The Impact of ESG Disasters on Green and Brown Firms*

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Abstract

I investigate the effect of a firm's prior ESG reputation on the market response to ESG incidents. I find that firms with a better ESG reputation, i.e., higher ESG ratings, experience less negative stock-market reactions and analysts' forecast revisions compared to firms with a poorer ESG reputation. Managers of green firms with strong ESG reputations, when producing earnings guidance, do not forecast a lower impact of these incidents on future earnings. Similarly, actual decreases in future earnings following these incidents are not significantly different between green and brown firms. Altogether, the evidence suggests that investors and analysts underreact to ESG incidents when the affected firms have a stronger prior ESG reputation.

1. Introduction

Companies typically build their reputation by demonstrating a strong commitment to product quality, customer orientation, and innovation. Stakeholders evaluate and place their trust in a company based upon these factors. In recent years, there has been an increased focus on companies communicating their reputation through environmental, social, and governance (ESG) practices to foster a positive corporate reputation. As stakeholders become more conscious of a company's broader societal impact, ESG practices are increasingly seen as critical indicators of a company's values and long-term sustainability. Indeed, ESG practices have become an important aspect of corporate strategy.[1] However, there is little evidence regarding the reputation effects of ESG, especially, how the corporate image or reputation of being socially responsible benefits companies. Along these lines, this study explores the association between ESG reputation and the financial markets' response to firm-specific ESG-related negative incidents.

To address this question, I analyze a comprehensive set of responses from both internal and external market participants, including stock returns, and earnings forecasts and price target forecasts by security analysts, as well as management's earnings forecasts. Specifically, I investigate whether and how negative ESG incidents influence companies differently based on their pre-existing ESG reputations. The literature has shown that ESG incidents affect firms in various ways across different market participants.[2] My fo-

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[1]ESG reporting is a key tool for effective brand management, and building a positive reputation. See "Building Brand Integrity Through ESG Reporting", Forbes, August 28, 2020, https://www.forbes.com /sites/forbesagencycouncil/2020/08/28/building-brand-integrity-through-esg-reporting/.

[2]The literature documents the effect of ESG-related shocks, news, or incidents. For example, Gantchev, Giannetti, and Li (2022) shows the effect on stock prices, Li, Watts, and Zhu (2023b) and Hartzmark and Sussman (2019) show the effect on retail and institutional investor trading, Derrien, Krueger, Landier, and Yao (2023) show that it affects analysts' forecast, Bisetti, She, and Žaldokas (2023) show the effect on supply chain relationship, and Duan, Li, and Michaely (2023) and Xiao, Zheng, and Zheng (2023) show that it affects consumer behavior, specifically, store visits. All these effects are aggregated in analysts' forecasts and stock returns. Some prior studies provide evidence of the association between analysts and firms' ESG practices or exposures. Luo, Wang, Raithel, and Zheng (2015) and Park, Yoon, and Zach (2022) show that analysts incorporate firms' ESG-related information into their research outputs. Sautner, Van Lent, Vilkov, and Zhang (2023) argue that information exchanges between managers and analysts in earnings calls capture the firms' climate change exposures. Li, Mai, Wong, Yang, and Zhang (2023a) provide evidence that the ES-conscious analyst coverage affects corporate ES performance.

cus in this paper is to show that negative ESG incidents can affect companies differently based on their pre-existing ESG reputation. A negative ESG incident is likely to provoke a negative reaction, regardless of the firm's pre-existing ESG reputation (Krüger, 2015; Serafeim and Yoon, 2023; Derrien, Krueger, Landier, and Yao, 2023). I suggest two competing hypotheses regarding how ESG reputation influences the responses of different market participants to negative ESG incidents. On the one hand, green firms with better ESG reputations might be expected to experience stronger reactions from market participants after negative ESG incidents. In the event of an unexpected negative ESG incident that increases the perceived risk for stakeholders to transact with, the value of the firm's reputational capital decreases (Karpoff, 2012). The stakeholders will learn from the incident that the firm's ESG reputation is worse than previously believed (see a parallel from Kamiya, Kang, Kim, Milidonis, and Stulz, 2021, who documents the impact of cyberattacks on a firm's reputation). As the discrepancy between stakeholders' previous beliefs and the new information they learn from incidents is larger for green firms, their value loss might be higher than for brown firms after ESG incidents. Green firms are expected to have a lower probability of negative ESG incidents than brown firms (Sun, Luo, Yiu, Yu, and Ding, 2022) and they are also likely to be owned more by socially responsible investors who will care more about ESG-related information. Therefore, when adverse ESG-related information is revealed by the incident, firms that are already perceived as better ESG firms might face more significant scrutiny.

On the other hand, green firms might experience less reaction from market participants following negative ESG incidents than brown firms. Following ESG incidents, the firm is expected to suffer reputational loss. Subsequently, the firm is likely to rebuild its reputation as the marginal benefit of investing in ESG reputation increases (Akey, Lewellen, Liskovich, and Schiller, 2021). However, the marginal costs of the investment in ESG reputation differ depending on the ESG reputation the firm has built before the incident. Green firms are capable of building up or managing their ESG reputation and, thus have lower marginal costs of ESG investment compared to brown firms. Therefore, they are expected to invest in ESG practices to rebuild their ESG reputation after

negative incidents. Prior studies also show that corporate social responsibility practices can serve as protection from a negative shock (e.g., Godfrey, Merrill, and Hansen, 2009; Koh, Qian, and Wang, 2014; Lins, Servaes, and Tamayo, 2017; Albuquerque, Koskinen, and Zhang, 2019).[3] In addition, ESG reputation can generate a cognitive bias where stakeholders may extrapolate future outcomes based on the perceived ESG reputation of a firm before the incident (Hong, Kubik, Liskovich, and Scheinkman, 2019). From this perspective, this alternative hypothesis predicts that green firms would be more resilient to negative ESG incidents and thus less impacted compared to brown firms.

To test the hypotheses, I combine a global sample of negative ESG news data, analyst forecasts, management forecasts, and stock market data. The incident news comes from RepRisk and it captures significant firm-specific shocks to beliefs about the ESG characteristics of firms. My sample includes more than 100,000 incident news on about 7,000 unique firms in 79 countries or regions between 2008 and 2022. Before addressing the main question of the paper, I first show that negative ESG incidents lead to adverse stock-price reactions. On average, firms experience a cumulative abnormal return (CAR) of -7.8 basis points within a [-1, +1] day window around the incident. I then replicate the main findings of Derrien, Krueger, Landier, and Yao (2023), which show that analysts significantly downgrade earnings forecasts following recent negative ESG incidents. The replication results are consistent with those of the original paper.[4]

There is no consistent way in the literature to delineate green firms from brown firms on their ESG performance, unlike bond ratings that have a clear threshold used in both industry and academia to categorize junk bonds and investment grade bonds. In this paper, I introduce a more systematic approach to classify firms into green and brown categories. By carefully reading the fund prospectus of socially responsible investment

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[3]Krüger (2015) also find less stock price decline after negative CSR events but only when firms have strong community relations and the event is community or product-related. For positive events, it leads to a weakly negative stock price response and more positive reactions occur if the positive news involves firms with a poor prior ESG reputation. For both positive and negative CSR events, stock prices move in the same direction as the news when the firms have a poor prior ESG reputation.

[4]RepRisk incident data add more incidents in the later version of data. Still, the replication results are very similar to those reported in Derrien et al. (2023). The results remain consistent using my sample, which only includes observations where the ESG rating data is available.

funds, I find that most of these investors typically employ third-party or proprietary ESG ratings, often setting thresholds to exclude brown firms. The thresholds, while diverse, are primarily set around the 25th to 30th percentile. Thus, I define green firms as those with ESG scores in the top two-thirds of all firms each month, and I regard all other firms as brown. For robustness, I also use ratings from multiple rating agencies in my tests.

Using the classification as a measure of firms' perceived ESG reputation, I show that analysts and investors react less to negative ESG incidents of green firms compared to brown firms. This result holds when considering analysts' forecast revisions for different forecast horizons and monthly stock returns. While ESG incidents negatively impact both stock prices and analysts' forecasts for green and brown firms, the negative effect is mitigated for green firms. For example, following a recent incident, the monthly earnings forecast revisions for the 1-quarter horizon are 0.324% less for green firms relative to brown firms.[5] This finding is further supported by the event-study results. Green firms experience significantly smaller losses in market valuation compared to brown firms, indicating that the market reacts differently based on prior ESG reputations. Overall, the stock market and analysts react less to negative ESG events for firms perceived as having better ESG reputations, in line with the protective effect of a strong ESG reputation against market penalties following negative shocks (e.g., Godfrey et al., 2009; Koh et al., 2014; Lins et al., 2017; Albuquerque et al., 2019).

The above results are consistent not only with the resilience of firms with more ESG practices to a negative shock but also can be consistent with underreaction to the negative incident of the firms with better ESG reputations (Hong et al., 2019). To further investigate which mechanism can explain the results, I implement the same tests for firm managers' earnings forecasts over 1-quarter and 1-year forecasting horizons. I show that, while managers also tend to lower their earnings forecasts following negative ESG incidents, there is no significant difference in the magnitude of these revisions between green and brown firms. The evidence suggests that management's perspective on the impact of

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[5]The results are robust to alternative proxies for ESG reputation, alternative thresholds for green firm classification, and across different analyses.

negative ESG incidents does not significantly vary with the firm's ESG reputation. Considering that firm managers likely have more information and understand the situation better, the results imply that the lesser reaction from analysts and investors to incidents involving green firms is attributed to underreaction rather than because of the greater resilience of green firms to ESG incidents.

I further examine the actual earnings and earnings surprises following negative ESG incidents. First, I show that negative ESG incidents are associated with a decrease in future annual earnings in the short term, with no significant effect observed in the long term. The decrease in actual earnings following these incidents is not significantly different between green and brown firms. Moreover, the analysis of earnings surprises suggests that analysts might underreact to the news of negative ESG incidents for green firms. Specifically, I show that there is a positive relationship between analyst forecast revisions following incidents and subsequent earnings surprises (i.e., the difference between actual earnings and the earnings forecasted at time t) for the green firm subsample. This indicates that when analysts revise their forecasts downward after an ESG incident, they do not revise downward enough, leading to a negative earnings surprise when actual earnings are announced. This underreaction is not observed in managers' forecasts. Altogether, the evidence is consistent with analysts and investors tending to underreact to the negative ESG incidents of green firms, aligning with the reputation effect of CSR engagement as described in Hong et al. (2019).

To examine the robustness of the findings, I conduct additional tests on specific types of ESG incidents and reputations. First, I analyze the effect of multi-firm and unsharp incidents, which are less likely to be endogenous to a single firm's characteristics. I find that green firms consistently experience less severe negative reactions from analysts and investors consistent with a protective reputation effect. Furthermore, I examine the alignment between incident types that are environmental, social, or governance, and corresponding E, S, or G reputations. I find that the observed reputation effect is strongest when a firm's reputation aligns with the nature of the incident. These results indicate that the protective effect of ESG reputation is not only general but also varying with

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both incident type and the relevant aspect of a firm's reputation.

This paper contributes to the literature along several dimensions. First, it is related to the literature on the effect of ESG-related shocks, news, or incidents. Krüger (2015) and Gantchev et al. (2022) show the effect on stock prices, finding that negative ESG news is associated with negative abnormal returns. Additionally, Krüger (2015) find that positive ESG events often result in muted or even negative stock price reactions. Li et al. (2023b) and Hartzmark and Sussman (2019) show that ESG news influences retail and institutional investor trading. Bisetti et al. (2023) show the effect on supply chain relationship, and Duan et al. (2023) and Xiao et al. (2023) show that it affects consumer behavior, specifically, store visits. Luo et al. (2015), Park et al. (2022), and Derrien et al. (2023) show that firms' ESG-related news affects analysts' research outputs. This paper examines how negative ESG incidents affect firms with different pre-existing ESG reputations, focusing on incidents that are more likely to be exogenous to perceived reputation. It provides new insights into how prior ESG standing shapes market reactions among various stakeholders, including analysts, investors, and firm managers.

Second, this paper is related to the debate in recent studies that emphasize that ESG practices strengthen trust between a firm, its stakeholders, and investors, thereby enhancing the firm's resilience to negative shocks. Theories suggest that firm performance is contingent on the strength of formal and informal contracts between shareholders and other stakeholders (Coase, 1937; Alchian and Demsetz, 1972; Jensen and Meckling, 1976). Therefore, ESG activities, which ensure stronger bonds between a firm and its workers, suppliers, customers, and local community can shape corporate resilience to negative shocks. The extant literature that investigates the impact of ESG activities on corporate immunity largely supports this view (Godfrey, Merrill, and Hansen, 2009; Koh, Qian, and Wang, 2014). For example, Albuquerque, Koskinen, and Zhang (2019) find that CSR activities enhance customer loyalty and, consequently, reduce a corporation's susceptibility during economic downturns. Additionally,Lins, Servaes, and Tamayo (2017) show that high-CSR firms enjoyed better stock returns during economic downturns. Ding, Levine, Lin, and Xie (2021) and Shan and Tang (2022) also provide evidence that the firms

that engaged in more or better CSR activities before the COVID-19 pandemic enjoyed superior stock price performance in response to the pandemic. Moreover, Hong et al. (2019) show that high-ESG firms receive lower sanctions from prosecutors for bribery of foreign officials.

Similarly, academic evidence shows that ESG performance affects firms' risks, including systematic and downside risks (Albuquerque et al., 2019; Hoepner et al., 2023). Cao, Goyal, Zhan, and Zhang (2022) investigate whether investors recognize the ESG-related uncertainty and pay a premium to hedge. They find a positive relation between ESG score and option returns (a negative relation between ESG-related risk and option returns).

Lastly, this paper is related to the literature on reactions to corporate misconduct (Karpoff, Lee, and Martin, 2008b,a). When corporate misconduct is revealed, it increases the perceived risk for stakeholders to transact with and the value of the firm's reputational capital will decrease (Karpoff, 2012). Consistent with these papers, Armour, Mayer, and Polo (2017), using U.K. regulatory enforcement, find that reputational losses are nearly nine times the size of fines and are associated with misconduct harming related parties, customers, or investors, but not third parties. Kamiya, Kang, Kim, Milidonis, and Stulz (2021) and Akey, Lewellen, Liskovich, and Schiller (2021) also find the negative stock price reaction to corporate data breaches. However, Karpoff, Lott, and Wehrly (2005) and Brady, Evans, and Wehrly (2019) find that the magnitude of value losses associated with environmental lawsuits is attributable to direct legal costs and reputational losses are insignificant. Liu, Cheong, and Zurbruegg (2020) show that firms with better environmental scores suffer worse market reactions in the event of environmental lawsuits. This paper adds to the literature by examining different market participants' reactions to negative ESG incidents that are likely to include different kinds of negative reputation shocks examined in the existing literature, such as financial fraud, data breaches, and negative ESG allegations.

The rest of the paper is organized as follows. Section 2 describes the data and sample, Section 3 presents the empirical results, Section 4 reports additional results and robustness tests, and Section 5 concludes.

2. Data and Sample

The data set used in this study is constructed from multiple sources. Analyst earnings forecasts, stock recommendations, and management forecasts are from Institutional Broker Estimate System (I/B/E/S). Firm characteristics and stock returns are obtained from Compustat and CRSP. The ESG incident data is from RepRisk and ESG scores are from Asset4 (now Refinitiv). I construct a panel of international firms from 2008 to 2022 based on I/B/E/S.

2.1. Forecast Revisions and Stock Returns

Monthly analyst consensus forecasts of earnings per share (EPS) over the 1-quarter, 1-year, 2-year, and 3-year horizons, price targets, and recommendations are taken from I/B/E/S. I first compute the analyst's EPS forecast revision, defined as $\frac{F_t EPS_{t+h} - F_{t-1} EPS_{t+h}}{abs(F_{t-1}EPS_{t+h})}$ $\times 100$, where h is the horizon of the forecast. To address negative forecasts, I scale the forecast change by the absolute value of the prior forecast. The price target is the projected price level by the analyst within a specific time horizon. Summary values of price targets from I/B/E/S are calculated based on a 12-month horizon. I compute price target revision similarly to the EPS forecast revision. Specifically, it is defined as $\frac{PriceTarget_t - PriceTarget_{t-1}}{PriceTarget_{t-1}} \times 100$. For recommendation change, I reverse the five-point recommendation scale. I define the change in recommendations as the current consensus rating minus the prior consensus rating, $Recommendation_t - Recommendation_{t-1}$.

I also compute the management's EPS forecast revision. I obtain EPS forecasts by firm managers over the 1-quarter and 1-year horizons from I/B/E/S Guidance. Management's EPS forecast revision is defined as the current forecast minus the prior forecast, scaled by the absolute value of the prior forecast. I populate the monthly data by entering zero for no revision months in order to maintain consistency in the dataset structure.

From the Center for Research in Security Prices (CRSP), I collect daily stock returns of US firms. From Compustat, I collect daily stock returns of international firms and firm characteristics. I match the data with I/B/E/S using CUSIP numbers for US firms and

SEDOLs for global firms. I compute the monthly stock return, defined as the cumulative return between the two I/B/E/S summary statistic dates in months $t - 1$ and t. For international firms, I convert all currencies to US dollars using a daily exchange rate to make the firms comparable. I winsorize all ratios at 2.5% and 97.5% to remove the impact of outliers. I use the two-digit Global Industry Classification Standard (GICS).

2.2. ESG Incidents

I obtain firm-level negative ESG-related incidents for the period 2008-2022 from RepRisk. RepRisk screens over 100,000 public sources and stakeholders in 23 languages on a daily basis for both public and private firms. These sources include print media, online media, social media, blogs, government bodies, regulators, and other online sources[6]. RepRisk classifies ESG incidents according to 28 distinct issues. Environmental incidents include news about climate change, pollution, waste issues, etc. Social incidents involve issues related to community and employee relations. Governance incidents include corruption, executive compensation issues, fraud, anti-competitive practices, etc. One incident can be linked to multiple ESG issues. RepRisk also measures the severity, reach, and novelty of each incident on a scale from one to three. I define high and medium severity, reach, and novelty incidents as the high-severity, reach, and novelty groups because only a few cases are actually measured as high-severity, reach, and novelty incidents in the RepRisk data. The RepRisk database has been used by recent studies that examine how market participants react to negative shocks to firms' ESG reputation, including shareholders, employees, and equity analysts (Gantchev, Giannetti, and Li, 2022; Derrien, Krueger, Landier, and Yao, 2023; Glossner, 2021; Duan, Li, and Michaely, 2023; Bisetti, She, and Žaldokas, 2023).

Table 1 shows the distribution of ESG incidents from 2008 to 2022. The data includes 118,234 ESG incidents of 13,799 firms from 102 countries or regions. Panel A reports the number of ESG incidents by year. The number of ESG incidents recorded by RepRisk has increased over time. The number of incidents is larger than the sum of the number of

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[6]https://www.reprisk.com/news-research/resources/methodology

incidents of each category because one incident can belong to two or more ESG categories. Incidents associated with social issues are the most frequent in the RepRisk data. At the beginning of the sample period, there are more environmental than governance incidents, while there are more governance incidents in the later period. In Panel B, I report the number of firms with any ESG incidents each year and the average number of ESG incidents per firm that has at least one incident each year. There's a clear upward trend in the number of firms experiencing ESG incidents. The fraction of firms with ESG incidents has also increased with time. Environmental incidents have a lower average per affected firm, suggesting they are less frequent, and social and governance incidents occur more frequently. Figure 2 also plots the numbers in Table 1. The overall increase in incidents across all categories suggests the growing importance of ESG considerations in corporate management.

I aggregate the ESG incidents that occur between two consecutive I/B/E/S summary statistic dates to match the RepRisk data with the monthly analyst forecast revisions. Specifically, the number of ESG incidents in month t is measured as the number of incidents that occur from the summary statistic date in month $t-1$ to the day before the summary statistic date in month t. Then, I create the key variable, $\mathbb{1}(\text{Incident})_{[t-6,t]}$, which is set to one if at least one incident occurs in the months $[t-6,t]$, and is zero otherwise. Figure 1 illustrates the timeline of the variables used in this paper. In this example, a negative ESG incident happened between the summary statistic dates in months $t-3$ and $t-2$ and no incidents elsewhere. Thus the number of incidents in month $t-2$ is 1, while it is 0 in other months from $t-6$ to $t+1$. The indicator variable, $\mathbb{1}(\text{Incident})_{[t-6,t]}$, takes the value of one one as there is more than one incident that occurred in the months $[t-6,t]$.

2.3. ESG Reputation and Threshold

To explore the relation between the impact of negative ESG incidents and firms' ESG reputation, I use ESG scores from Asset4 (Refinitiv now) as measures of ESG practices. Asset4 ESG ratings measure a company's relative ESG performance, commitment, and

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effectiveness on 10 main themes. These are calculated based on more than 400 company-level ESG metrics, which incorporate information from various sources such as annual reports, company websites, non-profit organization websites, stock exchanges, corporate social responsibility reports, and news media. The ratings are percentile scores ranging from 0 to 100 and Asset4 updates it every year. To ensure consistency, I fill in the Asset4 ESG scores at the monthly level using forward filling. Then, I consider the ESG scores at the end of the last quarter as a measure of firms' ESG reputation. I complement the Asset4 data with data from Sustainalytics in robustness tests. Sustainalytics provides monthly ESG scores. As an alternative proxy for firms' ESG reputation, I also compute the socially responsible institutional ownership of US firms following Hwang, Titman, and Wang (2022) and Cao, Titman, Zhan, and Zhang (2023) in robustness tests. Socially responsible institutions tend to focus more on ESG practices, and as a result, firms owned by these investors are expected to be more engaged in ESG activities.

To capture the relative ESG reputation of a specific firm, I identify the threshold investors may use to discern high ESG reputation firms (green) from low ESG reputation firms (brown). Specifically, I read the fund prospectus of socially responsible investment funds to find if there are any specific criteria they use to screen companies to invest. Figure B.1 presents several examples of the prospectus. I summarize detailed information from the prospectus.

Many funds use or refer to the MSCI letter ratings, which rank companies on a scale of 7 rankings from AAA to CCC. Based on these rankings, companies are categorized as ESG leaders(AAA and AA), average(A, BBB, and BB), and laggards (B and CCC)[7]. Some funds screen firms directly using it, while some use other ESG scores from other third-party data providers or make their own similar scoring and categorization by combining information from different sources. Moreover, some ESG index funds, such as the funds I list below, track the MSCI ESG leader indexes which include companies that have an MSCI ESG Rating of 'BB' or above, i.e., excluding ESG laggards[8]. Berg, Heeb, and

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[7]https://www.msci.com/our-solutions/esg-investing/esg-ratings
[8]https://www.msci.com/constituents

Kölbel (2022) report the distribution of MSCI ESG score. ESG score is 2.858 at the 25th percentile and that is the value at the boundary between average and laggards. This tells us that about 25% of firms are rated as laggards (B or below).

- CSIF (Lux) Equity Emerging Markets ESG Blue

- CSIF (Lux) Equity Emerging Markets Minimum Volatility ESG Blue

- CSIF (Lux) Equity Europe ESG Blue

- CSIF (Lux) Equity Pacific ex Japan ESG Blue

Other funds are using the 25th percentile as the exclusion threshold. These funds gather ratings from different third-party ratings providers including MSCI, ISS, and Sustainalytics, and other related information. They then assign their own propriety rating to each company. Based on the rating, they exclude the bottom 25% firms from the investment universe.

- ABN AMRO Funds Impax US ESG Equities

    - "ESG laggards (score of <2.5) are excluded from the universe."

- ABN AMRO Funds Parnassus US ESG Equities

    - "Companies rated in the bottom quartile of the investment universe, as assessed by the ESG process, will not be considered for investment."

Some funds have a higher threshold than the 25th percentile. Among the funds listed below, only one of them writes the percentile threshold explicitly which is the 40th percentile. The others use MSCI letter ratings for the threshold or the fund's proprietary rankings in case the MSCI rating is unavailable. In this case, I can infer the approximate percentile using the distribution of the MSCI ESG score reported in Berg et al. (2022). The companies with a MSCI ESG rating below BBB are roughly in the bottom 50%. The first two funds in the list below also use their own rankings as they use this as a

complement to the MSCI rating, therefore I expect the threshold for excluding poor ESG companies will be similar to the threshold using the MSCI rating.

- Quaero Capital Funds (Lux) – Infrastructure Securities

    - "The Sub-Fund generally excludes companies from its investment universe that fall into the lowest three rankings (below BBB). From the ESG perspective, the Sub-Fund relies on MSCI's proprietary ESG ranking system (or other equivalent ranking system) which ranks companies on a scale of 7 rankings."

    - "In the absence of a ESG rating from MSCI, the Investment Manager will rate the investment according to a proprietary methodology that ranks companies on a scale of 5 rankings (from very poor to excellent). The Sub-Fund generally excludes companies from its investment universe than fall into the bottom two rankings (very poor and poor, i.e. CCC or B)."

- Quaero Capital Funds (Lux) – Cullen ESG US Value

    - "From the ESG perspective, the Sub-Fund relies on MSCI's proprietary ESG ranking system (or other equivalent ranking system) which ranks companies on a scale of 7 rankings. The Sub-Fund generally excludes companies from its investment universe that fall into the lowest three rankings (below BBB)."

    - "However for the avoidance of doubt, companies that have not been evaluated or ranked by MSCI but which the Sub-Investment Manager believes demonstrate appropriate ESG characteristics may still be included in the portfolio according to a proprietary methodology that ranks companies on a scale of 5 rankings (from very poor to excellent). The Sub-Fund generally excludes companies from its investment universe that fall into the bottom two rankings (very poor and poor)."

- ABN AMRO Funds Insight Euro ESG Corporate Bonds

    - "Issuers with an ESG rating of 3.6 or worse fall within the 40th percentile threshold (ratings are from 1 to 5, 1 being the best and 5 being the worst

score). Any issuers with ratings worse than 3.6 (means: over 3.6) will need to have a positive ESG momentum score (explained below), indicating that the company is on an improving ESG trajectory, to be considered for investment."

- BlackRock Global ESG Multi-Asset Fund

  - "The Investment Adviser will exclude any issuer with a MSCI ESG rating below BBB."

There are also funds that have a lower threshold than the 25th percentile. The funds listed below exclude companies with an MSCI letter rating CCC or equivalent rating from other third-party ESG data providers. This is approximately the 5th percentile threshold.

- BlackRock Global Funds - Emerging Markets Sustainable Equity Fund; Developed Markets Sustainable Equity Fund; US Sustainable Equity Fund; Asian Sustainable Equity Fund; European Sustainable Equity Fund;

  - "The ESG criteria also consists of a rating of B or higher as defined by MSCI's ESG Intangible Value Assessment Ratings or another equivalent third party ESG data provider."

Many of these sustainable investment funds have some other baseline criteria screens. For example, most of them exclude firms in certain sectors such as nuclear, alcohol, tobacco, weapons, and fossil fuels. In addition, some of them have the following criteria that enforce conditions on the average ESG rating of the fund. This is similar to excluding companies whose ESG reputation is below the 20th percentile.

- BlackRock Global Funds - Emerging Markets Sustainable Equity Fund; Developed Markets Sustainable Equity Fund; US Sustainable Equity Fund; Asian Sustainable Equity Fund; European Sustainable Equity Fund;

  - "The weighted average ESG rating of the Fund will be higher than the ESG rating of the Index after eliminating at least 20% of the lowest rated securities

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from the Index."

Overall, the threshold investors use for firms' relative ESG reputation ranges from the lowest 5th to the highest 50th percentile, mostly around the 25-30th percentile. I take a conservative approach. I create a dummy variable green, which equals 1 if a firm's ESG score falls within the top two-thirds of all firms in that month, and 0 otherwise. The examples I document above justify the use of the 33rd percentile to define green firms.

2.4. Summary Statistics

Table 2 reports summary statistics for the final sample of about 637,000 firm-month observations from January 2008 to December 2022. Panel A presents the summary statistics of the main variables used in the analysis. There are 264,666 firm-month level 1-quarter ahead, 594,828 firm-month level 1-year ahead, 593,001 firm-month level 2-year ahead, and 557,009 firm-month level 3-year ahead EPS forecasts, and 637,792 firm-month level price target forecasts by analysts. For EPS forecasts by firm managers, there are 54,358 firm-month level 1-quarter ahead and 128,781 firm-month level 1-year ahead forecasts. The median Asset4 ESG score is 46.05 and 66% of observations are classified as green by construction. In the full sample, 16% of firm-month observations have at least one negative ESG incident. The key variable is the measure that captures the relative ESG reputation of a firm. Panel B reports a comparison of firm and ESG incident characteristics between firms with high and low ESG reputations. Green firms are larger and have a higher book-to-market ratio. Green firms are also more exposed to negative ESG incidents, which tend to be more severe, but their incidents have a lower reach compared to the incidents of brown firms.

3. Empirical Results

3.1. Market Reaction to Negative ESG Incidents

In this section, I explore the market reaction to negative ESG incidents' announcements. In Table 3, I perform an event study. I compute firms' daily abnormal returns based on the market model. I use the cumulative abnormal return (CAR) from one (three or five) day(s) before to one (three or five) day(s) after the news coverage, that is, over the [-1,+1], [-3,+3], and [-5,+5] event windows. Day 0 is defined as the next trading day if the news is on a nontrading day. Standard errors are clustered by calendar day. Panel A of Table 3 presents the results. The average CAR around negative ESG incidents is -7.9 basis points and statistically significant at the 1% confidence level. The average CARs over the [-3,+3] and [-5,+5] windows are larger and similarly significant. The results show that the negative ESG incidents trigger negative short-term abnormal returns around the realization of ESG shock.

To examine the effect of ESG reputation on stock price reactions to negative ESG incidents, in Panel B of Table 3, I estimate the regressions of the CAR on the dummy variable, Green. Because stock price reaction to negative ESG incidents can also be affected by characteristics other than ESG reputation, I include firm characteristics, industry × country fixed effects, and year fixed effects. For firm characteristics, I control for Size, market cap in the prior June, BM, book-to-market ratio, Momentum, buy-and-hold return from month t–12 to t–2, Stock Volatility, volatility of daily stock returns in month t-1, Long-Term Debt, long-term debt divided by assets, Short-Term Debt, debt in current liabilities divided by assets, Cash Holdings, cash and marketable securities divided by assets, and Profitability, operating income divided by assets. Columns (1), (3), and (5) show that green firms experience significantly smaller losses of market valuation during the event windows. The coefficients on the green firm indicator are positive and significant, with a larger magnitude for a longer event window.

In columns (2), (4), and (6), I also include incident fixed effects. This allows us to deal with the potential concern that better ESG reputation firms, green firms, are likely

to have less severe ESG incidents. A single incident can expose one or multiple firms. Of the 118,234 ESG incidents, about 50% expose more than one firm. I estimate the same regressions for the subsample of these incidents adding incident fixed effects so that it exploits variation within the same incident. The results show that green firms have less negative stock price reactions after ESG incidents than brown firms when incident fixed effects are added. The estimated coefficients are all positive and statistically significant, similar to the full sample results without incident fixed effects. Overall, the results show that firms with better prior ESG reputations suffer significantly less market reactions upon ESG scandals.

3.2. Reaction of Analysts and Investors to Negative ESG Incidents

In this paper, I investigate the difference in reactions to negative ESG incidents between firms with good ESG reputations and firms with poor ESG reputations. I begin by providing baseline evidence that analysts and investors respond to ESG incidents. I conduct panel regression analysis of analysts' forecasts and stock returns following Derrien et al. (2023). Specifically, I estimate the following regression:

$$Y_{i,t} = \alpha + \beta \mathbb{1}(Incident)_{i,[t-6,t]} + \gamma_{Country \times Industry \times t} + \sigma_i + \varepsilon_{i,t} \tag{1}$$

The dependent variable, $Y_{i,t}$, is the monthly analysts' consensus earnings forecast revision for different forecast horizons and price target revision between two consecutive months t-1 and t, scaled by the absolute value of the forecast in month t-1. I also consider monthly stock returns between the two consecutive consensus earnings forecast dates. I include analysts' EPS forecasts over both the short horizon, one-quarter, and longer horizon, up to the three-year ahead. The independent variable is $\mathbb{1}(Incident)_{i,[t-6,t]}$, which is an indicator that equals one if firm i has any ESG incident reported in RepRisk in months t-6 to t. $\gamma_{Country \times Industry \times t}$ are country × industry × month fixed effects that control for industry effect in ESG events that is time-varying and location-varying. I also add

firm fixed effects to control time-invariant firm characteristics that might be correlated with analyst forecast revisions, stock returns, and ESG incidents. The standard errors are double-clustered at the firm and month level.

Table 4 shows that analysts revise earnings forecasts and price targets downwards after incidents over all different forecast horizons and the effect is statistically significant. The monthly revisions of the analysts' earnings forecasts after incidents happen are similar over forecast horizons. In column (2), the decrease in one-year ahead earnings forecasts is -0.164 % and it is statistically significant. The price target revision is -0.177%, similar to earnings forecast revisions. Column (6) shows that stock returns also significantly decrease following negative ESG incidents and the magnitude is similar to analysts' downward revision on price targets. The results are consistent with Derrien et al. (2023)'s finding that analysts significantly downgrade their forecasts at short and longer horizons after learning about negative ESG news.

3.3. Differential Reactions of Analysts and Investors to Negative ESG Incidents for Green and Brown Firms

I next investigate whether and how analysts and investors react differently to ESG incidents of green firms and brown firms. To test this, I repeat the baseline analysis in Equation (1) adding the interactions between the incident dummy and an indicator variable measuring high ESG reputation. Specifically, I estimate the following regression model:

$$
\begin{aligned}
Y_{i,t} = \alpha &+ \beta_1 \mathbb{1}(Incident)_{i,[t-6,t]} \times Green_{i,t} \\
&+ \beta_2 \mathbb{1}(Incident)_{i,[t-6,t]} + \beta_3 Green_{i,t} + \gamma_{Country \times Industry \times t} + \sigma_i + \varepsilon_{i,t}
\end{aligned} \tag{2}
$$

The dependent variable is the monthly analysts' consensus earnings forecast and price target revisions, and stock returns between two consecutive months t-1 and t. The key independent variable is the interaction terms between the ESG incident dummy and

Green. I control for firm and country $\times$ industry $\times$ month fixed effects, and adjust standard errors for clustering at the firm and month level like in equation (1). I define *Green* as an indicator that equals one if firm i's ESG score is in the upper or middle terciles in the given month.[9]

Table 5 presents the results. The effect of ESG incidents on analysts' earnings forecast revisions and stock returns is less negative for green firms. The coefficients on the interactions between the incident dummy and green firm indicator are statistically significant for all different forecast horizons and stock returns. The magnitude of the difference is particularly larger for earnings forecasts over the one-quarter horizon. The decrease in analysts' one-quarter ahead earnings forecasts is 0.324 percentage points less for green firms' incidents compared to brown firms. The magnitude of the coefficients on the interactions is similar for the earnings forecast revisions over longer horizons, the price target forecast revisions, and stock returns. For example, stock price reactions and analysts' target price revision following ESG incidents are also 0.122 percentage points and 0.111 percentage points less negative for green firms. The results, overall, indicate that analysts and investors react less to green firms when there's an ESG incident.

One possible explanation for the previous results is that green firms' incidents can be less severe than those of brown firms, leading analysts and investors to adjust their expectations more for the more severe incidents of brown firms. However, the results are still consistent when I examine the same analysis only including severe incidents using the severity measure in RepRisk data. This suggests that the results are less likely due to differences in the severity of incidents between green and brown firms.

3.4.   Reaction of Management to Negative ESG Incidents

To better understand the response of analysts and investors who observe the incidents from outside of the firm, I now examine the internal view of the firm managers. Company managers update and release earnings forecasts to guide investors and the stock market. In this section, I investigate whether managers also revise their earnings fore-

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[9]The results are robust if I use different thresholds.

casts downwards following ESG incidents and if their reactions differ depending on the firms' reputation capital. I compute the EPS forecast revisions for the one-quarter and the one-year forecast horizons. Management's EPS forecast revision is defined as the current forecast minus the prior forecast, scaled by the absolute value of the prior forecast. Since management forecasts are not regularly reported as the analysts' consensus forecasts, I populate the monthly data by entering zero for no revision months to maintain consistency. I then repeat the analysis of Table 4 and Table 5, using the managers' EPS forecast revisions as dependent variables.

I report the results in Table 6. Firm managers decrease their forecasts on earnings for both one-quarter and one-year horizons in response to negative ESG incidents. In columns (1) and (3), I regress management forecast revisions on incident dummy variables. The estimated coefficients are negative but only significant for the one-year horizon. Managers revise the one-year ahead earnings forecasts downwards by 0.194% following ESG incidents. However, Table 6 reports the results using a smaller sample of observations with ESG scores available. I also run the same regressions with a larger sample before requiring ESG scores and the estimated coefficients on the incident dummy are negative and statistically significant for both one-quarter and one-year horizons. Next, in columns (2) and (4), I include the interaction between the incident dummy and green firm indicator variable as in equation (2). The estimated coefficients on the interaction term are statistically insignificant. The evidence suggests that management also revises their forecasts downwards after negative ESG incidents but the difference in response to ESG incidents across firms' ESG reputations, i.e., perceived as green or brown, is likely small.

3.5. Impact of Negative ESG Incidents on Realized Earnings

In this section, I evaluate whether the different responses to green and brown firms have implications for investors. I begin by examining how incidents affect actual earnings. For the analysis, I use the annual earnings per share (EPS) from Compustat. I compute the changes in annual realized EPS from the end of year $y - 1$ to the end of year y, to

the end of year $y + 1$, and to the end of year $y + 2$, scaled by the absolute value of the prior EPS. To match this, I compute an incident dummy variable at the yearly level, denoted as $\mathbb{1}(\text{Incident})_y$, which is set to one if at least one incident occurs in the year y, and zero otherwise. I run regressions of the changes in actual earnings on the incident dummy variable and the interaction terms between the incident dummy and the green firm indicator.

Columns (1), (3), and (5) in Table 7 report the regression estimates of the impact of negative ESG incidents on the changes in realized earnings. Earnings decrease significantly in the year when an ESG incident happens to the firm. The estimated coefficient on $\mathbb{1}(\text{Incident})_y$ in column (1) is -0.115 and statistically significant, indicating around an 11.5% decrease in annual earnings in the year of the incident. For the two- and three-year changes in earnings, the results are statistically insignificant, and the coefficient turns positive for the three-year changes.[10]

Next, I examine the differential effects of incidents on the earnings of green and brown firms. The results are reported in columns (2), (4), and (6) in Table 7. The coefficients on the interactions between the incident dummies and the green firm indicators are statistically insignificant, suggesting that the effect of negative incidents on actual earnings is likely similar for both green and brown firms. Overall, the negative ESG incidents are associated with lower future annual earnings but this effect is only significant in the short term and is consistent across green and brown firms.

3.6. Impact of Negative ESG Incidents on Earnings Surprise

Next, I investigate whether analysts' and managers' earnings forecasts after negative ESG incidents are correctly incorporating the information available. I run the regressions of the earnings surprise of analysts' and managers' forecasts on the incident dummy

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[10]This result may be due to the small sample size. I implement the same test using a larger sample before requiring ESG rating data. The results show negative and significant coefficients for the current year and two-year changes, while the coefficient for the three-year changes is smaller in magnitude and statistically insignificant. This suggests that ESG incidents decrease firms' earnings but have less long-term impact.

and the interaction terms between the incident dummy and the forecast revision for the whole sample, and green and brown subsample firms. Earnings surprise is defined as the difference between actual earnings and the earnings forecasted at month t.

If analysts' and managers' forecasts incorporate all information available at month t, their forecast revisions between months $t - 1$ and t will not be correlated with their subsequent earnings surprises. On the other hand, if analysts' and managers' forecast revisions reflect an underreaction (overreaction) to information, we expect a positive (negative) relationship between the analyst forecast revision from month $t - 1$ to t and the subsequent earnings surprise.

In Panels A and B of Table 8, I report the results for analysts' one-quarter, one-, two-, and three-year ahead earnings forecasts. A downward earnings forecast revision after the ESG incident is associated with a negative earnings surprise. This indicates that analysts' forecast revisions reflect an underreaction to the news. For analysts' one-quarter, one-, and two-year earnings forecasts, the estimated coefficients on the interaction terms for the subsample of green firms are positive and statistically significant. The magnitude of coefficients is larger for the results using two-year ahead forecasts compared to one-quarter and one-year ahead forecasts.

In Panel C of Table 8, I estimate the results using management earnings forecast for one-quarter and one-year forecast horizons. There is no significant evidence of under-reaction in managers' earnings forecasts for green firms after negative ESG incidents. The estimated coefficients on the interaction terms for the subsample of brown firms are significantly positive only for the one-quarter ahead forecast. The results indicate that firm managers underreact to the ESG incidents of brown firms in revisions of one-quarter ahead forecasts. As I report in Table 6, management revises their forecasts downwards after negative ESG incidents but with no significant difference between green and brown firms. Thus this result is likely to be evidence of a larger decrease in actual earnings in one-quarter for the brown firms. Overall, the results suggest that analysts revise downward less than enough as the decrease in subsequent realized earnings after the negative ESG incidents of green firms. There is no such evidence on managers' earnings forecasts.

4.   Additional Results and Robustness Tests

4.1.   Negative ESG Incidents Affecting Multiple Firms

In this section, I investigate investors' and analysts' responses to negative ESG incidents that influence multiple firms. A single incident may expose more than one company. I can identify how many companies are affected by each incident from the RepRisk data. In the data of 118,234 ESG incidents, about 50% of incidents expose only one firm. For the incidents that have more than 2 firms exposed, the average number of firms exposed is 4.6 and the median is 3. I define incidents that affect more than three firms as multi-firm incidents, which account for roughly 25% of all incidents. The multi-firm incidents are likely to be less endogenous to a specific firm's greenness, thus helping to alleviate the concerns that analysts and investors react differently to incidents as incidents involving green firms are more or less severe than brown firms' incidents, not because the firms are perceived as green or brown.

Panel A of Table 9 reports the panel regression estimates examining the effect of incidents that affect multiple firms on analysts' earnings forecast revisions and stock returns conditional on the firms' ESG reputation. To ensure the control group is not influenced by single-firm incidents or those affecting fewer firms, I exclude from the control group all firms that have been exposed to any single-firm or smaller-scale incidents during the sample period. The results are consistent with the results in Table 5. The impact of ESG incidents on analysts' earnings forecast revisions and stock returns is less negative for green firms. In Panel A of Table 9, the coefficients on the interactions between the incident dummy and the green firm indicator are all positive and statistically significant for one-quarter, two-year, and three-year ahead earnings forecast revisions and price target revisions. The magnitude of these coefficients is much larger than those in Table 5, suggesting that the reputation effect of green firms is more pronounced in the sample of multi-firm incidents.

In Panel B of Table 9, I further examine the effect of affecting multiple firms across different industries. Such cross-industry incidents are more likely to be exogenous to

firm characteristics related to ESG reputation. Consistent with Panel A, I exclude from the control group all firms that have been exposed to single-firm, smaller-scale incidents, or single-industry incidents during the sample period. The results are consistent. The coefficients on the interactions between the incident dummy and green firm indicator are positive and statistically significant for one-quarter, one-year, and three-year ahead earnings forecast revisions. Overall, after addressing concerns regarding the potential relevance of incident severity to firm greenness, the results still show that analysts and investors react less negatively to ESG incidents involving green firms, suggesting a more favorable perception of firms with stronger ESG reputations.

4.2. Sharp and Unsharp Negative ESG Incidents

To further address the concern that incidents are not random, I focus on industry-wide shocks that are less likely to reflect issues specific to a single firm and more likely related to broader reputation concerns. I use the unsharp incident indicator from Reprisk, which equals one when a firm is mentioned but the exact nature of the criticism is not precisely defined in the information source. In my sample, 3,770 incidents involve firms that are classified as unsharp (about 3% of the total 118,234 incidents), and 37,996 firm-incident occurrences are identified as unsharp. Note that an incident can involve multiple firms, with each firm-incident classified as either sharp or unsharp.

Table 10 reports the panel regression estimates examining the effect of unsharp incidents on analysts' earnings forecast revisions and stock returns conditional on the firms' ESG reputation. To ensure the control group is not influenced by firms that are directly criticized for the occurrence of the incident, I exclude from the control group all firms that have been exposed to any sharp incident during the sample period. The variable $\mathbb{1}(Unsharp\ Incident)_{i,[t-6,t]}$ equals one if at least one unsharp incident involving the firm occurs in months $t-6$ to t, and zero otherwise.

The results are consistent with the previous results. The interaction term between the incident dummy and green firm indicator shows positive coefficients across all analysts' forecast revision horizons, price target revisions, and stock returns. This suggests that

analysts and investors respond less negatively to unsharp ESG incidents involving green firms, indicating a favorable perception of firms with higher ESG reputations. This reaction is statistically significant for earnings forecast revisions at the one-quarter and three-year horizons, as well as for price target revisions. Overall, the results suggest that a strong ESG reputation provides a reputation buffer, even for unsharp incidents.

4.3. ES & G Reputation and ES & G Incidents

The main results include all ESG incidents and use overall ESG reputation. The results suggest that green firms tend to experience less severe negative reactions from analysts and investors following negative ESG incidents. If this is indeed a reputation effect, then the less negative reaction to incidents should only occur when the relevant reputation matches the nature of the incident, and no such relationship would be expected if the incident is matched with a reputation in a different aspect. In this section, I focus specifically on ES and G incidents and the corresponding ES or G reputation of firms, testing the hypothesis that the less negative reactions for high-reputation firms are attributable to their relevant pre-existing reputation. Table 11 reports the results.

Panel A examines the analysts' and investors' responses to ES incidents for firms with better ES reputations. The results indicate that green firms experience significantly less negative revisions in analysts' earnings forecasts, as well as in price targets, and less negative stock price reactions. This supports the idea that the reduced negative reactions for green firms are related to their ES reputation. Panel B examines the response to G incidents for firms with high ES reputations. The coefficients on the interaction terms between G incidents and the green firm indicator, defined using ES reputation, are smaller or negative and mostly insignificant compared to those in Panel A. This suggests that the reputation effect is specific to the relevant aspect of ESG. Panel C examines the response to ES incidents for firms with high G reputations. The interaction terms between the ES incident dummy and the green firm indicator based on G reputation are smaller and not statistically significant. This further suggests that the reputation effect is specific to the relevance of the firm's reputation to the type of incident. Overall, the results suggest

that the market and analysts differentiate their responses based on the specific type of a firm's reputation, underscoring that reputation plays a critical role in shaping reactions to ESG incidents.

4.4. Alternative Measure of ESG Reputation

The main results use Asset4 ESG scores as a proxy for the ESG reputation that firms have built. I now use alternative proxies for ESG reputation and examine the robustness of the results in Table 5, which suggests that the effect of ESG incidents on analysts' earnings forecast revisions and stock returns is less negative for green firms. First, I use ESG scores from another data provider, Sustainalytics. Sustainalytics provides monthly ESG scores as percentile scores ranging from 0 to 100. However, Sustainalytics launched a new ESG rating in September 2018 and reformed the rating methodology. There is no direct mapping from the old ratings to the new as the change may be due to assessment or inversion of the scale (Rzeźnik, Hanley, and Pelizzon, 2022). Thus, I only use the ESG scores under the old methodology which is available for the period from August 2009 to December 2019. I run the panel regressions of monthly analysts' earnings forecast revisions, price target revisions, and stock returns on the interaction between an incident dummy and an indicator variable measuring high ESG reputation. I report the results in Panel A of Table A.1. The evidence suggests that the main results are robust to using this alternative ESG score to measure the greenness of a firm. The coefficients on the interactions are all positive like the main results, and statistically significant for the 3-year ahead earnings forecast and price target revisions by analysts. This may be due to a lack of statistical power. The number of observations is almost half of that in the main analysis as Sustainalytics covers fewer firms.

I also compute socially responsible institutional ownership as an alternative measure of firms' ESG reputation. ESG-related information matters more for socially responsible investors (SRI) and they are likely to tilt their portfolio holdings towards green firms. Therefore, those firms owned more by SRIs will be perceived to have a good ESG reputation. Following Hwang et al. (2022) and Cao et al. (2023), I define SRI ownership of

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US firms as the number of shares held by SRIs divided by the total number of shares held by all institutions. Specifically, I first measure an institution's ESG preference using institutional holdings data (13F) from Thomson Reuters and ESG scores from Asset4. It is defined as a value-weighted average of size-adjusted ESG scores of all stocks in the institution's portfolio at the end of each quarter, where the ESG score is that in the previous year. Then, I sort all the institutional investors each quarter and the top tercile group of institutions is defined as SRIs. Lastly, I compute SRI ownership which is the percentage of shares held by SRIs divided by shares held by all institutional investors. Using SRI ownership as an alternative proxy for ESG reputation, I create a green firm dummy which equals 1 if a firm's SRI ownership falls within the top two-thirds of all firms in that month, and 0 otherwise. I then re-run the regressions.

I report the regression estimates in Panel B of Table A.1. The result shows that the main results are also robust to using this alternative measure. The estimated coefficients on the interaction term are all positive and statistically significant for the 1-year ahead earnings forecast and price target revisions by analysts and stock returns. Additionally, the magnitudes of the coefficients for these are larger compared to the magnitude of the coefficients in Table 5. Overall, the results remain robust and consistent across different measures used to identify green firms. Whether assessed through various ESG rating thresholds or by examining specific criteria outlined in socially responsible investment institutions, the overall trends persist, that is the significance of a firm's ESG reputation in shaping market participants' reactions to negative ESG events. In addition, the results partly address the potential concern for the endogenous relationship between ESG reputation and negative ESG incidents.

4.5. Stacked Difference-In-Difference Approach

As an alternative to the panel regression approach, I construct an event-based sample at the incident-by-firm-by-month level. For each incident, I construct a cohort of affected firms and control group firms using firm-month observations for the incident month, the three months before, and the three months after the incident month. Treated firms are

those who have experienced a negative ESG incident. Untreated firms for each event are those who did not experience any incident in the sample. Post is an indicator variable equal to one for the post-incident period from event month t to t+2, and zero otherwise. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. I then estimate the effect of firms' ESG reputation on analysts' and investors' responses to negative ESG incidents using the sample.

The results reported in Table A.2 show that the main results are robust to the alternative specification. The coefficients on the interaction terms continue to be positive and statistically significant mostly, suggesting that analysts and investors react less to ESG incidents involving green firms. Panel A of Table A.2 presents estimation results when including firm-by-incident fixed effects and month-by-incident fixed effects. In Panel B, I further include industry-by-incident fixed effects and country-by-incident fixed effects. The results remain consistent across these specifications.

4.6. Firm-Level Time-Varying Controls

For the primary analysis, I use the full panel of firms and add firm fixed effects to control for any heterogeneity in observable and unobservable firm characteristics that may correlate with analyst forecast revisions and stock returns. As reported in Table 3, green firms tend to be larger and have a larger book-to-market ratio. I explore alternative specifications, controlling for firm characteristics, with or without firm fixed effects. Specifically, I control for Size (market cap in the prior June), BM (book-to-market ratio), Momentum (buy-and-hold return from month t–12 to t–2), Stock Volatility (volatility of daily stock returns in month t-1), Long-Term Debt (long-term debt divided by assets), Short-Term Debt (debt in current liabilities divided by assets), Cash Holdings (cash and marketable securities divided by assets), and Profitability (operating income divided by assets).

I present the regression estimates in Table A.3. In Panel A, I report results similar to the main analysis when the regressions are estimated adding firm-level characteristics as control variables and excluding firm fixed effects. The coefficients on the interaction

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terms between the incident dummy and green firm indicator are positive, with similar magnitude, and mostly statistically significant, except for the coefficients on analysts' 1-quarter ahead earnings forecast revisions and price target revisions, which become insignificant. In Panel B, I include both firm-level controls and firm fixed effects. The main results remain consistent, with the coefficients on the interaction terms between the incident dummy and the green firm indicator being positive and statistically significant. These findings suggest that the results are unlikely to be driven by unobservable time-varying firm characteristics.

To further address the potential concern that firm characteristics other than ESG reputation might be correlated with the differential impact of incidents on analysts' forecast revisions and stock returns, I control for the varying effects of incidents on firms with different characteristics, as shown in Table A.4. Specifically, I interact firm characteristics with the incident dummy variable. This approach accounts for the differential effects based on firm size, book-to-market ratio, and other characteristics. The results indicate that green firms continue to be less affected by negative ESG incidents, suggesting that the findings are robust to these additional controls.

4.7. Impact of Negative ESG Incidents on Social Media Attention and Sentiment

In this section, I explore the effects of negative ESG incidents on social media sentiment and attention to better understand the broader implications of such incidents. Social media sentiment and attention following negative incidents can capture more immediate and widespread public reactions, which may influence public perception of a firm's reputation, thereby affecting the behavior of analysts, investors, and other stakeholders in significant ways. I obtain the sentiment and attention data from Cookson, Lu, Mullins, and Niessner (2024), who construct the social media attention and sentiment measures using data from three social media platforms.

Table A.5 reports the results. In columns (1)-(4), the dependent variable is the first

principal component of the sentiment signal of social media. In column (5)-(8), the dependent variable is the first principal component of the attention signal of social media. The sample period is from 2012 to 2021. The results show that negative ESG incidents occurring within months $[t-6, t]$ and months $[t-3, t]$ are associated with a statistically significant decrease in social media sentiment and a statistically significant increase in attention. The interaction terms between ESG incidents and the green firm indicator are positive and statistically significant only for the incidents in months $[t-3, t]$, suggesting that green firms do not experience a significant deterioration in sentiment, possibly due to their stronger ESG reputation buffering the negative effects. However, the interaction terms are negative and insignificant for the social media attention. Overall, the results suggest that while negative ESG incidents lead to more negative sentiment and heightened attention on social media, green firms experience less severe reactions. This indicates that a strong ESG reputation can help mitigate the adverse effects of negative publicity on social media.

4.8. Regional-level Incidents

In Table 3, incident fixed effects were included to mitigate the concern that firms with better ESG reputations might be associated with less severe ESG incidents. The results indicate that green firms experience less negative stock price reactions compared to brown firms, even when incident fixed effects are included. The estimated coefficients were positive and statistically significant, consistent with the full sample results that did not include incident fixed effects. Table A.6 presents additional tests building on the results from Table 3, specifically exploring the impact of negative ESG incidents at the regional or country level. These tests address potential concerns that incidents might be correlated with the firms' ESG reputation or other characteristics.

Following Derrien et al. (2023), I define the geographic regions of the firm, North America (the US and Canada), EU15 (15 most developed European countries - Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom), Asia, and Oth-

ers(mostly Australia, Africa, and South America). I include incident $\times$ region fixed effects in columns (1), (3), and (5), and incident $\times$ country fixed effects in columns (2), (4), and (6). The results are consistent with those in Table 3, showing that firms with higher ESG reputations generally experience less negative market reactions, particularly over longer time horizons. The coefficients on the green indicator are positive and statistically significant except in column (2). These findings suggest that the market consistently views green firms more favorably following ESG incidents, even when controlling for potential regional and country-specific factors.

5. Conclusion

I investigate the relationship between ESG reputation and responses to firm-specific ESG scandals. I find that firms with stronger ESG reputations experience significantly less negative reactions from analysts and investors compared to firms with weaker ESG reputations following negative ESG incidents. However, this effect does not extend to the internal view. I show that firm managers' earnings forecast revisions do not significantly differ between green and brown firms after negative ESG incidents. The less severe responses from analysts and investors might be driven by a cognitive bias, where stakeholders perceive green firms as more resilient or forgiving in the face of ESG controversies, despite similar impacts on actual earnings for both green and brown firms. The results suggest that analysts and investors extrapolate a firm's prior ESG reputation, leading to an underreaction to negative news for green firms.

This finding contributes to the literature on corporate reputation and ESG by demonstrating the importance of ESG practices in shaping market expectations and providing resilience against reputational shocks. For companies, maintaining a robust ESG reputation can serve as a strategic asset, not only in fostering stakeholder trust but also in cushioning the financial impact of negative incidents. For investors, understanding the differential market responses to ESG incidents based on prior reputational standing can inform more accurate assessments of firm value.

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Table 1: Negative ESG Incidents

This table reports the distribution of RepRisk ESG incidents from 2008 to 2022. Panel A reports the number of incidents by issues across the event year of incidents. One incident can be associated with multiple issues. Panel B reports the number of firms with ESG incidents and the average number of ESG incidents per firm that has at least one incident each year. E, S, and G indicate the environmental, social, and governance incidents.

Panel A: Distribution of ESG incidents by issues

Year	# of ESG incidents	# of Environmental incidents	# of Social incidents	# of Governance incidents
2008	2,605	1,250	1,642	362
2009	2,320	1,146	1,426	500
2010	3,225	1,397	1,868	1,006
2011	4,457	1,907	2,484	1,411
2012	5,749	2,033	2,881	2,314
2013	7,136	2,062	3,314	3,180
2014	9,530	2,603	4,561	4,438
2015	8,900	2,562	4,163	4,275
2016	7,807	1,771	3,236	3,804
2017	9,693	2,540	4,339	4,488
2018	9,632	2,335	4,554	4,229
2019	10,904	2,787	5,210	4,570
2020	11,710	3,122	5,773	4,708
2021	12,262	3,553	6,104	3,940
2022	12,304	3,511	6,258	3,990
2008-2022	118,234	34,579	57,813	47,215

Panel B: Number of firms with ESG incidents

Year	# of firms	# of firms with any ESG incidents	Average # of ESG incidents per affected firm	# of firms with any E incidents	Average # of E incidents per affected firm	# of firms with any S incidents	Average # of S incidents per affected firm	# of firms with any G incidents	Average # of G incidents per affected firm
2008	7,198	1,362	4.15	838	2.11	1,012	2.66	403	0.62
2009	7,443	1,167	3.80	649	1.82	853	2.37	454	0.86
2010	8,001	1,503	4.39	698	1.81	954	2.41	816	1.51
2011	8,213	1,813	4.66	853	1.93	1,195	2.53	996	1.57
2012	8,281	2,289	5.34	1,132	1.99	1,520	2.66	1,292	2.13
2013	8,288	2,639	5.78	1,223	1.87	1,654	2.64	1,638	2.58
2014	8,519	2,981	6.91	1,269	1.96	1,795	3.09	1,943	3.18
2015	8,771	3,038	6.55	1,350	2.09	1,889	2.84	2,139	3.26
2016	8,854	3,202	5.58	1,473	1.59	1,964	2.34	2,195	2.83
2017	8,884	3,425	6.40	1,529	2.04	1,983	2.74	2,270	3.06
2018	8,714	3,262	6.13	1,409	1.80	2,109	2.89	2,061	2.75
2019	8,445	3,512	6.36	1,506	1.90	2,393	3.07	2,223	2.78
2020	8,204	3,590	6.31	1,551	2.00	2,405	3.16	2,268	2.56
2021	8,229	3,639	6.23	1,713	2.08	2,508	3.17	2,052	2.10
2022	8,090	3,614	6.16	1,600	2.03	2,441	3.08	1,967	2.08
2008-2022	13,799	10,687	5.65	5,274	1.94	7,425	2.78	7,356	2.26

Table 2: Summary Statistics

This table reports the summary statistics of the sample. The sample includes firm-month observations from January 2008 to December 2022. Panel A reports descriptive statistics of analysts' 1-quarter, 1-year, 2-year, and 3-year horizon EPS forecast revision and price target revision, stock return, and management 1-quarter and 1-year horizon EPS forecast revision. EPS forecast revision is defined as $\frac{F_t EPS_{t+h} - F_{t-1} EPS_{t+h}}{abs(F_{t-1} EPS_{t+h})} \times 100$, where h is the horizon of the forecasts. Price target revision is defined as $\frac{PriceTarget_t - PriceTarget_{t-1}}{PriceTarget_{t-1}} \times 100$. Stock return is the cumulative return between two IBES summary statistic dates in months $t-1$ and t. I also report the ESG score from Asset4 (now Refinitiv) used in the main analysis. The ESG score is on a 0-100 scale. Green is an indicator equal to one if a firm's ESG score at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. For Reprisk ESG incidents, I calculate the number of incidents in month t which is the period between two consecutive IBES consensus forecast summary statistics dates in months $t-1$ and t. $\mathbb{1}(Incident)_t$ equals to one when at least one incident happens in month t, zero otherwise. $\mathbb{1}(Incident)_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months $[t-6, t]$ and is zero otherwise. Incidents are defined as severe, high-reach, and novel for which RepRisk's reach, novelty, and severity measures are equal to or larger than two. The indicator variables for Any severe, high-reach, and novel incidents are equal to one when at least one severe, reach, and novel incident happens in months $[t-6, t]$, respectively. Panel B reports firm characteristics and incidents characteristics of Green and Brown firms, and the difference between them. It reports firm size, book-to-market ratio, and the fraction of severe, high-reach, and novel ESG incidents of Green and Brown firms. The number of severe, high-reach, and novel incidents is divided by the total number of ESG incidents each month. I use ESG scores from Asset4 (now Refinitiv) to define Green and Brown firms. I classify firms as Green if a firm's ESG rating at the end of last quarter is in the top two-thirds of all firms in that month and as Brown if a firm's rating at the end of last quarter is in the bottom tercile of all firms in that month.

Panel A: Summary statistics

		#Obs	Mean	Median	STD	P10	p90
Analyst	1-Qtr ahead	260,224	-1.16	0.00	11.75	-7.41	4.55
EPS Forecast Revision	1-Yr ahead	585,115	-0.69	0.00	9.83	-5.95	5.08
	2-Yr ahead	583,321	-0.44	0.00	7.78	-5.81	4.76
	3-Yr ahead	547,738	-0.14	0.00	7.10	-5.66	5.26
Analyst Price Target Revision		626,754	0.26	0.00	5.79	-5.10	6.28
Stock Return		626,597	0.87	0.75	9.80	-10.76	12.79
Management	1-Qtr ahead	54,358	0.95	0.00	13.59	0.00	4.84
EPS Forecast Revision	1-Yr ahead	128,781	0.59	0.00	6.36	0.00	3.07
ESG Score		626,754	45.97	45.88	19.12	20.04	72.62
Green		626,754	0.66	1.00	0.47	0.00	1.00
$\mathbb{1}(Incident)_t$		626,754	0.16	0.00	0.37	0.00	1.00
$\mathbb{1}(Incident)_{[t-6,t]}$		626,754	0.43	0.00	0.49	0.00	1.00
$\mathbb{1}(Severe\ Incident)_{[t-6,t]}$		626,754	0.24	0.00	0.43	0.00	1.00
$\mathbb{1}(High\text{-}reach\ Incident)_{[t-6,t]}$		626,754	0.34	0.00	0.47	0.00	1.00
$\mathbb{1}(Novel\ Incident)_{[t-6,t]}$		626,754	0.36	0.00	0.48	0.00	1.00

Panel B: Green and Brown firms

	All	Green	Brown	Diff
Market Cap	12.88	15.70	7.35	8.34***
B/M Ratio	1.56	1.80	1.10	0.71***
$\mathbb{1}(Incident)_t$	0.16	0.21	0.09	0.12***
$\mathbb{1}(Incident)_{[t-6,t]}$	0.43	0.50	0.28	0.22***
Fraction of severe incidents	0.320	0.331	0.289	0.042***
Fraction of high-reach incidents	0.590	0.578	0.621	-0.043***
Fraction of novel incidents	0.487	0.488	0.483	0.004
#Obs	626,754	412,688	214,066	

Table 3: Market Reaction to Negative ESG Incidents

This table shows the results of the market reaction around the negative ESG incidents. CAR is the day [-t,+t] cumulative abnormal returns (in percent) where day 0 refers to the event date. Abnormal returns are estimated based on the market model. The sample period is from 2008 to 2022. Panel A reports the mean and median day [-t,+t] cumulative abnormal returns. Panel B reports the regression estimates of the effect of pre-existing ESG reputation on CARs around the negative ESG incidents. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. For the control variables, Size is the firm's market cap in the prior June, BM is the book-to-market ratio, Momentum is buy-and-hold return from the month t–12 to t–2, Stock Volatility is the month t–1 volatility of daily stock returns, Long-Term Debt is long-term debt divided by assets, Short-Term Debt is debt in current liabilities divided by assets, Cash Holdings is cash and marketable securities divided by assets, and Profitability is operating income before depreciation divided by assets. Controls also include industry × country fixed effects, year fixed effects, and further in Columns (2), (4), and (6), include incident fixed effects. Standard errors are clustered by calendar day. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: Market Reaction to ESG incidents

	#Obs	Mean(%)	Median(%)	T-stat: Mean=0
CAR [-1,+1]	181,302	-0.079	-0.087	(-4.68)
CAR [-3,+3]	181,302	-0.110	-0.156	(-4.12)
CAR [-5,+5]	181,302	-0.130	-0.166	(-3.81)

Panel B: Green Firms and Market Reaction to ESG incidents

	CAR [-1,+1]		CAR [-3,+3]		CAR [-5,+5]	
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Green	0.079**	0.092**	0.205***	0.180***	0.268***	0.219***
	(2.34)	(2.28)	(3.94)	(2.94)	(4.10)	(2.83)
Log Size	-0.023*	-0.024	-0.080***	-0.021	-0.109***	-0.039
	(-1.89)	(-1.51)	(-4.21)	(-0.85)	(-4.68)	(-1.27)
Log BM	-0.015	-0.009	-0.093***	-0.048**	-0.149***	-0.078***
	(-1.19)	(-0.55)	(-4.83)	(-1.97)	(-6.25)	(-2.62)
Momentum	-0.358***	-0.466***	-0.840***	-1.021***	-1.345***	-1.542***
	(-6.19)	(-6.38)	(-9.49)	(-9.50)	(-12.07)	(-11.11)
Stock Volatility	0.034*	0.030	-0.003	0.007	-0.035	-0.033
	(1.74)	(1.55)	(-0.09)	(0.25)	(-0.93)	(-0.94)
Long-Term Debt	-0.085	-0.237*	-0.229	-0.144	-0.425*	-0.326
	(-0.74)	(-1.65)	(-1.29)	(-0.65)	(-1.95)	(-1.20)
Short-Term Debt	0.023	-0.039	-0.255	-0.291	-0.249	-0.404
	(0.19)	(-0.26)	(-1.44)	(-1.27)	(-1.13)	(-1.45)
Cash Holdings	-0.410***	-0.071	-0.882***	-0.204	-1.472***	-0.612*
	(-2.84)	(-0.41)	(-4.04)	(-0.77)	(-5.43)	(-1.83)
Profitability	-0.012	0.020	-0.593*	-0.691*	-0.882**	-0.672
	(-0.05)	(0.07)	(-1.70)	(-1.65)	(-1.98)	(-1.26)
Observations	181,302	137,695	181,302	137,695	181,302	137,695
R-squared	0.007	0.586	0.010	0.587	0.013	0.589
Incident FE	No	Yes	No	Yes	No	Yes
Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 4: Reaction of Analysts and Investors to Negative ESG Incidents

In this table, I report panel regression estimates of the effect of ESG incidents on analysts' consensus forecast revisions and stock returns, from 2008 to 2022. In columns (1)-(4), the dependent variables are changes in the 1-quarter, 1-year, 2-year, and 3-year horizon EPS forecasts. In column (5), the dependent variable is the change in the Price Targets. In column (6), the dependent variable is the cumulative return over month t. $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months [t–6, t] and is zero otherwise. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

| Variables | EPS Forecast Revision | | | | Price Target Revision | Stock Return |
| | 1-Qtr ahead | 1-Yr ahead | 2-Yr ahead | 3-Yr ahead | | |
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.129*	-0.164***	-0.152***	-0.100***	-0.177***	-0.162***
	(-1.73)	(-3.19)	(-3.92)	(-2.93)	(-6.83)	(-4.24)
Observations	247,168	570,496	568,653	532,819	611,366	570,269
R-squared	0.214	0.227	0.244	0.217	0.258	0.440
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 5: Impact of Negative ESG Incidents on Green and Brown Firms

In this table, I report panel regression estimates of the effect of ESG incidents on analysts' consensus forecast revisions and stock returns conditional on firms' past ESG practices. The sample period is from 2008 to 2022. In columns (1)-(4), the dependent variables are changes in the 1-quarter, 1-year, 2-year, and 3-year horizon EPS forecasts. In column (5), the dependent variable is the change in the Price Targets. In column (6), the dependent variable is the cumulative return over month t. $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months [t–6, t] and is zero otherwise. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

| Variables | EPS Forecast Revision | | | | Price Target Revision | Stock Return |
| | 1-Qtr ahead | 1-Yr ahead | 2-Yr ahead | 3-Yr ahead | | |
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green	0.324**	0.145*	0.166**	0.163**	0.111**	0.122**
	(2.30)	(1.83)	(2.28)	(2.59)	(2.44)	(1.97)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.340***	-0.260***	-0.262***	-0.211***	-0.251***	-0.243***
	(-2.75)	(-3.61)	(-3.96)	(-3.61)	(-6.06)	(-4.19)
Green	-0.128	-0.185***	-0.156**	-0.105**	-0.178***	-0.179***
	(-1.21)	(-3.39)	(-2.53)	(-2.00)	(-4.30)	(-3.20)
Observations	247,168	570,496	568,653	532,819	611,366	570,269
R-squared	0.214	0.227	0.244	0.217	0.258	0.440
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: Reaction of Management Forecasts to Negative ESG Incidents

This table reports panel regression estimates of the effect of ESG incidents on management forecasts. The sample period is from 2008 to 2022. In column (1), the dependent variable is the change in the 1-quarter horizon management EPS forecasts. In column (2), the dependent variable is the change in the 1-year horizon management EPS forecasts. $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months [t–6, t] and is zero otherwise. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. Columns (1), (3), and (5) report the results for the 1-quarter horizon management EPS forecast, and Columns (2), (4), and (6) report the results for the 1-year horizon management EPS forecast. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

| | Management EPS Forecast Revision | | | |
| | 1-Qtr ahead | | 1-Yr ahead | |
Variables	(1)	(2)	(3)	(4)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green		-0.220		0.036
		(-0.63)		(0.39)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.173	-0.024	-0.194***	-0.218***
	(-1.26)	(-0.08)	(-3.76)	(-2.67)
Green		0.167		-0.015
		(0.75)		(-0.21)
Observations	52,887	52,887	124,052	124,052
R-squared	0.081	0.081	0.123	0.123
Month×Ind×Country FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Table 7: Impact of Negative ESG Incidents on Actual Annual Earnings

In this table, I report panel regression estimates of the effect of ESG incidents on actual earnings. The sample period is from 2008 to 2022. The dependent variables are the changes in annual realized earnings per share (EPS) from the end of year $y-1$ to the end of year y (ΔAnnual EPS$_{y-1,y}$), from the end of year $y-1$ to the end of year $y+1$ (ΔAnnual EPS$_{y-1,y+1}$), and from the end of year $y-1$ to the end of year $y+2$ (ΔAnnual EPS$_{y-1,y+2}$), scaled by the absolute value of the prior earnings. $\mathbb{1}$(Incident)$_y$ is an indicator equal to one if at least one incident happens in year y. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. Standard errors are double clustered at the firm and year level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Variables	ΔAnnual EPS$_{y-1,y}$		ΔAnnual EPS$_{y-1,y+1}$		ΔAnnual EPS$_{y-1,y+2}$	
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}$(Incident)$_y$ $\times$ Green		0.030		0.186		0.136
		(0.37)		(1.70)		(1.02)
$\mathbb{1}$(Incident)$_y$	-0.115***	-0.133*	-0.043	-0.157*	0.048	-0.037
	(-2.64)	(-1.92)	(-0.75)	(-1.69)	(0.67)	(-0.33)
Green		0.020		-0.149		-0.108
		(0.30)		(-1.64)		(-0.90)
Observations	39,176	39,176	37,945	37,945	32,835	32,835
R-squared	0.275	0.275	0.303	0.303	0.338	0.338
Year$\times$Ind$\times$Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 8: Impact of Negative ESG Incidents on Earnings Surprise

In this table, I report regression estimates of the effect of ESG incidents on earnings surprise in and Brown firms. The sample period is from 2008 to 2022. Panel A and Panel B report the regression results for the analyst earnings per share (EPS) forecasts. Earnings surprise is the difference between the realized earnings per share (EPS) and the median value of the EPS forecasts by all analysts, deflated by the realized earnings per share (EPS). $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months [t–6, t] and is zero otherwise. Revision is the monthly EPS forecast revisions. Columns (1)-(3) in Panel A report the results for the 1-quarter horizon EPS forecast, Columns (4)-(6) in Panel A report the results for the 1-year horizon EPS forecast, Columns (1)-(3) in Panel B report the results for the 2-year horizon EPS forecast, and Columns (4)-(6) in Panel B report the results for the 3-year horizon EPS forecast. Panel C reports panel regression estimates of the effect of ESG incidents on earnings surprise of management forecast in Green and Brown subsamples. Earnings surprise is the difference between the realized earnings per share (EPS) and the EPS forecasts by management, deflated by the realized earnings per share (EPS). Revision is the monthly management EPS forecast revisions. Columns (1)-(3) report the results for the 1-quarter horizon management EPS forecast and Columns (4)-(6) report the results for the 1-year horizon management EPS forecast. I classify firms as Green if a firm's Asset4 ESG rating at the end of last quarter is in the top two-thirds of all firms in that month and as Brown if a firm's Asset4 ESG rating at the end of last quarter is in the bottom tercile of all firms in that month. Standard errors are double clustered at the firm and month level. *t*-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: Analyst 1-Quarter and 1-Year ahead EPS Forecasts

	Earnings Surprise					
	1-Qtr ahead forecast			1-Yr ahead forecast		
	All	Green	Brown	All	Green	Brown
Variables	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$ × Revision	0.052	0.107**	-0.007	0.089**	0.137***	-0.089
	(1.31)	(2.25)	(-0.08)	(2.21)	(2.68)	(-1.34)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-2.493***	-1.829**	-3.384***	-0.273	-0.144	-0.552
	(-3.66)	(-2.24)	(-2.75)	(-0.45)	(-0.20)	(-0.49)
Revision	-0.067**	-0.122***	-0.006	0.306***	0.302***	0.179***
	(-2.15)	(-3.12)	(-0.11)	(10.11)	(7.69)	(4.42)
Observations	240,867	157,008	77,744	543,964	358,705	171,355
R-squared	0.301	0.330	0.361	0.346	0.397	0.435
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Analyst 2-Year and 3-Year ahead EPS Forecasts

	Earnings Surprise					
	2-Yr ahead forecast			3-Yr ahead forecast		
	All	Green	Brown	All	Green	Brown
Variables	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$ × Revision	0.153	0.315*	0.029	-0.050	-0.085	0.360
	(1.12)	(1.89)	(0.13)	(-0.26)	(-0.36)	(1.20)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-7.248***	-7.158***	-6.414**	-9.999***	-5.915*	-8.578*
	(-4.36)	(-3.85)	(-2.04)	(-3.89)	(-1.97)	(-1.73)
Revision	0.212**	0.069	0.020	-0.388***	-0.375**	-0.579***
	(2.38)	(0.56)	(0.17)	(-3.29)	(-2.16)	(-3.89)
Observations	475,189	315,765	146,435	386,253	260,351	113,950
R-squared	0.394	0.442	0.495	0.430	0.468	0.541
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 8 - *Continued*

Panel C: Management EPS Forecasts

	Earnings Surprise in Management Forecast					
	1-Qtr ahead forecast			1-Yr ahead forecast		
	All	Green	Brown	All	Green	Brown
Variables	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$ × Revision	0.024	-0.018	0.081*	0.063	0.065	0.014
	(1.25)	(-0.79)	(1.97)	(1.23)	(1.09)	(0.14)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.923***	-1.273***	0.620	1.103***	1.095***	0.626
	(-3.71)	(-4.92)	(1.26)	(3.29)	(2.85)	(0.98)
Revision	-0.097***	-0.077***	-0.121***	0.026	0.010	-0.050
	(-6.91)	(-4.56)	(-5.91)	(0.90)	(0.25)	(-1.09)
Observations	52,739	34,888	17,245	122,869	80,683	41,083
R-squared	0.500	0.481	0.623	0.398	0.394	0.535
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 9: Negative ESG Incidents Affecting Multiple Firms

In this table, I report panel regression estimates of the effect of multi-firm ESG incidents on analysts' consensus forecast revisions and stock returns conditional on firms' prior ESG reputation. In Panel A, $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one multi-firm incident happens in months $[t-6, t]$ and is zero otherwise. A multi-firm incident is defined as an incident that affects more than 3 firms. In panel B, $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one multi-firm and multi-industry incident happens in months $[t-6, t]$ and is zero otherwise. A multi-firm and multi-industry incident is defined as an event that affects more than three firms and more than two industries at the same time. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. In columns (1)-(4), the dependent variables are changes in the 1-quarter, 1-year, and 2-year horizon EPS forecasts. In column (5), the dependent variable is the change in the Price Targets. In column (6), the dependent variable is the cumulative return over month t. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: Multi-firm (≥ 3) Incident

Variables	EPS Forecast Revision				Price Target Revision	Stock Return
	1-Qtr ahead (1)	1-Yr ahead (2)	2-Yr ahead (3)	3-Yr ahead (4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green	0.880**	0.115	0.322**	0.429***	0.240**	0.098
	(2.26)	(0.47)	(2.14)	(2.64)	(2.11)	(0.60)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.601**	-0.491***	-0.359***	-0.315**	-0.160*	-0.019
	(-2.40)	(-3.00)	(-2.73)	(-2.58)	(-1.92)	(-0.16)
Green	-0.187	-0.415**	-0.303***	-0.152	-0.300***	-0.233**
	(-0.96)	(-2.55)	(-3.77)	(-1.22)	(-4.26)	(-2.56)
Observations	41,593	110,732	110,329	100,391	120,352	124,160
R-squared	0.281	0.294	0.295	0.271	0.323	0.478
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Multi-firm (≥ 3) and Multi-industry (≥ 2) Incident

Variables	EPS Forecast Revision				Price Target Revision	Stock Return
	1-Qtr ahead (1)	1-Yr ahead (2)	2-Yr ahead (3)	3-Yr ahead (4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green	1.359**	0.659**	0.098	0.490*	0.248	-0.050
	(2.38)	(1.99)	(0.35)	(1.72)	(1.13)	(-0.16)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.910**	-0.748***	-0.339	-0.331	-0.210	-0.101
	(-2.46)	(-2.68)	(-1.53)	(-1.38)	(-1.27)	(-0.45)
Green	-0.674***	-0.835***	-0.475***	-0.298**	-0.322***	-0.260*
	(-2.71)	(-6.19)	(-3.98)	(-2.17)	(-3.32)	(-1.89)
Observations	19,419	49,585	49,317	44,362	53,660	55,929
R-squared	0.288	0.319	0.323	0.301	0.352	0.495
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 10: Unsharp Negative ESG Incidents

In this table, I report panel regression estimates of the effect of unsharp ESG incidents on analysts' consensus forecast revisions and stock returns conditional on firms' prior ESG reputation. $\mathbb{1}(\text{Unsharp Incident})_{[t-6,t]}$ is an indicator equal to one if at least one unsharp incident happens in months [t–6, t] and is zero otherwise. An unsharp incident is an incident where a firm is mentioned, but the exact nature of the criticism is not precisely defined. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. In columns (1)-(4), the dependent variables are changes in the 1-quarter, 1-year, and 2-year horizon EPS forecasts. In column (5), the dependent variable is the change in the Price Targets. In column (6), the dependent variable is the cumulative return over month t. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

| Variables | EPS Forecast Revision | | | | Price Target Revision | Stock Return |
| | 1-Qtr ahead | 1-Yr ahead | 2-Yr ahead | 3-Yr ahead | | |
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(\text{Unsharp Incident})_{[t-6,t]} \times$ Green	2.887*	0.998	0.865	1.874***	1.378***	0.562
	(1.85)	(1.33)	(1.62)	(3.32)	(2.71)	(0.82)
$\mathbb{1}(\text{Unsharp Incident})_{[t-6,t]}$	-2.157**	-1.143*	-0.756*	-1.375***	-0.631*	-0.316
	(-2.38)	(-1.87)	(-1.92)	(-3.01)	(-1.68)	(-0.61)
Green	-1.767***	-1.581***	-0.503*	-0.444	-0.667***	-0.556*
	(-3.09)	(-3.38)	(-1.80)	(-1.57)	(-2.96)	(-1.67)
Observations	4,206	10,686	10,621	9,180	11,549	12,121
R-squared	0.374	0.426	0.425	0.419	0.440	0.596
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 11: ES & G Reputation and ES & G Incidents

I report panel regression estimates of the effect of ES & G incidents on analysts' consensus forecast revisions and stock returns conditional on firms' past ES & G practices. The sample period is from 2008 to 2022. In columns (1)-(4), the dependent variables are changes in the 1-quarter, 1-year, 2-year, and 3-year horizon EPS forecasts. In column (5), the dependent variable is the change in the Price Targets. In column (6), the dependent variable is the cumulative return over month t. In Panel A and Panel B, Green is an indicator equal to one if a firm's ES reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. In Panel C, Green is an indicator equal to one if a firm's G reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. In Panel A and Panel C, $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident on ES issue happens in months [t–6, t] and is zero otherwise. In Panel B, $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident on G issue happens in months [t–6, t] and is zero otherwise. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: Match ES Reputation & ES Incidents

| | EPS Forecast Revision | | | | Price Target | Stock |
| | 1-Qtr ahead | 1-Yr ahead | 2-Yr ahead | 3-Yr ahead | Revision | Return |
Variables	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green	0.417**	0.333***	0.267***	0.267***	0.177***	0.205***
	(2.45)	(2.80)	(3.03)	(3.48)	(3.15)	(2.87)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.439***	-0.378***	-0.343***	-0.288***	-0.243***	-0.244***
	(-3.04)	(-3.64)	(-4.40)	(-4.06)	(-4.60)	(-3.93)
Green	-0.230*	-0.322***	-0.251***	-0.151***	-0.270***	-0.241***
	(-1.84)	(-3.73)	(-3.62)	(-2.63)	(-5.95)	(-4.58)
Observations	230,457	537,419	536,146	503,254	574,864	592,274
R-squared	0.219	0.234	0.251	0.224	0.265	0.441
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: ES Reputation & G Incidnets

| | EPS Forecast Revision | | | | Price Target | Stock |
| | 1-Qtr ahead | 1-Yr ahead | 2-Yr ahead | 3-Yr ahead | Revision | Return |
Variables	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green	0.227	-0.057	-0.003	0.105	0.102*	0.073
	(1.30)	(-0.47)	(-0.04)	(1.17)	(1.76)	(0.88)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.226	-0.091	-0.098	-0.175**	-0.223***	-0.188**
	(-1.46)	(-0.83)	(-1.11)	(-2.09)	(-4.13)	(-2.38)
Green	-0.174	-0.245***	-0.196***	-0.113**	-0.250***	-0.211***
	(-1.36)	(-2.86)	(-2.79)	(-1.98)	(-5.52)	(-4.19)
Observations	230,457	537,419	536,146	503,254	574,864	592,274
R-squared	0.219	0.234	0.251	0.224	0.265	0.441
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 11 - *Continued*

Panel C: G Repuation & ES Incidents

Variables	EPS Forecast Revision				Price Target Revision	Stock Return
	1-Qtr ahead (1)	1-Yr ahead (2)	2-Yr ahead (3)	3-Yr ahead (4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green	-0.051	0.025	0.065	0.050	0.042	0.010
	(-0.37)	(0.24)	(0.79)	(0.72)	(0.83)	(0.17)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.105	-0.154*	-0.193***	-0.126**	-0.144***	-0.104*
	(-0.78)	(-1.72)	(-2.73)	(-2.03)	(-3.11)	(-1.94)
Green	0.028	-0.040	-0.049	-0.056	-0.024	-0.014
	(0.30)	(-0.60)	(-0.91)	(-1.26)	(-0.71)	(-0.36)
Observations	230,561	537,761	536,486	503,582	575,232	592,644
R-squared	0.219	0.234	0.251	0.224	0.265	0.441
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Figure 1: Timeline for Variable Measurement

This figure illustrates the timeline of variables used in the main analyses. I match the monthly IBES consensus forecasts to the RepRisk ESG incidents following Derrien et al. (2023). ESG incidents that occur between two consecutive monthly IBES consensus forecast summary statistics dates in the month $t-1$ and month t are assigned to month t and matched with the stock returns and forecast revisions in month t. $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months $[t-6,t]$ and is zero otherwise.

Y_t=[Analyst's EPS forecast revision$_t$, Analyst's price target revision$_t$, Stock return$_t$]

$t-6 \quad t-5 \quad t-4 \quad t-3 \quad t-2 \quad t-1 \quad t \quad t+1$

Incident

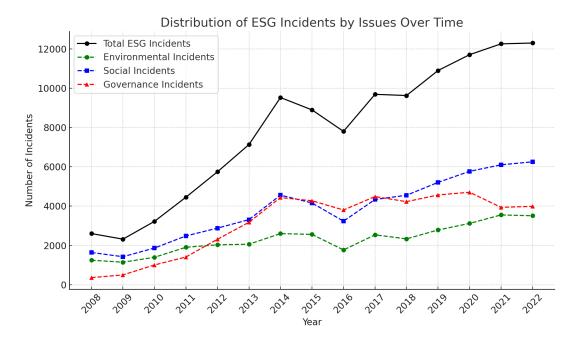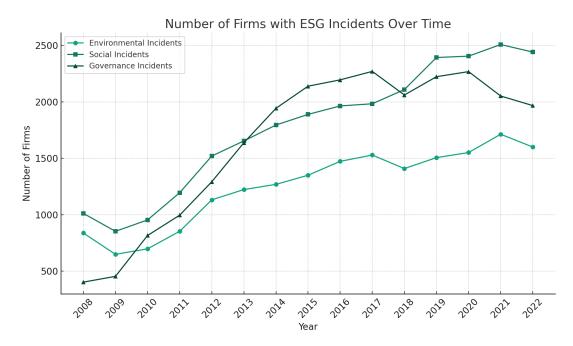$\mathbb{1}(\text{Incident})_{[t-6,t]} = 1$
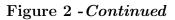
Figure 2: Negative ESG Incidents

This figure shows the distribution of RepRisk ESG incidents from 2008 to 2022 reported in Table 1. The first plots the number of incidents by issues across the event year of incidents. One incident can be associated with multiple issues. The second graph plots the number of firms with ESG incidents and the third plots the average number of ESG incidents per firm that has at least one incident each year. E, S, and G indicate the environmental, social, and governance incidents.
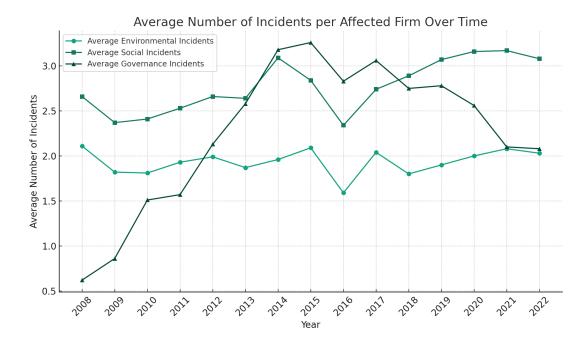
A. ESG Incidents by Issue

B. Number of Firms with ESG Incidents

Figure 2 - *Continued*

C. Average Number of Incidents per Affected Firm

Average Number of Incidents per Affected Firm Over Time

Appendix A. Additional Analyses and Robustness Tests

Table A.1: Alternative Proxy for ESG Reputation

In this table, I report panel regression estimates of the effect of ESG incidents on analysts' consensus forecast revisions and stock returns conditional on firms' ESG reputation. $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months [t–6, t] and is zero otherwise. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. In Panel A, Green is computed using ESG scores from Sustainalytics as an alternative measure of ESG reputation. In Panel B, Green is computed using socially responsible institutional ownership, defined as the number of shares held by socially responsible institutions divided by the total number of shares held by all institutions, as an alternative measure of ESG reputation. In columns (1)-(4), the dependent variables are changes in the 1-quarter, 1-year, 2-year, and 3-year horizon EPS forecasts. In column (5), the dependent variable is the change in the Price Targets. In column (6), the dependent variable is the cumulative return over month t. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: Sustainalytics ESG Scores

Variables	EPS Forecast Revision				Price Target Revision	Stock Return
	1-Qtr ahead	1-Yr ahead	2-Yr ahead	3-Yr ahead		
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$ × Green	0.219	0.087	0.082	0.049*	0.117**	0.100
	(1.21)	(0.83)	(0.93)	(1.76)	(2.08)	(1.40)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	0.054	-0.070	-0.172**	-0.026	-0.150***	-0.136**
	(0.37)	(-0.78)	(-2.37)	(-1.04)	(-3.18)	(-2.04)
Green	0.078	-0.095	-0.112	-0.170**	-0.083*	-0.111
	(0.49)	(-1.05)	(-1.44)	(-2.42)	(-1.71)	(-1.65)
Observations	139,290	322,756	321,654	307,063	344,488	322,632
R-squared	0.243	0.246	0.277	0.247	0.261	0.454
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: SRI Ownership

Variables	EPS Forecast Revision				Price Target Revision	Stock Return
	1-Qtr ahead	1-Yr ahead	2-Yr ahead	3-Yr ahead		
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$ × Green	0.100	0.277**	0.117	0.147	0.247***	0.226**
	(0.56)	(2.00)	(0.88)	(1.28)	(2.96)	(2.13)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.256	-0.371***	-0.247**	-0.355***	-0.388***	-0.344***
	(-1.52)	(-2.85)	(-2.00)	(-3.10)	(-5.29)	(-3.34)
Green	-0.016	-0.209**	-0.173**	-0.177**	-0.323***	-0.293***
	(-0.15)	(-2.06)	(-2.07)	(-2.18)	(-5.85)	(-3.55)
Observations	196,430	299,990	298,570	247,470	322,524	299,975
R-squared	0.170	0.184	0.192	0.166	0.247	0.422
Month×Ind FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.2: Impact of Negative ESG Incidents on Green and Brown Firms - Using Stacked Difference-In-Differences Approach

This table presents the impact of negative ESG incidents on green and brown firms using a stacked difference-in-differences approach. For each incident, I construct a cohort of affected firms and control group firms using firm-month observations for the incident month, the three months before, and the three months after the incident month. Treated firms are those who have experienced a negative ESG incident. Untreated firms for each event are those who did not experience any incident in the sample. *Post* is an indicator variable equal to one for the post-incident period, including months t, t+1, t+2, and t+2, and zero otherwise. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. In columns (1)-(4), the dependent variables are changes in the 1-quarter, 1-year, 2-year, and 3-year horizon EPS forecasts. In column (5), the dependent variable is the change in the Price Targets. In column (6), the dependent variable is the cumulative return over month t. Panel A reports regression estimates including fixed effects by the incident: firm-by-incident fixed effects and month-by-incident fixed effects. Panel B reports regression estimates further including industry by incident and country by incident fixed effects. Standard errors are double clustered at the firm level. *t*-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: Firm and Month by Incident Fixed Effects

| Variables | EPS Forecast Revision | | | | Price Target Revision | Stock Return |
	1-Qtr ahead (1)	1-Yr ahead (2)	2-Yr ahead (3)	3-Yr ahead (4)	(5)	(6)
Post × Green	0.242	0.252**	0.391***	0.198*	0.126*	0.078
	(1.34)	(2.30)	(3.51)	(1.94)	(1.62)	(1.47)
Observations	40,757,549	41,634,475	41,630,631	41,501,710	41,681,870	41,796,925
R-squared	0.317	0.398	0.399	0.344	0.345	0.410
Firm by Incident FE	Yes	Yes	Yes	Yes	Yes	Yes
Month by Incident FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry by Incident FE	No	No	No	No	No	No
Country by Incident FE	No	No	No	No	No	No

Panel B: Industry and Country by Incident Fixed Effects

| Variables | EPS Forecast Revision | | | | Price Target Revision | Stock Return |
	1-Qtr ahead (1)	1-Yr ahead (2)	2-Yr ahead (3)	3-Yr ahead (4)	(5)	(6)
Post × Green	0.191	0.249**	0.414***	0.202*	0.127*	0.080
	(1.06)	(2.19)	(3.65)	(1.89)	(1.67)	(1.45)
Observations	40,757,549	41,634,475	41,630,631	41,501,710	41,681,870	41,796,925
R-squared	0.319	0.399	0.400	0.346	0.345	0.410
Firm by Incident FE	Yes	Yes	Yes	Yes	Yes	Yes
Month by Incident FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry by Incident FE	Yes	Yes	Yes	Yes	Yes	Yes
Country by Incident FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.3: Impact of Negative ESG Incidents on Green and Brown Firms - Controlling for Firm-Level Time-Varying Characteristics

In this table, I report panel regression estimates of the effect of ESG incidents on analysts' consensus forecast revisions and stock returns conditional on firms' past ESG practices. The sample period is from 2008 to 2022. In columns (1)-(4), the dependent variables are changes in the 1-quarter, 1-year, 2-year, and 3-year horizon EPS forecasts. In column (5), the dependent variable is the change in the Price Targets. In column (6), the dependent variable is the cumulative return over month t. $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months [t–6, t] and is zero otherwise. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. Size is the firm's market cap in the prior June, BM is the book-to-market ratio, Momentum is buy-and-hold return from the month t–12 to t–2, Stock Volatility is the month t–1 volatility of daily stock returns, Long-Term Debt is long-term debt divided by assets, Short-Term Debt is debt in current liabilities divided by assets, Cash Holdings is cash and marketable securities divided by assets, and Profitability is operating income before depreciation divided by assets. Panel A reports estimates from panel regressions including firm controls and month×industry×country fixed effects. Panel B reports estimates from panel regressions including firm controls, month×industry×country fixed effects, and firm fixed effects. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: Firm-Level Time-Varying Controls without Firm Fixed Effects

Variables	EPS Forecast Revision				Price Target Revision	Stock Return
	1-Qtr ahead (1)	1-Yr ahead (2)	2-Yr ahead (3)	3-Yr ahead (4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green	0.105	0.195*	0.119**	0.160**	0.056	0.150**
	(0.82)	(2.19)	(2.30)	(2.50)	(1.45)	(2.38)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.314***	-0.395***	-0.153*	-0.079	-0.095***	-0.004
	(-2.87)	(-6.44)	(-2.13)	(-1.42)	(-2.98)	(-0.08)
Green	-0.075	-0.162**	-0.091	-0.001	0.044*	0.112**
	(-0.94)	(-2.56)	(-1.64)	(-0.03)	(1.77)	(2.42)
Log Size	0.285***	0.392***	0.231***	0.120***	0.053***	-0.109***
	(8.24)	(8.28)	(7.12)	(9.35)	(3.81)	(-3.13)
Log BM	-0.038	0.113**	0.038	0.014	-0.129***	-0.337***
	(-0.89)	(2.23)	(0.68)	(0.87)	(-8.52)	(-9.78)
Momentum	2.862***	4.238***	4.133***	3.401***	4.908***	3.072***
	(17.03)	(8.01)	(9.44)	(27.68)	(30.43)	(10.64)
Stock Volatility	-0.325**	-0.185	-0.197	-0.163***	-0.173***	0.040
	(-2.55)	(-1.31)	(-1.65)	(-4.44)	(-5.13)	(0.80)
Long-Term Debt	-1.429***	-0.773*	-0.458	-0.175	-0.217**	0.016
	(-4.77)	(-1.85)	(-1.77)	(-1.58)	(-2.42)	(0.08)
Short-Term Debt	-0.370	0.254	0.457***	0.193*	-0.336***	-0.527***
	(-1.27)	(1.64)	(3.47)	(1.72)	(-4.58)	(-2.98)
Cash Holdings	-0.791***	-0.352	-1.291***	-1.296***	-0.687***	-0.953***
	(-3.38)	(-1.16)	(-8.57)	(-8.62)	(-4.92)	(-2.78)
Profitability	2.230***	2.639**	1.118	1.137***	-0.787***	-0.245
	(3.79)	(2.69)	(1.11)	(4.01)	(-3.31)	(-0.38)
Observations	194,657	448,998	448,104	422,776	483,339	496,594
R-squared	0.180	0.200	0.225	0.204	0.299	0.423
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	No	No	No	No

Panel B: Firm-Level Time-Varying Controls with Firm Fixed Effects

	EPS Forecast Revision				Price Target Revision	Stock Return
Variables	1-Qtr ahead (1)	1-Yr ahead (2)	2-Yr ahead (3)	3-Yr ahead (4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green	0.344**	0.144*	0.114*	0.178**	0.069*	0.139**
	(2.06)	(1.73)	(1.86)	(2.51)	(1.66)	(2.17)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.275*	-0.195**	-0.140**	-0.146**	-0.124***	-0.147**
	(-1.95)	(-2.53)	(-2.43)	(-2.28)	(-3.31)	(-2.53)
Green	-0.069	-0.115*	-0.081	-0.032	-0.054	-0.068
	(-0.52)	(-1.67)	(-1.48)	(-0.58)	(-1.44)	(-1.27)
Log Size	0.397***	0.286***	0.136**	-0.002	-0.205***	-1.400***
	(3.61)	(3.58)	(2.35)	(-0.04)	(-5.82)	(-12.55)
Log BM	-0.107	-0.243***	-0.345***	-0.330***	-0.549***	-1.558***
	(-1.28)	(-4.12)	(-6.84)	(-7.02)	(-17.34)	(-18.51)
Momentum	2.796***	4.082***	3.992***	3.292***	4.765***	2.652***
	(14.92)	(22.13)	(26.65)	(26.13)	(31.70)	(9.66)
Stock Volatility	-0.603**	-0.562***	-0.554***	-0.433***	-0.396***	0.070
	(-2.34)	(-5.76)	(-7.40)	(-5.11)	(-7.88)	(0.87)
Long-Term Debt	-0.449	0.313	-0.036	-0.345	-0.439***	-1.625***
	(-0.79)	(1.11)	(-0.13)	(-1.20)	(-2.64)	(-5.25)
Short-Term Debt	0.954	1.685***	0.936***	0.444	-0.648***	-2.353***
	(1.14)	(4.27)	(2.94)	(1.22)	(-3.32)	(-7.48)
Cash Holdings	-0.350	1.803***	1.053***	0.450	-0.133	-0.776***
	(-0.54)	(4.81)	(3.84)	(1.59)	(-0.75)	(-2.77)
Profitability	-1.860	-2.702***	-5.509***	-4.668***	-4.769***	-4.069***
	(-1.37)	(-3.42)	(-8.05)	(-8.38)	(-11.88)	(-4.99)
Observations	194,657	448,998	448,104	422,776	483,339	496,594
R-squared	0.217	0.246	0.272	0.239	0.310	0.434
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.4: Impact of Negative ESG Incidents on Green and Brown Firms - Controlling for Firm Characteristics by Incident Dummy

In this table, I report panel regression estimates of the effect of ESG incidents on analysts' consensus forecast revisions and stock returns conditional on firms' past ESG practices. The table reports estimates from panel regressions including the interactions between firm controls and the incident dummy variable, with month×industry×country fixed effects and firm fixed effects. The sample period is from 2008 to 2022. In columns (1)-(4), the dependent variables are changes in the 1-quarter, 1-year, 2-year, and 3-year horizon EPS forecasts. In column (5), the dependent variable is the change in the Price Targets. In column (6), the dependent variable is the cumulative return over month t. $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months [t–6, t] and is zero otherwise. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. Size is the firm's market cap in the prior June, BM is the book-to-market ratio, Momentum is buy-and-hold return from the month t–12 to t–2, Stock Volatility is the month t–1 volatility of daily stock returns, Long-Term Debt is long-term debt divided by assets, Short-Term Debt is debt in current liabilities divided by assets, Cash Holdings is cash and marketable securities divided by assets, and Profitability is operating income before depreciation divided by assets. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Variables	EPS Forecast Revision				Price Target Revision	Stock Return
	1-Qtr ahead (1)	1-Yr ahead (2)	2-Yr ahead (3)	3-Yr ahead (4)	(5)	(6)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green	0.235	0.059	0.146**	0.217***	0.168***	0.367***
	(1.44)	(0.67)	(2.19)	(2.89)	(3.23)	(5.06)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-2.074***	-2.229***	-0.792***	-0.477	0.331	2.502***
	(-3.16)	(-5.51)	(-2.76)	(-1.64)	(1.51)	(6.40)
Green	-0.015	-0.122*	-0.139**	-0.092	-0.168***	-0.293***
	(-0.13)	(-1.77)	(-2.55)	(-1.51)	(-3.38)	(-4.70)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Log Size	0.173**	0.182***	0.062**	0.045	-0.073***	-0.342***
	(2.53)	(3.98)	(2.02)	(1.54)	(-3.29)	(-8.51)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Log BM	-0.062	-0.011	-0.102***	-0.082**	-0.157***	-0.427***
	(-0.80)	(-0.27)	(-2.99)	(-2.42)	(-6.41)	(-11.15)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Momentum	2.939***	3.685***	3.502***	2.799***	3.734***	1.998***
	(13.57)	(18.65)	(21.97)	(21.08)	(24.79)	(8.34)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Stock Volatility	-0.097	-0.104	-0.182***	-0.108	-0.077	0.128*
	(-0.49)	(-1.32)	(-2.65)	(-1.56)	(-1.62)	(1.95)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Long-Term Debt	-0.263	-0.314	-0.281	-0.662**	-0.177	-0.302
	(-0.44)	(-0.93)	(-0.94)	(-2.24)	(-0.90)	(-1.14)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Short-Term Debt	0.678	1.087***	0.446*	0.545*	0.315*	-0.098
	(1.12)	(3.41)	(1.83)	(1.95)	(1.84)	(-0.41)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Cash Holdings	-0.371	-0.235	-0.351	-0.357	-1.161***	-1.219***
	(-0.65)	(-0.63)	(-1.27)	(-1.21)	(-4.75)	(-4.08)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Profitability	-0.445	-0.102	-2.870***	-3.462***	-2.803***	-2.878***
	(-0.40)	(-0.13)	(-4.55)	(-6.65)	(-7.34)	(-4.22)
Observations	194,657	448,998	448,104	422,776	483,339	496,594
R-squared	0.215	0.237	0.258	0.228	0.271	0.426
Month×Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.5: Impact of Negative ESG Incidents on Social Media Attention and Sentiment

This table presents panel regression estimates of the effect of ESG incidents on social media conditional on firms' past ESG practices. The sample period is from 2012 to 2021. In columns (1)-(4), the dependent variable is the first principal component of the sentiment signal of social media. In column (5)-(8), the dependent variable is the first principal component of the attention signal of social media. The sentiment and attention data is from Cookson et al. (2024). $\mathbb{1}(\text{Incident})_{[t-6,t]}$ is an indicator equal to one if at least one incident happens in months [t–6, t] and is zero otherwise. $\mathbb{1}(\text{Incident})_{[t-3,t]}$ is an indicator equal to one if at least one incident happens in months [t–3, t] and is zero otherwise. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in top two-thirds of all firms in that month and zero otherwise. Standard errors are double clustered at the firm and month level. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Variables	Sentiment PC1				Attention PC1			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\mathbb{1}(\text{Incident})_{[t-6,t]} \times$ Green		0.049				-0.080		
		(1.32)				(-1.33)		
$\mathbb{1}(\text{Incident})_{[t-3,t]} \times$ Green				0.043*				-0.086
				(1.96)				(-1.21)
$\mathbb{1}(\text{Incident})_{[t-6,t]}$	-0.046**	-0.073**			0.036**	0.081*		
	(-2.05)	(-2.35)			(2.11)	(1.73)		
$\mathbb{1}(\text{Incident})_{[t-3,t]}$			-0.034**	-0.061***			0.032**	0.087
			(-2.20)	(-3.34)			(2.38)	(1.62)
Green		-0.069**		-0.035*		0.007		0.004
		(-2.00)		(-1.85)		(0.26)		(0.14)
Observations	35,422	35,422	35,422	35,422	35,422	35,422	35,422	35,422
R-squared	0.118	0.118	0.185	0.185	0.489	0.489	0.489	0.489
Month×Ind FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.6: Regional-level Incidents

This table presents the regression estimates of the effect of pre-existing ESG reputation on CARs around the negative ESG incidents. CAR is the day [-t,+t] cumulative abnormal returns (in percent) where day 0 refers to the event date. Abnormal returns are estimated based on the market model. The sample period is from 2008 to 2022. Green is an indicator equal to one if a firm's ESG reputation at the end of the last quarter is in two-thirds of all firms in that month and zero otherwise. For the control variables, Size is the firm's market cap in the prior June, BM is the book-to-market ratio, Momentum is buy-and-hold return from the month t–12 to t–2, Stock Volatility is the month t–1 volatility of daily stock returns, Long-Term Debt is long-term debt divided by assets, Short-Term Debt is debt in current liabilities divided by assets, Cash Holdings is cash and marketable securities divided by assets, and Profitability is operating income before depreciation divided by assets. Controls also include industry × country fixed effects, year fixed effects and further include incident × region fixed effects in Columns (1), (3), and (5), incident × country fixed effects in Columns (2), (4), and (6). I categorize the firms into 4 different regions, North America (the US and Canada), EU15 (15 most developed European countries), Asia, and Others(mostly Australia, Africa, and South America). Standard errors are clustered by calendar day. t-statistics are in parentheses and ***, **, and * respectively denote statistical significance at the 1%, 5%, and 10% levels.

Variables	CAR [-1,+1]		CAR [-3,+3]		CAR [-5,+5]	
	(1)	(2)	(3)	(4)	(5)	(6)
Green	0.098**	0.070	0.198***	0.143**	0.269***	0.210**
	(2.31)	(1.57)	(3.11)	(2.16)	(3.27)	(2.44)
Log Size	-0.020	-0.015	0.001	0.001	-0.027	-0.032
	(-1.15)	(-0.82)	(0.05)	(0.05)	(-0.80)	(-0.86)
Log BM	-0.007	0.008	-0.031	-0.021	-0.074**	-0.077**
	(-0.38)	(0.42)	(-1.13)	(-0.69)	(-2.13)	(-2.04)
Momentum	-0.386***	-0.416***	-0.948***	-1.037***	-1.387***	-1.533***
	(-4.60)	(-4.35)	(-7.76)	(-7.53)	(-8.85)	(-8.89)
Stock Volatility	0.043**	0.036*	0.020	0.029	-0.012	0.005
	(2.23)	(1.91)	(0.71)	(1.01)	(-0.33)	(0.14)
Long-Term Debt	-0.300*	-0.176	-0.171	0.046	-0.536*	-0.418
	(-1.95)	(-1.10)	(-0.73)	(0.18)	(-1.79)	(-1.32)
Short-Term Debt	-0.221	-0.122	-0.426*	-0.299	-0.524*	-0.532*
	(-1.38)	(-0.72)	(-1.76)	(-1.16)	(-1.75)	(-1.67)
Cash Holdings	-0.038	-0.060	-0.159	0.041	-0.624*	-0.501
	(-0.20)	(-0.31)	(-0.56)	(0.14)	(-1.70)	(-1.30)
Profitability	-0.142	-0.041	-0.889*	-0.773	-0.833	-0.766
	(-0.45)	(-0.13)	(-1.90)	(-1.56)	(-1.41)	(-1.24)
Observations	125,909	117,772	125,909	117,772	125,909	117,772
R-squared	0.687	0.755	0.687	0.752	0.687	0.753
Incident×Region FE	Yes	No	Yes	No	Yes	No
Incident×Country FE	No	Yes	No	Yes	No	Yes
Ind×Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Appendix B. ESG Threshold

Figure B.1: Threshold

A. MSCI Letter Rating

Exhibit 8: Mapping the Industry Adjusted Company Score to Letter Ratings

Letter Rating	Leader/Laggard	Final Industry-Adjusted Company Score
AAA	Leader	8.571* - 10.0
AA	Leader	7.143 – 8.571
A	Average	5.714 – 7.143
BBB	Average	4.286 – 5.714
BB	Average	2.857 – 4.286
B	Laggard	1.429 – 2.857
CCC	Laggard	0.0 – 1.429

*Appearance of overlap in the score ranges is due to rounding imprecisions. The 0-to-10 scale is divided into seven equal parts, each corresponding to a letter rating.

B. ABN AMRO Funds Impax US ESG Equities

Sustainable nvestment means an nvestment in an	**Product name:** ABN AMRO Funds Impax US ESG Equities	**Legal entity identifier:** 549300LCUAZBZWYABN92

● *What are the binding elements of the investment strategy used to select the investments to attain each of the environmental or social characteristics promoted by this financial product?*

The binding elements of the investment strategy are:

- *Exclusion of the companies that do not pass the external investment manager ESG suitability analysis. The External Investment Manager considers for inclusion in the portfolio companies which score 5 or above, as ranked by the external investment manager ESG Rating. ESG laggards (score of <2.5) are excluded from the universe.*

C. ABN AMRO Funds Parnassus US ESG Equities

ABN AMRO Funds Parnassus US ESG Equities
short-named ABN AMRO Parnassus US ESG Equities

Sustainable investment policy

The sub-fund promotes environmental and social characteristics and qualifies as an investment product in accordance with article 8(1) of Regulation (EU) 2019/2088 on sustainability related disclosures in the financial services sector.

The sustainability analysis covers 100% of the securities in portfolio (cash, deposit are not covered by the ESG analysis).

After implementation of the sustainability filters (exclusions and ESG scoring), the bottom quartile of companies is excluded from the investable universe. Thus, the ESG score of the portfolio is better than the one of the investible universe.

As part of the Management Company's Sustainable Investment Policy the sub-fund complies with the sets of exclusions applying to article 8+ investment product.

Information regarding the environmental or social characteristics and/or the sustainable objectives of the relevant sub-funds as per SFDR Level II is available in the "Appendix 2" of the Book II of this Prospectus.

D. Quaero Capital Funds (Lux) – Infrastructure Securities

SPECIAL SECTION VI: QUAERO CAPITAL FUNDS (LUX) – INFRASTRUCTURE SECURITIES

This Special Section is valid only if accompanied by the Prospectus. This Special Section only relates to Quaero Capital Funds (Lux) – Infrastructure Securities (the **Sub-Fund**).

1.   INVESTMENT OBJECTIVE AND POLICY

The Sub-Fund aims at achieving inflation protection, earning a dividend on its investments as well as uncorrelated returns for investors. This product is intended to be used in conjunction with other strategies in order (i) to globally reduce portfolio volatility, and thereby increase the risk adjusted rate of return, or (ii) to provide protection against inflation.

The Sub-Fund is actively managed. This means that the Investment Manager is free to select investments with the aim of achieving the Sub-Fund's objectives. The Sub-Fund uses S&P Global Infrastructure Euro Net Total Return Index for performance comparison only This index is not aligned with the ESG characteristics promoted by the Sub-Fund which are achieved through an active management.

The Company may change the Sub-Fund's performance comparison benchmark index without prior notice. Any such change will be communicated to Shareholders and updated in the Prospectus at the next available opportunity.

Extra Financial Analysis

The Sub-Fund integrates environmental and social characteristics and is categorized as a **SFDR Article 8 Product.**

The Sub-Fund aims to recognise the inherent long-term impact of the infrastructure sector by supporting only those companies which are industry-leading on environmental and social responsibility and stewardship or are on path of committed improvement, provided that they follow good governance practices. The Investment Manager will analyze the management of ESG risks and opportunities for each investment using multiple data sources, including but not limited to MSCI Conser Invest ratings, ISS Governance scores, alongside bottom-up ESG analysis completed by the Investment Manager ESG team. The Sub-Fund will invest in those companies identified as having above-average ESG scores.

The Sub-Fund generally excludes companies from its investment universe that fall into the lowest three rankings (below BBB). From the ESG perspective, the Sub-Fund relies on MSCI's proprietary ESG ranking system (or other equivalent ranking system) which ranks companies on a scale of 7 rankings.

In the absence of a ESG rating from MSCI, the Investment Manager will rate the investment according to a proprietary methodology that ranks companies on a scale of 5 rankings (from very poor to excellent). The Sub-Fund generally excludes companies from its investment universe than fall into the bottom two rankings (very poor and poor, i.e. CCC or B). The rankings are based on an evaluation of the strength of the company's approach to the material environmental and social impacts of the industry, and the strength of the governance structure in place. Factors considered material vary from carbon emission intensity and waste management to employment standards.

Figure B.1 - *Continued*

E. Quaero Capital Funds (Lux) – Cullen ESG US Value

SPECIAL SECTION XI: QUAERO CAPITAL FUNDS (LUX) – CULLEN ESG US VALUE

This Special Section is valid only if accompanied by the Prospectus. This Special Section only relates to Quaero Capital Funds (Lux) – Cullen ESG US Value (the **Sub-Fund**).

1. **INVESTMENT OBJECTIVE AND POLICY**

The Sub-Fund's investment objective is to seek long-term capital appreciation through responsible investment in equities of U.S. companies mainly, which have favourable environmental, social and governance (**ESG**) characteristics. The Sub-Fund is categorized as **a SFDR Article 8 Product**.

The Sub-Fund is actively managed. This means that the Investment Manager is free to select investments with the aim of achieving the Sub-Fund's objectives. The Sub-Fund uses Russell 1000 Value Index Net Total Return USD for performance comparison only. This index is not aligned with the ESG characteristics promoted by the Sub-Fund which are achieved through an active management.

The Company may change the Sub-Fund's performance comparison benchmark index without prior notice. Any such change will be communicated to Shareholders and updated in the Prospectus at the next available opportunity.

The Sub-Fund will mainly invest in equities of companies across all market capitalizations (i) with what the Sub-Investment Manager believes is a relatively low price/earnings ratio (ii) that meet a minimum rating on MSCI's proprietary ESG ranking system (or other equivalent ranking system) and (iii) which are domiciled, headquartered or exercise their main activity in the United States of America (U.S.).

For about one third of its net assets, the Sub-Fund may invest in any other type of eligible assets, such as equities other than those above-mentioned, closed-ended real estate investment trusts (REITs) listed on a stock exchange, money market instruments, cash and undertakings for collective investment (UCITS and other UCIs). However, the Sub-Fund will not invest more than 10% of its net assets in UCITS and other UCIs.

The Sub-Fund provides investors with the opportunity to invest in a value disciplined manner in a formal ESG mandate. From the ESG perspective, the Sub-Fund relies on MSCI's proprietary ESG ranking system (or other equivalent ranking system) which ranks companies on a scale of 7 rankings.

The Sub-Fund generally excludes companies from its investment universe that fall into the lowest three rankings (below BBB).

However for the avoidance of doubt, companies that have not been evaluated or ranked by MSCI but which the Sub-Investment Manager believes demonstrate appropriate ESG characteristics may still be included in the portfolio according to a proprietary methodology that ranks companies on a scale of 5 rankings (from very poor to excellent). The Sub-Fund generally excludes companies from its investment universe that fall into the bottom two rankings (very poor and poor). The rankings are based on an evaluation of the strength of the company's approach to the material environmental and social impact of its industry and the strength of the governance structure in place. Factors considered material vary from carbon emission intensity and waste management to employment standards.

F. ABN AMRO Insight Euro ESG Corporate Bonds

G. BlackRock Global ESG Multi-Asset Fund

Figure B.1 - *Continued*

H. BlackRock Global Emerging Markets Sustainable Equity Fund

Pre-contractual disclosure for the financial products referred to in Article 8 paragraphs 1, 2 and 2a of Regulation (EU) 2019/2088 and Article 6, first paragraph, of Regulation (EU) 2020/852

Product name: Emerging Markets Sustainable Equity Fund
Legal entity identifier: 549300LB6Q9I4FRKNM72

The investment strategy guides investment decisions based on factors such as investment objectives and risk tolerance.

What investment strategy does this financial product follow?

The Fund adopts a holistic approach to sustainable investing and in normal market conditions the Fund will invest in a relatively concentrated portfolio of equity securities of companies with large, medium and small market capitalisation.

The Investment Adviser applies the BlackRock EMEA Baseline Screens and other exclusionary criteria. The Fund will not invest in companies that are the highest carbon emitters as measured by emission intensity and the Investment Adviser intends the Fund to have a lower carbon emissions intensity score than its benchmark. The Investment Adviser will limit direct investment in securities of issuers involved in: the production and retail sales of alcoholic products; the ownership or operation of gambling-related activities or facilities; the mining, production and supply activities related to nuclear power, the production of adult entertainment materials, unconventional oil and gas production, and, the production of conventional weapons. The assessment of the level of involvement in each activity may be based on percentage of revenue, a defined total revenue threshold, or any connection to a restricted activity regardless of the amount of revenue received. The ESG criteria also consists of a rating of B or higher as defined by MSCI's ESG Intangible Value Assessment Ratings or another equivalent third party ESG data provider.

The Investment Adviser engages with companies to support improvement in their environmental, social and governance ("ESG") credentials and the Fund will invest in companies with sustainable business models which have a strong consideration for ESG risks and opportunities.

Investment decisions are based on the Investment Adviser's fundamental research focusing on bottom up (i.e. company specific) analysis that seeks to identify and select equity and equity-related securities that can, as a portfolio, deliver the Fund's investment objective. The Investment Adviser's company-specific research uses techniques to assess equity characteristics such as strength of earnings, quality of balance sheet, cashflow trends, and relative valuation, as well as assessing companies' ESG credentials. The Investment Adviser has a flexible allocation strategy with a focus on ESG principles and sustainable alignment which means that it does not have a persistent bias towards particular categories of investment, such as specific countries, industries or style factors (i.e. specific characteristics of companies that it is considered may drive returns), but it may make allocation decisions based on such categories at particular times and will have a bias towards investments with strong or improving ESG credentials.

The Investment Adviser uses its analysis to create a portfolio that seeks to deliver:

a superior ESG outcome versus the benchmark

a lower carbon emissions intensity score than the benchmark; and

an allocation to Sustainable Investments

The Investment Advisor ensures that the weighted average ESG rating of the Fund will be higher than the ESG rating of the Index after eliminating at least 20% of the lowest rated securities from the Index.