclusions with precise exclusion dates available, the average excluded firm is excluded by 15 other investors besides NBIM, with an average of three investors excluding the firm before NBIM and 12 afterwards (see Appendix E). Figure 1 shows that other institutions exclude the same firm on average five years after NBIM. Institutional investors often face delays in exclusion decisions due to extensive due diligence, internal governance approvals, and periodic portfolio rebalancing (e.g., OECD, 2017). For instance, while Storebrand's exclusion policy is to exclude firms that are on NBIM's exclusion list from its investment portfolio, the time lag to NBIM's exclusion announcement is still considerable, ranging from 3 to 12 years (with one exception of an exclusion in the same year as NBIM). While the average time gap appears relatively large, we also document substantial short-term alignment within the first two years after NBIM's announcements. On average 310 exclusions by other investors happen within two years – 75 in the same year, 97 in the following year, and 138 in the second year – representing 17.75% of all post-NBIM exclusions. This pattern of relatively prompt alignment with NBIM is notable given the institutional constraints and due diligence processes that often slow investment decisions. For non-NBIM-initiated exclusions, we find short-term alignment of about only a third over the same period.

[Figure 1 near here]

We confirm this descriptive finding in a formal regression analysis directly testing whether firms excluded by NBIM face more exclusions from other investors. Table 3 shows that firms excluded by NBIM's exclusions attract on average 21 additional excluding institutional investors compared to only 4 exclusions for firms not excluded by NBIM, providing evidence of increased investor alignment for NBIM exclusions.[16] When we separate NBIM's exclusions by their underlying rationale in columns (3) and (4), we find that both environmental and social exclusions are associated with 18 and 26 additional exclusions, respectively.

[Table 3 near here]

Next, we examine the characteristics associated with broader patterns of institutional alignment. Table 4 presents descriptive statistics showing that the average ratio of asset owners' holdings to asset managers' holdings at the beginning of the event year is 21.3%. Excluded firms have an average ESG score of 50 and the average CAR following NBIM's exclusion announcement is -0.96%.

[Table 4 near here]

Building on the evidence that firms excluded by NBIM face significantly more exclusions by other investors, we next examine the determinants of exclusions with above-average institutional alignment with NBIM (*High-Alignment Exclusion*) in Table 5. In a series of specifications that progressively incorporate explanatory variables, we find that exclusions by larger institutional investors and those geographically more distant from NBIM are most consistently associated with above-average institutional alignment. The ratio of asset owners

[16] Our results remain robust to alternative specifications using industry fixed effects instead of country fixed effects (unreported). We are unable to include year fixed effects in this analysis as it would require hand-collecting precise exclusion dates for thousands of firms across 86 institutional investors.

to asset managers shows a positive association with high-alignment exclusions, though this relationship appears more sensitive to model specification.

[Table 5 near here]

Table 6 examines temporal patterns in institutional exclusion decisions and reveals systematic differences in timing across investor types. Our analysis shows that shorter time gaps between NBIM's and other institutions' exclusion decisions are associated with three types of investors: asset owners, larger institutional investors, and those that are geographically proximate to NBIM. On average, exclusion decisions by larger asset owners geographically closer to NBIM occur within two years. Additionally, we find that firms with stronger pre-exclusion ESG performance are associated with shorter time gaps between institutional exclusion decisions. This is consistent with prior research (Khan et al., 2016), which demonstrates that strong performance in material ESG issues is associated with greater investor attention and responsiveness, likely due to the perceived long-term value of such practices. The type of exclusion also matters: shorter time gaps are observed for environmental-based exclusions compared to socially motivated exclusions, potentially reflecting the growing prominence of climate-related concerns in institutional investment decisions.

[Table 6 near here]

6.3. Changes in Ownership and Firm Outcomes

In the next step, we analyze the relationship between exclusion announcements and changes in ownership composition and firm behavior, using a matched control group to account for general industry and time trends.

Table 7 presents descriptive statistics for our treatment and control groups. The two groups show comparable ownership structures, though treated firms have slightly higher asset manager ownership. Treated firms also exhibit marginally higher ESG scores (three points on

average) than control firms, while financial metrics (ROE, capital expenditure ratio, sales growth, and leverage) show no significant differences between groups.

[Table 7 near here]

In Table 8, Panel A, we present the results of our ownership analysis. After NBIM's exclusion announcement, asset owners significantly reduce their ownership in excluded firms. Although not statistically significant at conventional levels, we observe concurrent increases in ownership by asset managers and dual-role investors, suggesting these potentially less ethically constrained investors may perceive undervaluation or anticipate future recovery.

Panel B documents that these ownership changes are larger when there is broader institutional alignment in exclusion decisions. When exclusions resonate more broadly among investors, asset owner divestment is particularly pronounced. Panel C shows that this effect is particularly pronounced when examining exclusions with broader alignment among asset owners, suggesting systematic patterns in institutional decisions within this investor category.

[Table 8 near here]

In Table 9, we present our analysis on changes in ESG performance. Panel A shows that excluded firms improve their Environmental (E) score by an average of 3.8 points (average 50 points) compared to our matched control firms. Panel B documents that exclusions associated with broader institutional alignment are linked to significant improvements in both environmental and social dimensions. This is consistent with prior literature on E&S improvements following divestments after negative E&S news (Gantchev et al., 2022). Conversely, when NBIM's exclusions are not accompanied by substantial institutional alignment, we observe deteriorating E&S performance among excluded firms. This pattern is consistent with two mechanisms suggested by theory. First, without sufficient pressure from a critical mass of divesting investors, firms may have limited incentives to improve their

environmental and social practices as the cost of capital effect is minimal. Second, our ownership analysis shows that these firms experience a shift in their shareholder base from ESG-conscious investors toward those potentially less concerned with environmental and social issues. This shift may prompt firms to redirect resources from ESG initiatives (e.g., emission reductions) to other priorities and aligns with theoretical predictions about changes in investor composition affecting firm behavior (Berk & van Binsbergen 2025; Broccardo et al., 2022). Panel C shows a similar pattern, with E&S improvements being more pronounced for exclusions associated with broader institutional alignment among asset owners. In untabulated analyses, we document that the observed changes in E&S scores are primarily reflected in emission scores (e.g., +8.06 with high alignment, $p<0.05$), product responsibility (+10.33, $p<0.01$), and controversy scores (+6.01, $p<0.05$). Due to data constraints on NBIM's engagement activities, we cannot directly compare the effectiveness of exit versus voice strategies in this setting. Additionally, our results remain both qualitatively and quantitatively robust when using ESG scores from MSCI instead of LSEG.

[Table 9 near here]

Last, we analyze changes in financial firm outcomes after NBIM exclusions. Although not formally predicted, we examine financial outcomes to explore additional impacts of exclusions. Table 10, Panel A, documents that excluded firms experience a 2.8 percentage point reduction in sales growth following NBIM exclusions. Panel B shows that this effect is larger when exclusions are associated with broader institutional alignment, and Panel C indicates that this pattern is particularly strong when there is alignment among asset owners.

[Table 10 near here]

Overall, our results show that improvements in excluded firms' ESG performance and deteriorations in sales growth are associated with broader patterns of institutional alignment in exclusion decisions, particularly among asset owners.

7. Conclusion

In this paper, we analyze the consequences of NBIM's divestment through publicly disclosed exclusions of portfolio firms based on environmental and social criteria. Our findings reveal that market participants, on average, respond negatively to exclusion disclosures, with environmental exclusions leading to the most significant negative market responses.

Using a novel dataset, we document systematic patterns of institutional alignment in exclusion decisions. We find that NBIM's exclusions are associated with broader patterns of institutional investor divestment, particularly among asset owners and larger investors. Our analysis shows substantial changes in ownership structure following exclusion announcements, particularly for exclusions that resonate broadly among investors.

We further document that the relationship between exclusions and changes in firm behavior is contingent upon broader institutional alignment in exclusion decisions. Our findings suggest that divestments, as a tool for promoting responsible firm behavior, are only effective when they resonate with a broader investor base, leading to a collective shift away from firms engaged in environmentally and socially harmful activities. However, our analysis also highlights important limitations of exclusions. Exclusions that occur without substantial institutional alignment are associated with deteriorating environmental and social performance, alongside ownership shifting to investors less concerned with E&S issues. This highlights that divestments can be effective tools for promoting corporate responsibility, but their impact is highly dependent on collective action.

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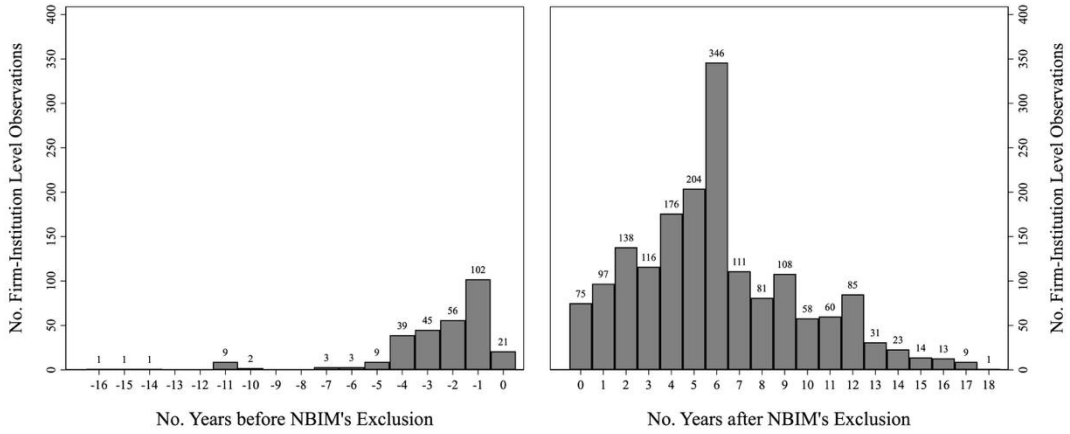
Figure 1: Temporal Distribution of Investor Exclusions relative to NBIM



This figure presents the timing of exclusion decisions by other financial institutions relative to NBIM's exclusion announcements. From our sample of 2,761 institutional exclusions aligned with NBIM's decisions, we can identify precise exclusion years for 2,038 cases, with 292 occurring before NBIM's exclusion and 1,746 occurring after. The x-axis shows the number of years before (negative values) or after (positive values) NBIM's exclusion date, while the y-axis displays the frequency of exclusions by other investors.

Table 1: Summary Statistics for NBIM's Exclusions, Observations and Revocation Announcements

Panel A: Exclusion and Observation Decisions

		Product	Conduct	**Total**
Environment-based decision	Exclusion	72	38	**110**
	Observation	16	4	**20**
	Total	**88**	**42**	**130**
Society-based decision	Exclusion	53	39	**92**
	Observation	0	15	**15**
	Total	**53**	**54**	**107**
All Exclusions and Observations		**141**	**88**	**229**

Panel B: Revocation (re-investment) Decisions

	Product	Conduct	Total
Revoked exclusion	15	13	28
Revoked observation	4	7	11
Revoked exclusion, followed by re-exclusion	0	2	2
Total Revoked Decisions	**19**	**22**	**41**

Table 1 shows the number of exclusion, observation, and revocation disclosures of NBIM. Panel A categorizes the exclusion and observation events along two dimensions: (1) the basis for exclusion (product-based vs. conduct-based and (2) the underlying concern (environmental vs. societal issues). Product-based exclusions target firms based on their business activities (e.g., coal or oil production & energy; tobacco or cannabis production), while conduct-based exclusions respond to corporate behavior (e.g., severe environmental damage, human rights violations, gross corruption). Note that eight events (six exclusions and two observations) cite both environmental damage and human rights violations as justification. Panel B summarizes NBIM's revocation decisions, which allow for potential reinvestment in previously excluded firms.

Table 2: Event Study around NBIM's Exclusion, Observation, and Re-Investment Disclosures

Panel A: Exclusion and Observation Events

	Exclusion & Observation			Exclusion			Observation		
Event Window	CAAR	Patell Z - test	T -test	CAAR	Patell Z - test	T-test	Patell test	Patell Z - test	T-test
[-1, 1]	-0.50%	-4.3042***	-2.0581**	-0.43%	-3.6687***	-1.5775	-0.95%	-2.3974**	-1.7369*
[-2, 2]	-0.59%	-2.3686**	-1.8703*	-0.60%	-2.1970**	-1.7242*	-0.52%	-0.8852	-0.7288

Panel B: Permanent, Temporary and Revoked Decisions

	Permanent Decisions			Temporary Decisions			Revocation (Re-investment announcement)		
Event Window	CAAR	Patell Z - test	T -test	CAAR	Patell Z - test	T-test	CAAR	Patell Z - test	T-test
[-1, 1]	-0.51%	-3.9312***	-1.9188*	-0.46%	-1.7540*	-0.7548	-0.65%	-1.8433*	-1.1942
[-2, 2]	-0.57%	-1.8235*	-1.6687*	-0.66%	-1.6930*	-0.8349	-1.15%	-2.5294**	-1.6335

Panel C: Environment and Society-Based Decisions

	Environmental-based Decisions			Society-based Decisions		
Event Windows	CAAR	Patell Z- test	T-test	CAAR	Patell Z- test	T-test
[-1, 1]	-0.72%	-4.6559***	-2.2682**	-0.26%	-1.3587	-0.6995
[-2, 2]	-0.88%	-2.7723***	-2.1261**	-0.38%	-1.0429	-0.8048

Table 2 presents market reactions to NBIM's portfolio decisions, including exclusion, observation, and revocation disclosure events. We calculate daily abnormal returns using the market model with parameters estimated over the window [-270, -20] relative to the announcement, using major local stock market indices as benchmarks. Statistical significance is assessed using both the Patell test and standard t-test. Panel A shows market reactions across all portfolio decisions, comparing the full sample of exclusion and observation events (N=229) with exclusions only (N=196) and observations only (N=33). Panel B analyzes market reactions based on the permanence of NBIM's decisions, comparing permanent exclusions and observations (N=188) with temporary exclusions (N=41), and presents market responses to reinvestment announcements (N=41). Panel C compares market reactions across different exclusion rationales: environmental-based decisions (N=130) versus society-based decisions (N=107). Note that eight events cite both environmental and societal concerns. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 3: Alignment of Other Investors' Exclusion Decisions with NBIM

	No. Exclusions	No. Exclusions	No. Exclusions	No. Exclusions
	(1)	(2)	(3)	(4)
NBIM Exclusion	21.1118***	21.1854***		
	(0.000)	(0.000)		
NBIM Environmental Exclusion			18.2403***	18.2288***
			(0.000)	(0.000)
NBIM Social Exclusion			26.0983***	26.3535***
			(0.000)	(0.000)
Environmental Exclusion			0.5769*	0.5838*
			(0.072)	(0.062)
Constant	4.2278***	1.0000***	3.9487***	1.0000***
	(0.000)	(0.000)	(0.000)	(0.000)
Country fixed effects	No	Yes	No	Yes
N	6217	6217	6217	6217
Adjusted R2	0.2223	0.2392	0.2309	0.2483

Table 3 examines whether firms excluded by NBIM face significantly more exclusions from other investors. The unit of observation is the firm that has been excluded by NBIM or other investors. The dependent variable *No. Exclusions* captures the total number of institutional investors excluding firm *i*. *NBIM Exclusion* takes the value of '1' if a firm was excluded by NBIM and '0' otherwise. In columns (3) and (4), we split NBIM exclusions into social and environmental exclusions. *NBIM Environmental Exclusions* takes the value of '1' if NBIM excluded the firm for environmental reasons and '0' otherwise. *NBIM Social Exclusion* takes the value of '1' if NBIM excluded the firm for social reasons and '0' otherwise. *Environmental Exclusion* takes the value of '1' for exclusions other than exclusions by NBIM where the majority of other investors state environmental reasons, and zero for non-NBIM exclusions for social reasons. All variables are defined in Appendix A. We report OLS coefficient estimates with p-values in parentheses, based on robust standard errors clustered at the country level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 4: Descriptive Statistics on NBIM Exclusion Alignment

Panel A: NBIM's Exclusion Characteristics								
	N	Mean	SD	Min	p25	p50	p75	Max
High-Alignment Exclusions	144	0.528	0.501	0	0	1	1	1
Asset Owner Ratio	144	0.213	0.685	0.000	0.044	0.070	0.105	6.391
Major Investors	144	0.507	0.502	0	0	1	1	1
Investor Distance	144	0.507	0.502	0	0	1	1	1
ESG Score	144	49.932	20.300	3.410	36.830	49.800	65.175	90.420
CAR [-1,1]	144	-0.957	4.557	-38.785	-2.305	-0.766	0.480	13.492
Coal Exclusion	144	0.521	0.501	0	0	1	1	1
NBIM Environmental Exclusion	144	0.694	0.462	0	0	1	1	1
Panel B: Other Investors Exclusion Characteristics								
	N	Mean	SD	Min	p25	p50	p75	Max
Exclusion Timing Difference from NBIM	1,407	5.940	3.515	0	4	6	7	17
Asset Owner	1,407	0.733	0.442	0	0	1	1	1
Larger Investor	1,407	0.336	0.473	0	0	0	1	1
High Distance Investor	1,407	0.584	0.493	0	0	1	1	1
ESG Score	1,407	48.364	19.896	3.410	33.390	48.440	61.790	90.420
CAR [-1,1]	1,407	-0.978	4.514	-38.785	-2.407	-0.774	0.458	13.492
Coal Exclusion	1,407	0.566	0.496	0	0	1	1	1
NBIM Environmental Exclusion	1,407	0.682	0.466	0	0	1	1	1

Table 4 presents summary statistics for the exclusion, investor type, and other firm characteristics. Panel A reports these statistics for the NBIM exclusion level sample that we employ in Table 5. Panel B provides the same statistics on the individual exclusion decisions made by other institutional investors representing the sample used in Table 6.

Table 5: Determinants of High-Alignment Exclusions

Dependent Variable:	**High-Alignment Exclusion**						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Asset Owner Ratio	0.0708**	0.0547**	0.0816***	0.0759***	0.0737***	0.0671**	0.0731**
	(0.017)	(0.017)	(0.007)	(0.009)	(0.010)	(0.010)	(0.011)
Major Investors		0.3317***	0.3449***	0.3226***	0.3376***	0.3369***	0.3395***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Investor Distance			0.3750***	0.3707***	0.3953***	0.4059***	0.3978***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ESG Score				-0.0060***	-0.0064***	-0.0064***	-0.0064***
				(0.002)	(0.001)	(0.001)	(0.001)
CAR[-1,1]					0.0205**	0.0199**	0.0206**
					(0.022)	(0.017)	(0.022)
Coal Exclusion						0.1341	
						(0.166)	
NBIM Environmental Exclusion							0.0126
							(0.900)
ROE	-0.0018	-0.0055	-0.0035	-0.0033	-0.0008	0.0003	-0.0007
	(0.718)	(0.252)	(0.436)	(0.456)	(0.853)	(0.943)	(0.875)
Capex	0.9846	1.8716	3.2931**	2.9463*	2.9610*	2.0264	2.8931*
	(0.574)	(0.256)	(0.040)	(0.065)	(0.059)	(0.221)	(0.084)
Sales growth	-0.7126*	-0.7058**	-0.5239*	-0.5617*	-0.5346*	-0.5831**	-0.5399*
	(0.057)	(0.031)	(0.077)	(0.062)	(0.071)	(0.046)	(0.073)
Leverage	0.0800	0.0576	0.1439**	0.1108*	0.1590***	0.1299**	0.1578**
	(0.213)	(0.353)	(0.031)	(0.095)	(0.008)	(0.033)	(0.010)
Size	-0.0237	-0.0114	-0.0162	0.0431	0.0561	0.0595	0.0565
	(0.557)	(0.770)	(0.652)	(0.237)	(0.136)	(0.107)	(0.139)
N	144	144	144	144	144	144	144
Adjusted R2	0.0204	0.1210	0.2391	0.2777	0.3035	0.3103	0.2983

Table 5 examines factors that predict whether NBIM's exclusion decisions are associated with high institutional alignment. The sample includes only firms that were excluded by NBIM. The dependent variable High-Alignment Exclusion is defined as '1' for exclusions generating above-median institutional alignment. The analysis focuses on two main determinants: (1) characteristics of aligned investors and (2) features of NBIM's exclusion decisions. *Asset Owner Ratio* is the ratio of asset owners' holdings to asset managers' holdings at the beginning of the event year. *Major Investors* is a binary variable that is defined as '1' if the average assets under management of investors divesting from firm *i* after NBIM announcements exceeds the median assets under management, and 0 otherwise. *Investor Distance* is a binary variable that is defined as '1' if the average distance between aligned investors and NBIM exceeds the median distance, and 0 otherwise. All specifications include firm-level control variables for *ROE*, *Capex*, *Sales Growth*, *Leverage*, and *Size*. All variables are defined in Appendix A. We include the constant but do not report the coefficients. Reported values are OLS coefficient estimates with p-values in parentheses, based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 6: Timing Analysis of Aligned Exclusion Decisions

	Exclusion Timing Difference from NBIM						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Asset Owner	-0.6462***	-1.0654***	-1.1333***	-1.1517***	-1.1606***	-1.3685***	-1.1252***
	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Larger Investor		-0.6825***	-0.4467	-0.4843*	-0.4938*	-0.8384***	-0.6666***
		(0.010)	(0.132)	(0.091)	(0.087)	(0.001)	(0.008)
High Distance			0.6986***	0.7092***	0.7124***	0.6495***	0.6729***
Investor			(0.003)	(0.002)	(0.002)	(0.003)	(0.002)
ESG Score				-0.0168	-0.0161	-0.0199**	-0.0174**
				(0.208)	(0.239)	(0.047)	(0.027)
CAR[-1,1]					-0.0239	-0.0051	-0.0245
					(0.506)	(0.881)	(0.519)
Coal Exclusion						-2.9651***	
						(0.000)	
NBIM Environmental Exclusion							-3.9654***
							(0.000)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1407	1407	1407	1407	1407	1407	1407
Adjusted R2	0.1609	0.1659	0.1735	0.1800	0.1802	0.2811	0.3594

Table 6 analyzes factors influencing how timely other institutions align their exclusions with NBIM's exclusion decisions. The sample is restricted to exclusions occurring after NBIM's announcements. We examine how the timing of follow-on exclusions relates to two categories of determinants: (1) characteristics of aligned investors and (2) features of NBIM's original exclusion decisions. The dependent variable measures the time elapsed in years between NBIM's announcement and subsequent institutional exclusions. All specifications include the same firm-level control variables as in Table 5 (ROE, Capex, Sales Growth, Leverage, and Size). We include the constant but do not report the coefficients. Reported values are OLS coefficient estimates with p-values in parentheses, based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 7: Comparison of Treatment and Control Groups - Firm Characteristics and Ownership Structure

Panel A: Treatment Group								
	N	Mean	SD	Min	p25	p50	p75	Max
Ownership								
% asset owners	1058	5.029	6.498	0.209	2.852	4.036	4.728	45.895
% asset managers	1058	53.805	25.504	4.287	31.239	61.260	73.737	97.039
% dual-role investors	1058	2.193	3.218	0.009	0.657	1.383	2.135	20.146
% other investors	1058	14.303	18.361	0.000	3.635	6.144	14.250	121.156
ESG Performance								
ESG score	2448	54.600	18.971	8.600	40.230	56.380	70.150	91.680
E score	2448	55.238	22.843	4.550	39.620	55.850	73.560	95.930
S score	2448	54.351	23.256	5.160	34.890	57.870	72.340	97.910
G score	2448	53.702	23.817	3.320	33.600	53.625	75.250	96.240
Firm Outcomes								
ROE	348	10.447	7.080	0.270	5.530	9.295	13.640	26.340
Capex	348	0.053	0.024	0.012	0.032	0.054	0.072	0.086
Sales growth	348	0.043	0.102	-0.120	-0.027	0.033	0.118	0.236
Leverage	348	0.877	0.743	0.096	0.288	0.636	1.112	2.322
Panel B: Control Group								
	N	Mean	SD	Min	p25	p50	p75	Max
Ownership								
% asset owners	1128	5.118	7.101	0.198	2.675	3.952	5.118	47.833
% asset managers	1128	45.939	23.095	7.020	25.512	44.370	67.842	86.905
% dual-role investors	1128	2.264	3.726	0.025	0.602	1.303	2.062	16.011
% other investors	1128	20.281	22.933	0.637	4.791	7.642	35.384	86.115
ESG Performance								
ESG score	2448	51.606	17.176	7.450	38.075	48.440	63.965	89.740
E score	2448	50.401	24.350	0.000	33.220	50.050	72.440	96.310
S score	2448	58.522	20.638	15.940	39.180	58.210	76.060	97.780
G score	2448	47.182	22.374	2.510	28.490	44.250	66.310	95.570
Firm Outcomes								
ROE	350	9.900	6.595	0.270	5.610	8.900	13.300	26.340
Capex	350	0.048	0.024	0.012	0.030	0.049	0.065	0.086
Sales growth	350	0.042	0.113	-0.120	-0.054	0.047	0.133	0.236
Leverage	350	0.836	0.713	0.096	0.241	0.600	1.139	2.322

Table 7 presents descriptive statistics for all outcome variables used in our difference-in-differences analysis. The treatment group comprises firms excluded from NBIM's portfolio, while the control group is constructed using one-to-one matching based on four criteria: country of headquarters, industry classification, NBIM investment status during the test window, and total assets. For each variable, we report summary statistics separately for treatment and control firms to assess the quality of the matching and baseline differences between groups. All variable definitions are provided in Appendix A.

Table 8: NBIM Exclusions and Ownership Changes

Panel A: Overall Ownership Changes				
	12 months before and after events			
	% asset owners	% asset managers	% dual-role investors	% other investors
	(1)	(2)	(3)	(4)
Post × Treated	-0.3405**	1.0398	0.0821	-0.3322
	(0.042)	(0.212)	(0.390)	(0.641)
Post	0.3018**	-0.5595	-0.0483	0.1515
	(0.025)	(0.237)	(0.559)	(0.704)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	2186	2186	2186	2186
Adjusted R^2	0.1892	0.1110	0.0394	0.0629

Panel B: Ownership Changes for Exclusions with High and Low Investor Alignment								
	12 months before and after events							
	High Investor Alignment				**Low Investor Alignment**			
	% asset owners	% asset managers	% dual-role investors	% other investors	% asset owners	% asset managers	% dual-role investors	% other investors
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post ×	-0.2486*	1.8638	0.1842	-1.6435	-0.4411	0.1154	-0.0444	0.8770
Treated	(0.073)	(0.184)	(0.201)	(0.170)	(0.132)	(0.892)	(0.682)	(0.135)
Post	0.2992***	-1.2786	-0.1866	0.7719	0.2820	-0.2772	0.0389	-0.4502
	(0.003)	(0.105)	(0.165)	(0.222)	(0.235)	(0.609)	(0.775)	(0.369)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1162	1162	1162	1162	1024	1024	1024	1024
Adjusted R^2	0.1512	0.0638	0.0981	0.0945	0.3646	0.1863	-0.0476	0.1211

Panel C: Ownership Changes for Exclusions with High and Low Asset Owner Alignment								
	12 months before and after events							
	High Asset Owner Alignment				**Low Asset Owner Alignment**			
	% asset owners	% asset managers	% dual-role investors	% other investors	% asset owners	% asset managers	% dual-role investors	% other investors
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post ×	-0.3848*	1.7445	0.1909	-1.6070	-0.3155	0.1703	-0.0576	0.8969*
Treated	(0.051)	(0.180)	(0.185)	(0.129)	(0.208)	(0.845)	(0.613)	(0.092)
Post	0.3548***	-1.1476	-0.1726	0.7605	0.2623	-0.4454	0.0151	-0.5934
	(0.003)	(0.129)	(0.210)	(0.166)	(0.255)	(0.508)	(0.898)	(0.283)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1182	1182	1182	1182	1004	1004	1004	1004
Adjusted R^2	0.1311	0.0911	0.1113	0.1010	0.3779	0.2115	-0.0489	0.0865

Table 8 shows changes in ownership patterns around NBIM's exclusion announcements using a difference-in-differences model. Our analysis spans 24 months centered on the exclusion announcement (-12 to +12 months). Treatment firms are compared to a matched control sample, with matching based on country, industry, NBIM investment status, and total assets. Panel A presents baseline ownership changes across different categories of institutional investors. Panel B analyzes how ownership changes vary with the alignment of other investors with NBIM's exclusions, examining subsamples based on the median levels of overall institutional alignment. Panel C examines how ownership changes vary with the level of alignment among asset owners. All specifications include firm-level controls (ROE, Capex, Sales Growth, Leverage, and Size), firm-fixed effects, month-fixed effects, and a constant term (coefficients not reported). Reported values are OLS coefficient estimates with p-values in parentheses, based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 9: NBIM Exclusions and ESG Performance

Panel A: Overall Changes in ESG Performance				
	24 months before and after events			
	ESG Score	E Score	S Score	G Score
	(1)	(2)	(3)	(4)
Post × Treated	2.5578	3.8053*	2.3044	-0.1409
	(0.112)	(0.084)	(0.200)	(0.954)
Post	-0.7392	-0.3368	-0.1102	-1.1884
	(0.446)	(0.818)	(0.928)	(0.448)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	4896	4896	4896	4896
Adjusted R^2	0.1925	0.1920	0.1741	0.0565

Panel B: ESG Performance Changes for Exclusions with High and Low Investor Alignment								
	24 months before and after events							
	High Investor Alignment				**Low Investor Alignment**			
	ESG Score	E Score	S Score	G Score	ESG Score	E Score	S Score	G Score
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post × Treated	7.0759***	9.5864***	6.6645**	3.5347	-3.0176*	-4.1938*	-2.9101	-3.7498
	(0.006)	(0.005)	(0.015)	(0.265)	(0.072)	(0.069)	(0.172)	(0.332)
Post	-2.7085	-3.0816	-2.5815	-1.6553	2.5475**	4.6904***	3.8540**	-0.5581
	(0.121)	(0.209)	(0.200)	(0.489)	(0.021)	(0.007)	(0.015)	(0.828)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2688	2688	2688	2688	2208	2208	2208	2208
Adjusted R^2	0.1907	0.1766	0.1791	0.1295	0.3071	0.3897	0.2706	0.0629

Panel C: ESG Performance Changes for Exclusions with High and Low Asset Owner Alignment								
	24 months before and after events							
	High Asset Owner Alignment				**Low Asset Owner Alignment**			
	ESG Score	E Score	S Score	G Score	ESG Score	E Score	S Score	G Score
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post × Treated	6.0004**	8.9769***	5.5687**	1.5420	-0.9680	-1.9593	-1.2577	-1.0106
	(0.026)	(0.008)	(0.046)	(0.660)	(0.585)	(0.483)	(0.563)	(0.764)
Post	-2.2834	-3.0843	-2.2156	-0.2644	1.3463	2.8271	2.3662	-0.8170
	(0.216)	(0.212)	(0.290)	(0.919)	(0.231)	(0.156)	(0.106)	(0.739)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2592	2592	2592	2592	2304	2304	2304	2304
Adjusted R^2	0.1481	0.1441	0.1172	0.1209	0.2983	0.3080	0.2918	0.0429

Table 9 shows ESG performance changes around NBIM's exclusion announcements using a difference-in-differences model. Our analysis spans 48 months centered on the exclusion announcement (-24 to +24 months). Treatment firms are compared to a matched control sample, with matching based on country, industry, NBIM investment status, and total assets. Panel A presents ESG performance changes for all exclusions. Panel B analyzes how ESG performance changes with the alignment of other investors with NBIM's exclusions, examining subsamples based on the median level of overall institutional alignment. Panel C examines how ESG performance changes with the level of alignment among asset owners. All specifications include firm-level controls (ROE, Capex, Sales Growth, Leverage, and Size), firm fixed effects, month fixed effects, and a constant term (coefficients not reported). Reported values are OLS coefficient estimates with p-values in parentheses, based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 10: NBIM Exclusions and Financial Performance

Panel A: Overall Changes in Financial Performance

	3 years before and after events			
	ROE	Capex	Sales Growth	Leverage
	(1)	(2)	(3)	(4)
Post × Treated	-0.7353	-0.0015	-0.0280*	-0.0206
	(0.356)	(0.514)	(0.053)	(0.652)
Post	0.9385	0.0013	-0.0009	0.0276
	(0.286)	(0.530)	(0.967)	(0.509)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	698	698	698	698
Adjusted R^2	0.1453	0.0579	0.2710	0.1400

Panel B: Financial Performance Changes for Exclusions with High and Low Investor Alignment

	3 years before and after events							
	High Investor Alignment				Low Investor Alignment			
	ROE	Capex	Sales Growth	Leverage	ROE	Capex	Sales Growth	Leverage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post × Treated	-0.5391	0.0015	-0.0414**	-0.0624	-1.4551	-0.0050	-0.0159	0.0279
	(0.607)	(0.593)	(0.042)	(0.316)	(0.263)	(0.195)	(0.434)	(0.664)
Post	2.0409	-0.0002	-0.0008	0.0149	1.2484	0.0038	-0.0001	0.0334
	(0.144)	(0.953)	(0.982)	(0.749)	(0.420)	(0.202)	(0.999)	(0.608)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	374	374	374	374	324	324	324	324
Adjusted R^2	0.1331	0.0799	0.3099	0.0959	0.2006	0.1169	0.2691	0.1899

Panel C: Financial Performance Changes for Exclusions with High and Low Asset Owner Alignment

	3 years before and after events							
	High Asset Owner Alignment				Low Asset Owner Alignment			
	ROE	Capex	Sales Growth	Leverage	ROE	Capex	Sales Growth	Leverage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post × Treated	-0.5026	0.0018	-0.0434**	0.0087	-1.1260	-0.0060*	-0.0087	-0.0544
	(0.614)	(0.559)	(0.033)	(0.876)	(0.362)	(0.091)	(0.671)	(0.466)
Post	1.1625	-0.0036	0.0232	-0.0729	0.2101	0.0039	-0.0136	0.0809
	(0.355)	(0.318)	(0.470)	(0.213)	(0.881)	(0.207)	(0.684)	(0.109)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	374	374	374	374	324	324	324	324
Adjusted R^2	0.1443	0.0605	0.3252	0.0971	0.1684	0.0949	0.2352	0.1919

Table 10 shows changes in different firm outcomes around NBIM's exclusion announcements using a difference-in-differences model. Our analysis spans 7 years centered on the exclusion announcement (-3 to +3 years). Treatment firms are compared to a matched control sample, with matching based on country, industry, NBIM investment status, and total assets. Panel A presents firm outcome changes for all exclusions. Panel B analyzes how changes in firm outcomes vary with the alignment of other investors' exclusion decisions with NBIM, examining subsamples based on the median level of overall institutional alignment. Panel C examines how changes in firm outcomes vary with the level of alignment among asset owners. All specifications include firm-level controls without the respective control that we use as a dependent variable (ROE, Capex, Sales Growth, Leverage, and Size), firm fixed effects, year fixed effects, and a constant term (coefficients not reported). Reported values are OLS coefficient estimates with p-values in parentheses, based on robust standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Appendix A: Variable Definitions

Variables	Definition	Source
ESG score	ESG score	
E score	Environmental score	
S score	Social score	
G score	Governance score	LSEG
CAR[-1, 1]	Cumulative abnormal return in the event windows [-1, 1] based on the market model using major local stock market indices as benchmarks.	
NBIM Exclusion	Binary variable. 1 if a firm was excluded by NBIM and 0 otherwise	
NBIM Environmental Exclusion	Binary variable. 1 if a firm was excluded by NBIM for environmental reasons and 0 otherwise	
NBIM Social Exclusion	Binary variable. 1 if a firm was excluded by NBIM for social reasons and 0 otherwise	
Environmental Exclusion	Binary variable. 1 for environmental-based exclusion; 0 otherwise	FETracker and manual collection
Coal Exclusion	Binary variable. 1 for coal-based exclusion; 0 otherwise	
High-Alignment Exclusion	Binary variable. 1 if the number for exclusions aligned with NBIM exceeds the median value; 0 otherwise	
Exclusion Timing Difference from NBIM	The number of years that the investor's exclusion lags behind NBIM's exclusion decision	
Asset Owner	Binary variable. 1 for asset owners; 0 for asset managers (other investors' exclusion level data)	
Asset Owner Ratio	Ratio of asset owners' holdings to asset managers' holdings at the beginning of the event year.	LSEG
Large Investor	Binary variable. 1 if the investor's AUM exceeds the median value; 0 otherwise (other investors' exclusion level data)	
Major Investors	Binary variable that is defined as 1 if the average assets under management of investors divesting from firm i after NBIM announcements exceeds the median assets under management, and 0 otherwise	FETracker and manual collection
High Distance Investor	Binary variable. 0 if financial institutions headquartered in “Finland, Norway, Sweden, and Denmark”; 1 otherwise	
Investor Distance	Binary variable that is defined as 1 if the average distance between aligned investors and NBIM exceeds the median distance, and 0 otherwise	

(continued)

Appendix A (Continued)

Variables	Definition	Source
Investors' holdings		
% Asset owners:		
Pension Fund	A qualified retirement plan set up by a corporation, labor union, government, or other organization for its employees. To be included in the database, the pension fund must manage a portion of its assets internally.	
Sovereign Wealth Fund	State-owned institutions, which invest public resources to reduce the unpredictability of government revenues, offset the boom-bust cycles' adverse effect on government spending and the national economy or foster savings for future generations. As such, SWFs aim to diversify and boost risk-adjusted returns by holding baskets of currencies, credit, and equities.	
% Asset Managers		
Investment Advisor	Investment advisors registered with the Securities and Exchange Commission that manage assets for private clients and institutions.	
Multi-strategy Investment Firm	An investment firm that uses both "traditional" and hedge fund (i.e., alternative) investment techniques.	
% Dual-Role Investors		
Bank and Trust	These firms perform all of the functions of a retail bank. As a retail bank, a portfolio of investments are put together by an investment adviser and sold in units to investors by brokers. They may also handle Trust Accounts, which are outside companies or individuals that have a bank manage their money for their own pensions or for various other reasons. They invest the money their customers hold in their accounts in order to make interest payments and their own profits.	LSEG
Insurance Company	Insurance Companies invest in a similar fashion as Investment Advisors. They re-invest the money they take in in order to make coverage payouts as well as their own profits.	
% Other Investors		
	Hedge Fund, Closed-End Fund, Exchange-Traded Fund, Mutual Fund, Venture Capital, Research Firm, Independent Research Firm, Hedge Fund Portfolio, Pension Fund Portfolio, Institution, Endowment Fund, Foundation, Government Agency, Individual Investor, Corporation, Holding Company, Private Equity (there are lots of missing values)	
ROE	Net income divided by equity	
Capex	Capital expenditure divided by total assets	
Sales Growth	One-year sales growth	LSEG
Leverage	Total debt divided by the market value of equity	
Size	Logarithm of total assets	

Appendix B: Exclusion Example Timeline and Categorization of Exclusions

Appendix B-1: Exclusion Example - NHPC Ltd.

Timeline	Events
August 2019	NHPC and the authorities in Assam State signed a Memorandum of Understanding concerning the Project in August 2019, which resulted in approval for the construction of Hydropower projects. These projects can cause severe environmental damage.
June 2021	NHPC reported that 72 percent of the work had been completed by June 2021. For the moment, from the NHPC website, the projects are still under construction.
24 February 2022	The Council on Ethics submitted its recommendation report to suggest the exclusion of this firm from its portfolio. Norges Bank's Executive Board decided to exclude NHPC and NBIM divested from the company.
7 September 2022	The decision news was released on 7 Sept 2022.

Appendix B-1 illustrates the timeline of NBIM's exclusion process in the specific example of NHPC Ltd. The selling of the shares is already concluded before September 7, 2022.

Appendix B-2: NBIM Ethical Exclusion Categories Overview

	Product-based decision	Conduct-based decision
Environmental Issues	Coal and oil production & energy	Severe environmental damage and Unacceptable greenhouse gas emissions
Social Issues	Production of tobacco & weapons	Violation of human rights, Gross corruption, and other serious violations

Appendix B-2 shows the different categories of ethical exclusions from the investment portfolio of NBIM.

Appendix C: Sample Selection Process

Appendix C-1: Sample Selection Process of Other Investors' Exclusions

	Number of exclusions
Number of exclusions related to firms excluded by NBIM	6655
- NBIM exclusions in Financial Exclusion Tracker	-168
- Duplicate exclusions	-1115
- Exclusions without precise exclusion date	-2611
Total	**2761**
Thereof: Exclusions before NBIM	447
Thereof: Exclusions after NBIM	2314

Appendix C-1 shows the sample selection process of other investors' exclusions. We start with all exclusions that are related to firms on NBIM's exclusion list. We remove NBIM's own exclusions, duplicate exclusions, and exclusions where we cannot determine the precise exclusion date from the sample.

Appendix C-2: Sample Selection of Matched Control Group

	Treated Group		**Control Group**	
All Firms in NBIM's historical portfolio	278		13838	
	Change	#Firms	Change	#Firms
Exclude firms without control group match in the same country and industry	-51	227	-11778	2060
Exclude matches where NBIM did not hold shares within one year before and after the event	-71	156	-1240	820
Exclude control firms with missing ESG scores and financial outcomes	-15	141	-108	712
Exclude revocation events	-25	116	-161	551
Exclude treated firms with missing ESG scores and financial outcomes	-15	101	-47	504
1:1 matching with replacement on nearest total assets	-19	82	-422	82 (57 unique firms)
Remove treated without exclusion data in FETracker database	-10	72	-10	72 (50 unique firms)
ESG scores: Exclude firms without full data 2 years before and after events	-21	51	-21	51 (36 unique firms)
Financial Outcomes: Exclude firms without full data 3 years before and after events	-21	51	-21	51 (36 unique firms)
Ownership: Exclude firms without full data 1 year before and after events	-24	48	-24	48 (32 unique firms)

Appendix C-2 shows the sample selection for our matched control group.

Appendix D: Ranking of Financial Institutions by Exclusion Timing

Appendix D-1: Top 10 Institutions according to the Total Number of Excluded Firms that NBIM Excluded

No.	Financial institution	Type of institution	Total number of excluded firms	% of excluded firms before NBIM
1	KLP	Pension Fund	159	49.69%
2	Danske Bank	Commercial Bank	131	5.34%
3	Pensioenfonds Rail & OV	Pension Fund	111	5.41%
4	Pensioenfonds Vervoer	Pension Fund	109	0.92%
5	Achmea	Insurance Company	107	12.15%
6	AkademikerPension	Pension Fund	104	13.46%
7	Stichting Mediahuis Nederland Pensioenfonds	Pension Fund	99	4.04%
8	Lærernes Pension	Pension Fund	92	21.74%
9	Ethias	Insurance Company	83	22.89%
10	Nykredit	Financial Services Group (including banking, insurance, and asset management)	81	3.70%

Appendix D-2: Top 5 Institutions with Exclusions before NBIM

No.	Financial institution	Type of institution	Total number of excluded firms	% of excluded firms before NBIM
1	KLP	Pension Fund	159	49.69%
2	Storebrand	Insurance Company	39	48.72%
3	SPP-Storebrand Sweden	Pension Fund	48	47.92%
4	PenSam	Pension Fund	61	44.26%
5	National Provident	Pension Fund	27	33.33%

Appendix D-3: Top 5 Institutions with Exclusions after NBIM

No.	Financial institution	Type of institution	Total number of excluded firms	% of excluded firms after NBIM
1	PGGM	Pension Fund	56	100.00%
2	BPF Bouw	Pension Fund	33	100.00%
3	Bankinvest	Investment Bank/Asset Management Firm	31	100.00%
4	ANZ	Commercial Bank	29	100.00%
5	Spar Nord	Commercial Bank	24	100.00%

Appendix D shows the ranking of institutions by exclusion timing. Total number of excluded firms is the number of firms excluded by another financial institution among all excluded firms by NBIM. % of excluded firms before (after) NBIM refers to the proportion of excluded firms that are divested by another institution before (after) NBIM among the total number of excluded firms.

Appendix E: Other Investors' Exclusion Decisions

Panel A: Other Institutional Investors' Exclusions Overlap with NBIM (5372 exclusions)

Variable	N	Average	SD	Min	Median	75%	90%	Max
NBIM-Exclusion	165	28	19	1	24	46	55	73
NBIM-Observation	17	14	9	1	15	18	31	32
NBIM-Revoke-Exclusion	22	19	20	1	10	25	51	69
NBIM- Revoke-Observation	8	13	12	4	8	18	38	38
Other Exclusions not excluded by NBIM	6,937	4	6	1	2	4	9	63

Panel B: Subset of Institutional Investors with Determined Exclusion Timing (2761 exclusions)

Variable	N	Average	SD	Min	Median	75%	90%	Max
NBIM-Exclusion	165	15	9	0	14	22	27	34
NBIM-Observation	17	9	5	1	10	13	15	19
NBIM-Revoke-Exclusion	22	7	7	1	4	9	19	22
NBIM- Revoke-Observation	8	7	7	1	4	12	22	22

Panel C: Institutional Investors' Exclusions Before NBIM (447 exclusions)

Variable	N	Average	SD	Min	Median	75%	90%	Max
NBIM-Exclusion	165	3	6	0	1	1	7	33
NBIM-Observation	17	2	3	0	0	1	6	11
NBIM-Revoke-Exclusion	22	1	1	0	0	0	2	5
NBIM- Revoke-Observation	8	1	2	0	0	1	5	5

Panel D: Institutional Investors' Exclusions After NBIM (2314 exclusions)

Variable	N	Average	SD	Min	Median	75%	90%	Max
NBIM-Exclusion	165	12	9	0	12	19	24	29
NBIM-Observation	17	8	6	0	7	13	15	19
NBIM-Revoke-Exclusion	22	6	7	1	4	7	19	22
NBIM- Revoke-Observation	8	6	6	1	4	11	17	17

Appendix E shows descriptive statistics on how other institutional investors' exclusion decisions align with NBIM's exclusions. Panel A presents summary statistics for the number of institutions excluding firms based on their NBIM exclusion status. We categorize firms into four NBIM-related groups: permanent exclusions, observations, revoked exclusions (where NBIM later reinvested), and revoked observations. These four groups include 5,372 other investors' exclusions overlapping with NBIM's exclusion list. For comparison, we also report exclusion patterns for firms never appearing on NBIM's exclusion or observation lists. Other Exclusions not excluded by NBIM refers to firms that are not on the NBIM exclusion or observation list and that are excluded by other institutional investors. Panel B focuses on the subset of exclusions by other investors where we can determine the temporal relationship between other investors' exclusions and NBIM's decisions. Panels C and D further decompose these timing-identified cases into exclusions occurring before and after NBIM's announcements, respectively.

Appendix F: Event Study Methodology

To study whether institutional investors' exit contains information for the market, firstly, we use the standard event study methodology to analyze the stock return reactions to announcements of exclusion or observation events by Norway's GPFG (MacKinlay, 1997; Corrado, 2011).

We use the market model (equation 1) to estimate the expected return (Ball & Brown, 1968; Mackinlay, 1997). That is, we regress the firm's daily stock returns on its local market indices returns according to the location of its listed exchange. The estimation window is the period [-270, -20] leading up to the event[17].

$$R_{it} = \alpha_i + \beta_i \cdot R_{mit} + \varepsilon_{it}, \quad (1)$$

Where R_{it} is the stock return of firm *i* on day *t*, R_{mt} is the local market return on day *t*. The α_i is estimated as the mean return not explained by the market. The β_i is estimated as the sensitivity of a firm's stock return to the market. The α_i and β_i are used to calculate the expected stock return over the event period. And the abnormal stock return, AR_{it}, is the expected stock return subtracted from the stock return of firm *i* on day *t* (equation 2).

$$AR_{it} = R_{it} - (\alpha_i + \beta_i \cdot R_{mit}), \quad (2)$$

The cumulative abnormal return, $CAR_{i(t1,\ t2)}$ is the aggregate of predicted AR_{it} in the event window (equation 3). To test the anticipation of a stock price depreciation from the overall observed data, we average the $CAR_{i(t1,t2)}$ and AR_{it} across observations (equations 4 and 5).

$$CAR_{i(t1,t2)} = \sum_{t=t1}^{t2} AR_{it}, \quad (3)$$

[17] "Day 0" identifies the announcement date and "day -N" refers to N trading days before the event.

$$CAAR = \frac{1}{N}\sum_{i=1}^{N} CAR_{i(t1,t2)}, \quad (4)$$

$$AAR = \frac{1}{N}\sum_{i=1}^{N} AR_{it}, \quad (5)$$

Where N is the number of events. We use two different test statistics to assess the statistical significance of CAAR and AAR. One approach is the standard cross-sectional t-test (equations 6 and 7), which assumes that the abnormal returns are not correlated across observations, they are normally distributed and have the same variance.

$$t_{AAR} = \frac{AAR}{S_{AAR}}, \quad (6)$$

$$t_{CAAR} = \frac{CAAR}{S_{CAAR}}, \quad (7)$$

Where S_{AAR} (S_{CAAR}) is the estimate of the standard deviation of AAR and $CAAR$ based on the estimated standard deviation of each firm's AR_i (CAR_i[18]) during estimation window, S_{AR_i} (S_{CAR_i}). The validity of the above test statistics is criticized due to its strict assumption of homoskedasticity. We address this concern with the standardized residual z-test to ensure that the abnormal returns have the same variance (Patell, 1976). This test first standardizes the abnormal return to have a variance of 1.[19] In the last step, we test whether the cumulative and daily abnormal returns around the events are significantly different from zero for the periods [-1, 1] and [-2, 2] respectively.

[18] $S_{CAR_i} = (t1 - t2)S_{AR_i}$

[19] We also use two other test statistics for robustness. Results are quantitatively and qualitatively similar. The first test statistics is the standardized cross-sectional test, which considers the variance induced by the event. The second statistic is the nonparametric Corrado and Zivney rank test (Corrado & Zivney, 1992), which corrects for the event induced variance and cross-sectional correlation of estimated abnormal returns.