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Routine and Material: The Integration of Environmental Factors in Analyst Research

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Abstract

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Keywords: Corporate Environmental Practice, Environmental Opportunities, Values,

JEL Classification: G24, G32, G34

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1. Introduction

Public firms are among the largest greenhouse gas emitters in modern history (CDP 2017; MSCI 2023), making it crucial to understand their environmental practices. Sell-side analysts occupy a unique position to provide such insights. They possess in-depth knowledge of the firms they cover and translate complex corporate realities into tangible valuations, thereby serving as both market watchdogs and key information intermediaries (Chen, Harford, and Lin 2015; Loh and Stulz 2018). Recent research shows that analysts actively process and respond to salient environmental, social, and governance (ESG) news and shocks (e.g., Derrien, Krueger, Landier, and Yao 2025). However, it remains unclear whether analysts systematically integrate environmental issues into their routine, day-to-day assessments and, crucially, how they weigh downside environmental risks against upside transition opportunities. Because analysts' opinions often reflect and potentially shape broader market behavior (Pástor, Sinha, and Swaminathan 2008; Bouchaud, Krueger, Landier, and Thesmar 2019), analyzing their beliefs and actions offers important insights into how financial markets value and respond to environmental challenges.

We structure our investigation around five interconnected questions. First, to what extent do analysts engage with corporate environmental issues, and is such coverage a mainstream feature of analyst research or merely a response to isolated shocks? Second, given that much of the academic literature emphasizes climate-related risks, do analysts view environmental factors solely as downside risks to be mitigated, or do they also recognize upside business opportunities associated with the climate transition? Third, do analysts regard these environmental risks and opportunities as financially material, and do they systematically incorporate them into their quantitative earnings forecasts and stock recommendations? Fourth, we explore analysts' underlying motivations: Do they evaluate environmental topics purely in terms of their implications for firm value, or do they also account for broader societal and environmental externalities—a distinction framed as *value* versus *values* (Starks, 2023)? Finally, we examine what these market experts view as the primary drivers of improvements in corporate environmental practices.

To answer these questions, we combine a large-scale survey of sell-side analysts, textual analysis of analyst reports, and quantitative data on analyst forecasts and recommendations to provide a comprehensive view of analysts' beliefs and actions regarding corporate environmental practices. Specifically, we conduct a structured survey to capture analysts' beliefs and perspectives,

obtaining responses from 505 analysts across diverse industries, genders, brokerage houses, and levels of experience. We then use a large language model (LLM) to identify and classify environment content in 273,664 analyst reports. These reports cover 3,931 unique firms from 2013 to 2022 and represent the actual information that analysts communicate to investors. Finally, we link these textual measures to analysts' EPS forecasts and stock recommendations to assess the financial materiality of environmental factors. Our data are drawn from China, the world's second-largest economy, a major greenhouse gas emitter, and a key player in the global climate transition.

Using these complementary sources of information, we first show that analysts routinely and systematically integrate environmental issues into their research. We find that 27.6% of research reports, or 75,611 reports, contain discussions of environmental topics. For comparison, only 16.4%, or 44,835 reports, mention artificial intelligence (AI), and just 3.9%, or 10,633 reports, reference cybersecurity risks. Environmental coverage is both broad and intensive. Reports discussing environmental issues span 83.3% of the unique firms in our sample, and environmental topics account for an average of 13.6% of all sentences in these reports. Survey evidence supports these textual findings: 83.2% of surveyed analysts report paying moderate or high attention to climate and environmental information. While recent research establishes that analysts actively process salient ESG news and events (e.g., Derrien et al. 2025; Park, Yoon, and Zach 2025), our evidence from both analyst reports and survey responses shows that analysts broadly and systematically integrate these issues into their routine assessments. Environmental considerations are therefore not peripheral but constitute a significant and ongoing component of analysts' research agendas.

We then examine whether analysts view environmental factors solely as risks to be mitigated or also as business opportunities to be captured. At the macro level, climate change and other environmental problems clearly pose profound threats to the planet and human welfare. At the firm level, however, the associated transitions, including regulatory shifts, technological innovation, and evolving stakeholder preferences, can generate both risks and opportunities, affecting firms in markedly different ways. Although academic research has focused largely on downside climate risks (e.g., Krueger, Sautner, and Starks 2020; Bolton and Kacperczyk 2021), practitioners frequently emphasize the potential upside of the climate transition. For example, BlackRock CEO Larry Fink described the climate transition as a "*historic investment opportunity*"

(Fink 2021). Motivated by this disconnect between academic and practitioner perspectives, we examine how analysts assess the trade-off between environmental risks and opportunities.

Our survey reveals a clear departure from the conventional risk-centric narrative. When asked how they view environmental factors for the firms they cover, 70.7% of analysts recognize an opportunity component: 44.4% view environmental factors equally as risks and opportunities, and 26.3% view them primarily as opportunities. Only 16.6% regard environmental factors mainly as risks. Textual analysis of analyst reports corroborates this pattern. Among reports discussing environmental issues, analysts devote an average of 3.79 sentences to opportunities, compared with 0.77 sentences to risks. Furthermore, over 85% of these reports mention at least one environmental business opportunity, whereas only 37.7% discuss environmental risks. Together, these findings show that analysts' environmental assessments are not dominated by downside risk. Analysts also place substantial emphasis on the business opportunities associated with the environmental transition.

Exploring the major sources of these environmental risks and opportunities, we find that analysts consistently identify physical environmental changes as the most critical source of risk in both brown and green industries.[1] These findings underscore analysts' concern about the direct adverse effects of climate change. Regulatory risks, by contrast, are perceived as a significant threat only in brown industries. On the opportunity side, analysts overwhelmingly point to the transition to green technologies across both industry groups. Consistent with this view, our empirical analysis further shows that environmental opportunity discussions in analyst reports are positively associated with firms' green patenting activities. These findings align with recent empirical evidence on transition opportunities, including those for carbon-intensive firms (e.g., Cheema-Fox, Serafeim, and Wang 2022; Cohen, Gurun, and Nguyen 2026).

Are environmental opportunities merely conceptual, relevant only in the long run, or do they have tangible financial implications for firms? We explore this question using both survey responses and analysts' actual forecasts and recommendations. First, by matching analyst reports with corresponding earnings per share (EPS) forecasts and stock recommendations, we document a systematic relationship between analysts' environmental framing and their assessments of firm value. Holding firm fundamentals constant through firm-by-year fixed effects and controlling for

[1] For expositional simplicity, we refer to industries included in the China Securities Regulatory Commission's (CSRC) high-polluting industry list as "brown" and all other industries as "green".

overall report tone, we find that analysts who place greater emphasis on environmental risks issue significantly lower EPS forecasts and less favorable recommendations. Conversely, reports that focus more extensively on environmental opportunities are accompanied by higher earnings projections and more favorable recommendations. Analysts' environmental assessments therefore translate directly into their quantitative outputs. Second, survey evidence confirms this pattern. Analysts who view environmental factors primarily as opportunities expect them to positively affect firm performance, whereas those who focus primarily on risks anticipate negative financial consequences, particularly over the long term. Together, these findings show that analysts do not treat environmental factors as mere "cheap talk"; rather, they embed these assessments directly into their valuation models. The results continue to hold when we restrict the sample to non-state-owned enterprises (non-SOEs), indicating that the pricing of environmental factors reflects a market-driven phenomenon rather than merely state ownership or policy mandates.

Both environmental risks and opportunities are assessed primarily from a firm-value perspective, as they center on how environmental issues affect firm valuation. But are these the only considerations in analysts' environmental coverage? We next explore analysts' underlying motivations: Do they assess environmental issues solely for their financial value relevance, or do they also incorporate broader environmental and societal externalities? This distinction is framed as shareholder value maximization versus welfare maximization by Hart and Zingales (2017), and as *value* versus *values* by Starks (2023). In our survey, we ask respondents whether they attempt to influence the firms they cover to reduce environmental impact. A non-trivial minority, 14.5%, report that they would do so "*even when it does not increase firm value*," reflecting a *values*-oriented approach. However, the majority, 57.2%, indicate that they would do so "*only when it can increase firm value*," consistent with a purely *value*-oriented approach. The remaining 28.3% indicate no intention to influence firms.

Textual analysis of analyst reports reveals a similar emphasis on financial *value*. We independently classify environmental discussions as *value*-related when they link environmental issues to firm-level financial outcomes and as *values*-related when they address broader societal or environmental externalities. We find that 67.1% of environment-related reports discuss only financial *value*, 20.8% address both *value* and *values*, and just 1.9% discuss *values* alone. Thus, although a meaningful 22.7% of reports incorporate some nonfinancial *values* considerations, financial value maximization remains the sole focus of most reports. Even among reports that

address both dimensions, *value*-related sentences outnumber *values*-related sentences by 2.5 to 1, further highlighting the predominance of financial considerations.

When examining the nature and determinants of analysts' *value*-versus-*values* orientation, we find that this orientation is relatively persistent over time. Analysts who include more *values*-related discussions in year *t* are significantly more likely to maintain this emphasis in subsequent years. Cross-sectionally, *values* orientation is associated with analysts' personal concern about climate change, gender, age, and educational attainment, suggesting the presence of an analyst-specific style. We also find that *values* discussions in analyst reports are significantly associated with the number of covered firms with substantial green-investor ownership and with employment at brokerage houses that promote *values*-oriented cultures. These results indicate that preferences of analysts' clients and employers also influence their research orientation. Collectively, the evidence suggests that analysts' *value*-versus-*values* orientation reflects both their personal preferences and the preferences of the investors and organizations they serve.

Finally, we examine another critical question: What moves the corporate environmental dial? Specifically, which forces do analysts consider most effective in improving firms' environmental practices? To answer this question, we identify eight factors commonly discussed in the academic literature and ask surveyed analysts to evaluate their influence. These factors include government policies and regulations (e.g., Greenstone 2003; He, Wang, and Zhang 2020), investor and creditor influence (e.g., Pástor, Stambaugh, and Taylor 2021; Houston and Shan 2022), public and media pressure (e.g., Heese and Pacelli 2024), and supply chain pressure from suppliers and customers (e.g., Dai, Liang, and Ng 2021), among others.

We summarize a few key findings here and provide a more detailed discussion in Section 8. First, consistent with the findings of limited weight buy-side managers put on environmental issues that do not positively impact financial returns (Edmans, Gosling, and Jenter 2026), analysts rank investor influence on environmental issues relatively low and significantly below most other factors. This perception is also supported by recent empirical evidence showing that institutional investors have limited treatment effects on corporate behavior (e.g., Atta-Darkua, Glossner, Krueger, and Matos 2026; Heath, Macciocchi, Michaely, and Ringgenberg 2023) and that their selection effects on firms' cost of capital are relatively small (Gantchev, Giannetti, and Li 2022; Berk and van Binsbergen 2025; Zhang 2025). The consistency between Chinese analysts' perceptions in our study and empirical evidence based on U.S. and global data suggests that our

findings may have broader relevance beyond the Chinese context. At the other end of the spectrum, analysts view government regulations as the most influential driver of improvements corporate environmental practices, echoing the emphasis on regulatory approaches among finance academics, practitioners, and policymakers documented by Stroebel and Wurgler (2021).

A common concern with survey evidence is whether respondents' stated beliefs align with their actual behavior. To address this concern, we link surveyed analysts to their published research reports. Because the survey is anonymous, we construct a probabilistic matching algorithm based on a vector of observable characteristics, including location, brokerage size, gender, experience, and covered firms. This procedure links 385 survey respondents to likely counterparts in the report dataset, with an average of 1.3 matched counterparts per respondent. The matched sample allows us to compare what analysts report privately in the survey with what they communicate publicly through their research reports. The results reveal strong consistency across the core dimensions of our study. Analysts who report paying greater attention to environmental topics allocate significantly more text to these issues in their reports. Those who view environmental factors primarily as opportunities devote significantly more commentary to environmental issues' upside potential, relative to downside risk, than analysts who view them mainly as risks. Finally, analysts who report a *values*-oriented approach systematically include more externality-related discussions than their *value*-oriented peers. This consistency between survey responses and report content mitigates concerns about cheap talk and provides reassurance that the survey captures analysts' true beliefs and professional practices.

Taken together, our findings clarify how analysts, as key capital market information intermediaries, integrate environmental factors into their research. We document that analysts routinely cover environmental issues and view environmental factors not only as risks but also as business opportunities. They incorporate these assessments into earnings forecasts and stock recommendations, indicating that environmental factors have tangible implications for firm value. Regarding analysts' underlying motivations, we find that, while a meaningful minority considers broader nonfinancial *values*, most analysts evaluate environmental issues purely in terms of their implication for firm value. Finally, analysts perceive regulation, rather than investors or other stakeholders, as the primary drivers of corporate sustainability, suggesting that efforts to improve environmental performance may be most effective when channeled through regulatory mechanisms.

2. Methodology, Data, and Sample Characteristics

We integrate three data sources: a large-scale analyst survey, textual analysis of analyst reports using a large language model, and quantitative data on analyst forecasts and recommendations. This section outlines our data collection procedures and presents the characteristics of analysts in both survey and textual samples.

2.1 Survey Development and Delivery

We developed the survey using an iterative process. Initially, we presented the survey at the 2023 HKU-TLV Finance Forum and received feedback from 24 academic participants. After revising the questions, we presented the updated version at the 4th Analyst Research Conference in Greece and the 2023 Asian Finance Association Annual Conference in Vietnam and obtained 84 additional feedback responses. Outside of conferences, we solicited input from several academics and practicing equity analysts. Following further revisions, we translated the survey into Chinese and asked several Chinese academics and equity analysts to proofread the translation to ensure accuracy and clarity. To mitigate order effects, we randomized the ordering of response options in matrix-style questions.

The finalized survey comprises two parts. The first part collects respondents' general and professional background information, such as gender, age, years of experience, job role (e.g., equity or strategy research), and the industries and firms they cover. The second part contains 12 questions related to corporate environmental issues. Internet Appendix 1 presents the complete survey instrument in both English and Chinese.

We distributed the survey through two channels: outreach to individual brokerage houses and through collaboration with the Securities Association of China (SAC). In total, we obtained 555 initial responses. Details on the survey distribution and response rates are discussed in Internet Appendix 2. To address potential concerns about careless or unqualified responses, we excluded responses that (i) took less than two minutes to complete, (ii) showed no variation in the final five questions, (iii) lacked information about covered industries or firms, or (iv) were submitted by non-equity research analysts (e.g., strategy research analysts). We also removed possible duplicate responses by cross-checking IP addresses and general background information. After screening, we retained 505 valid responses with clear information on their industry or firm coverage. Section 2.3 provides the distribution of the survey respondents and compares them with the broader sample of analysts identified from our report data.

2.2 Analyst Reports and Forecasts

We obtain all analyst reports issued for Chinese listed firms from 2013 to 2022 from DZH, a leading financial information service provider in China. We focus on firm-specific research reports in which the focal firm, the issuing analyst, and the analyst's brokerage affiliation can be clearly identified. We then match these reports to analyst forecasts and stock recommendations from the China Stock Market and Accounting Research (CSMAR) database. We also obtain analysts' demographic information, such as gender and educational background, from CSMAR and the SAC website. After removing observations with incomplete information, our final sample consists of 273,664 analyst reports with corresponding EPS forecasts. The reports are issued by 5,261 analysts and cover 17,524 firm-years and 3,931 unique firms.

After extracting the textual content from the reports, we employ Llama-3-8B, an open-source pretrained large language model developed by Meta, and fine-tune it to identify sentences related to environmental issues. Specifically, we randomly sample 10,000 sentences from the corpus and ask two research assistants to independently label each sentence as environment-related or unrelated. We allocate 80% of the labeled observations to the training set and the remaining 20% to the test set. The model is fine-tuned on the training set by adjusting its parameters to minimize classification error. Evaluation on the test set shows that the fine-tuned model achieves 97% accuracy and 97% precision in distinguishing environment-related content from other topics. Applying the model to the full corpus, we identify approximately 406,000 environment-related sentences across all analyst reports. Detailed examples are provided in Internet Appendix 3.

In the next step, we further classify the environment-related sentences into whether they focus on environmental risks or opportunities, and whether they reflect financial *value* or nonfinancial *values*. Because these tasks typically require contextual understanding beyond isolated sentences, we include each environment-related sentence together with its adjacent sentences for both manual labeling and model fine-tuning. The classification criteria and results are detailed in Sections 4 and 6, respectively. Performance metrics for all fine-tuned models are reported in Internet Appendix 6.

2.3 Sample Characteristics

Table 1 presents the characteristics of the analysts in the survey- and report-based samples. Among the survey respondents, 42.4% are female, 55.6% are under 30 years old, 53.9% have more than 2 years of experience, and 81.8% hold a master's degree. In comparison, among all analysts

who have issued a research report in our sample, the corresponding figures are 25.4%, 50.7%, 58.8%, and 84.7%, respectively. These data suggest that the survey respondents are broadly similar to the overall analyst population, except gender. Brokerage size and geographic location also show comparable distributions across the two samples. To address potential concerns about gender-related response bias, we adopt two approaches. First, we control for analysts' gender in all regression analyses. Second, as shown in Internet Appendix 15, we re-evaluate the survey results by resampling male and female respondents to match the gender distribution observed in the report sample.

Our industry classification follows the CITIC Securities framework, which is widely used by equity analysts in China. Figure 1 displays the distribution of the survey respondents and analyst reports across industries. To formally assess the similarity of the two samples, we conduct a Kolmogorov-Smirnov (KS) test to compare their industry distributions. The KS statistic is 0.047, with a *p*-value of 0.197, failing to reject the null hypothesis that the industry distributions of the two samples are equal.

3. Analysts' Coverage of Environmental Issues

We first quantify the extent of analysts' environmental coverage using the textual analysis procedure outlined in Section 2.2. Panel A of Table 2 shows that, of the 273,664 analyst reports in our sample, 75,611 (27.6%) contain at least one reference to environmental topics. Importantly, these reports are not concentrated among a small set of firms or industries. They span 63.7% (11,171) of the firm-years and 83.3% (3,275) of the unique firms in our sample, indicating broad environmental coverage across the equity market. Discussions of environmental matters are also relatively substantial. Reports that mention environmental topics are longer on average, containing 53.83 sentences, of which 5.37 (13.6%) are devoted to environmental matters. Across all analyst reports, the average is 1.48 environmental sentences per report, or 3.8% of total sentences. Together, these results suggest that analysts cover environmental issues both in breadth, across a wide range of firms, and in depth, within individual reports. In Panel A of Internet Appendix 14, we replicate the analysis using a subsample of reports issued by brokerages without substantial government ownership and obtain quantitatively similar results. This indicates that analysts' broad environmental coverage is unlikely to be driven by political pressures faced by government-owned

brokerages in China. Rather, the pattern appears to reflect market-oriented analyst behaviors more generally.[2]

To benchmark analysts' environmental coverage against other prominent topics, we apply a standard bag-of-words approach to identify discussions of AI and cybersecurity topics in analyst reports. Our keyword dictionaries include 119 AI-related terms and 185 cybersecurity-related terms. The detailed methodology and results are provided in Internet Appendix 7. We find that during our sample period, 16.4% (44,835) of reports discuss AI-related topics, and 3.9% (10,633) mention cybersecurity. Both figures are substantially lower than the proportion of reports addressing environmental topics (27.6%, or 75,611 reports). When we restrict the sample to the most recent five years, 2018-2022, 16.3% and 4.5% of the reports mention AI and cybersecurity, respectively, compared to 28.6% that discuss environmental issues over the same period. These findings suggest that environmental topics receive broad attention from analysts, at least comparable to other prominent emerging topics.

We also ask surveyed analysts to assess their attention to climate and environmental information, both in absolute terms and relative to their industry peers (Survey Q2). Panel B reports the results. On a 5-point scale, 47.9% of the analysts rated their absolute level of attention as 4 or 5 (high), 35.3% as 3 (mid-level), and 16.8% as 1 or 2 (low).[3] Consistent with evidence from analyst reports that fewer than 20% of firms are not associated with any environmental discussion, only a small fraction of respondents report low attention to environmental topics. The majority (83.2%) consider themselves to devote a moderate to high level of attention. Taken together, the textual and survey evidence consistently indicates that analysts regularly incorporate meaningful environmental coverage into their research, both in breadth and depth.

We examine whether analysts' environmental coverage reflects a broader, routine integration of these issues or if it is driven primarily by salient environment-related events. The

[2] In Panels B and C of Internet Appendix 14, we also show that when restricting the sample to reports issued by brokerages without substantial government ownership, the statistics remain quantitatively similar to the full sample estimate along the other two dimensions of our study: analysts' assessments of environmental opportunities versus risks, and their *value*- versus *values*-orientation.

[3] In terms of relative attention, because not everyone can be above average, the rational benchmark for relative attention level should be 3. However, we find a mean relative attention score of 3.27, which is statistically significantly higher than 3, suggesting upward bias in analysts' self-assessments. This is consistent with psychologists' and sociologists' observations that individuals tend to overestimate their social and environmental awareness because of its social desirability (e.g., Phillips and Clancy 1972). At the same time, the mean relative attention level is significantly lower than the absolute level, indicating that the respondents recognize the difference between absolute and relative levels and perceive their peers as having relatively high levels of environmental coverage.

results, reported in Internet Appendix 8, suggest that analysts' environmental discussions are primarily a routine practice rather than a merely reactive response. Across the full sample, environmental sentences account for an average of 3.751% of report content. Crucially, this baseline coverage remains substantial and remarkably stable even in the absence of salient environmental shocks or firm-level penalties. As shown in Panel A, reports issued without concurrent environmental penalties, natural disasters, floods and landslides, or abnormal high temperatures still dedicate 3.745%, 3.716%, 3.718%, and 3.701% of sentences to environmental topics, respectively. Furthermore, the vast majority of environmental sentences in our sample, ranging from 83.2% to 99.8% across the different event categories, are observed during these non-event periods. Thus, analysts continuously integrate environmental considerations into their regular evaluation processes,

Despite this strong routine baseline, salient events still exert a significant, localized impact on analyst attention, consistent with Derrien et al (2025). Panel B shows that environmental coverage increases significantly following specific environmental events. Regression estimates indicate that environmental discussions increase by 1.778 percentage points when a firm receives a recent environmental penalty and by 0.189 percentage points when the analyst's region experiences floods or landslides. Natural disasters and abnormally high temperatures also yield statistically significant, though smaller, upticks in coverage. Together, these findings suggest that while extreme events act as local catalysts for heightened environmental attention, they do not alter the big picture: analysts' environmental coverage is fundamentally characterized by a routine and structural integration of environmental considerations into their broader firm analysis.

Lastly, we examine trends in analysts' environmental coverage over time and find substantial variation. As shown in Figure 2, slightly fewer than 20% of analyst reports discussed environmental matters in 2013. This share increased to approximately 25% in 2015, the year of the Paris Agreement, and rose further to 29% in 2016 and 2017. After peaking in 2017, however, analysts' environmental coverage declined, reaching 23.8% in 2020. This decline does not appear unique to China; rather, it parallels the global decline in climate change-related conversations in earnings calls over the same period, as documented by Sautner, van Lent, Vilkov, and Zhang (2026).

In 2020, China announced its "Dual Carbon" goals at the United Nations General Assembly, committing to peak CO_2 emissions before 2030 and achieve carbon neutrality before 2060. These goals quickly became a central framework for corporate environmental regulation and heightened

environmental awareness in China (Hong et al. 2024). Consistent with this policy shift, analysts' environmental coverage increased sharply after 2020. The share of reports containing environmental content reached 29.7% in 2021 and 31.7% in 2022, the final two years of our sample. The intensity of coverage, measured by the percentage of environmental sentences per report, follows a similar pattern to the breadth of coverage (i.e., the percentage of reports containing environmental content).

Together, these time trends suggest that analysts' environmental coverage responds positively to major domestic and international climate-policy developments. Importantly, however, even during periods of relatively low policy attention, approximately 20%–24% of analyst reports still discuss environmental issues. This suggests that analysts' environmental coverage is not merely event-driven but rather constitutes a routine component of their research.

4. Environmental Risks and Opportunities

4.1 Assessments of Environmental Factors as Risks and Opportunities

Environmental and climate change issues are frequently framed as risks in academic literature (e.g., Krueger et al., 2020; Bolton and Kacperczyk, 2021). However, government subsidies, advances in green technologies, and shifting stakeholder demands may also generate significant upside potential. While academic research has typically emphasized downside costs, practitioners increasingly characterize the climate transition as a major business opportunity. For example, former Bank of England Governor Mark Carney called the net zero goal "*the greatest commercial opportunity of our time*" (Climate Change News 2020). A Forbes article (2022) writes: "*Solving for climate change presents perhaps the biggest opportunity for businesses and investors over this decade. It is not just about renewables; opportunities abound in sectors ranging from agriculture and mining to information technology and professional services.*"

Echoing this practitioner view, we ask surveyed analysts whether they view environmental factors more as a risk or an opportunity for the firms they cover (Q3). As shown in Figure 3A and Panel A of Table 3, a combined 70.7% of respondents do not evaluate these issues through a risk-only lens: 44.4% view them equally as risks and opportunities, and 26.3% regard them primarily as opportunities. Only 16.6% focus mainly on downside risks, and the remaining 12.7% consider environmental factors irrelevant to the firms they cover. These findings complement and extend the traditional risk-centric narrative by showing that analysts systematically recognize the

opportunity dimension of environmental issues. They are also consistent with recent empirical evidence that greater exposure to climate solutions carries a valuation premium (Lu, Riedl, Xu, and Serafeim 2024).

We next examine analysts' discussions of environmental risks and opportunities in their reports. Using the Llama model and a fine-tuning procedure similar to that described in Section 2.2, we further classify the identified environmental discussions as risks, opportunities, or neutral for the focal firm. Sentences are categorized as opportunities if they imply positive implications for the firm, and as risks if they indicate negative implications. For example, the sentence "*There is a risk of periodic fluctuations in the feed industry caused by abnormal weather and livestock diseases*" is classified as a risk. "*Paper packaging is an eco-friendly alternative to materials like plastic, metal, and glass. Growing consumer awareness of environmental issues will accelerate the adoption of paper packaging, and the company will benefit from this trend in the long term*" is an opportunity. Additional classification details and examples are provided in Internet Appendix 4.

The textual evidence corroborates the survey results: Analysts highlight environment-related business opportunities more frequently and extensively than risks. Figure 3B and Panel B of Table 3 show that 86.6% of environment-related reports mention business opportunities (column (3) plus column (4)), compared with just 37.7% that discuss risks (column (2) plus column (4)). At the sentence level, the average report contains 3.79 environmental opportunity-related sentences, compared with 0.77 risk-related sentences. Even among reports that address both dimensions (column (4)), opportunity-related content outpaces risk-related content by more than three to one (7.61 vs. 2.20 sentences). Overall, the textual evidence reinforces the survey findings and indicates that environmental opportunities are a prominent consideration in analysts' sustainability assessments.

Next, we test whether these assessments vary cross-sectionally by dividing the sample into brown and green industries based on the CSRC's classification of high-polluting industries. Brown industries are those included in the high-polluting industry list, while green industries comprise the remaining industries. As shown in Panel C of Table 3, green industries are better positioned to capture upside potential, while brown industries face greater downside exposure. In the survey, 22% of analysts covering brown industries focus primarily on environmental risks, compared with 14% in green industries. By contrast, only 17% of analysts covering brown industries focus primarily

on environmental opportunities, compared with 32% in green industries. The textual analysis mirrors this pattern: reports on brown industries contain significantly more risk-related sentences than those on green industries (0.94 vs. 0.68), and significantly fewer opportunity-related sentences (2.92 vs. 4.22).

One possible concern is that analysts' discussions of environmental opportunities merely reflect a generally optimistic writing style. That is, the optimism about environmental opportunities may not be unique to environmental issues, but rather a more general optimistic tone attributed to analysts. To examine this possibility, we compare the tone of environmental and non-environmental discussions in analyst reports. We measure tone as the number of positive sentiment words minus the number of negative sentiment words, divided by the total number of words, using the Chinese business and finance sentiment lexicon developed by Jiang et al. (2021). As shown in Internet Appendix 9, for each report containing environmental discussions, we separately calculate the tone of its environmental and non-environmental content and then compare these report-level tone measures across the sample. The average tone of environmental discussions is significantly more positive than that of non-environmental discussions. This suggests that analysts frame environmental factors more positively than other firm-related issues, corroborating our interpretation that these discussions capture perceived environmental opportunities. Moreover, when we separately measure the tone of environmental risk and opportunity discussions, the average tone is 0.066 for environmental opportunity discussions and −0.017 for environmental risk discussions, with the difference being statistically significant. These findings provide additional validation that our LLM-based classification distinguishes discussions of the potential upside of environmental factors from those emphasizing their downside risks.

4.2 Key Sources of Environmental Risks and Opportunities

The literature identifies physical climate change, regulatory developments, technological innovation, and shifting stakeholder preferences as key sources of environmental risk (e.g., Krueger et al. 2020; Stroebel and Wurgler 2021). Yet these same factors can generate upside potential. For instance, stricter environmental regulations may benefit firms investing in emissions abatement, and extreme weather may increase demand for climate-adaptive products. We therefore investigate which specific factors analysts perceive as primary sources of environmental risks versus opportunities. In our survey (Q7), analysts are asked to rate the expected financial impact of eight environmental factors on a scale from −3 (very negative) to +3 (very positive). This design

allows us to classify each factor as a perceived risk, neutral factor, or opportunity. As shown in Table 4, these factors include physical environmental change, environmental regulations and subsidies, the transition to green technologies and products, demand for climate-adaptive goods, and changes in various stakeholders' preferences.

We first focus on negative responses to identify the most salient environmental risks. We construct two measures. The first is the percentage of analysts rating a factor negatively, which captures prevalence. The second is an adjusted weighted mean that incorporates both prevalence and severity. Specifically, for each factor *n*, we compute the mean of negative ratings, multiply it by the proportion of negative responses to obtain a weighted mean, and then normalize this value by the cross-factor average across all eight factors, as shown in Equation (1). By construction, an adjusted mean greater than one indicates an above-average risk, while a value below one indicates a below-average risk.

$$Adjusted\ \ mean_n = \frac{Weighted\ mean_n}{\sum_{k=1}^{8} Weighted\ mean_k\ /8} \left(n = 1, 2, ..., 8\right) \tag{1}$$

Panel A of Table 4 shows that *physical environmental change* emerges as the most salient risk, with adjusted means significantly above one in both brown and green industries. This finding is consistent with prior research linking climate change to adverse macroeconomic outcomes (e.g., Dell, Jones, and Olken 2009; Hsiang et al. 2017), and further underscores the broad economic costs associated with climate and environmental disruptions.

The second highest-rated risk is *environmental regulations and subsidies.* Analysts view this factor as a significant threat in brown industries (adjusted mean significant above one), but not in green industries (adjusted mean of 0.61). This pattern underscores the particular relevance of regulatory risks for high-polluting industries. Other factors, such as changes in various stakeholders' preferences and technological shifts, are perceived as moderate risks to brown industry firms, with adjusted means between 0.80 and 1.10.

To evaluate environmental opportunities, we apply the same two measures to positive responses and report the results in Panel B. In brown industries, *transition to green technologies and products* stands out as the most important opportunity and is the only statistically significant one. This aligns with recent empirical evidence emphasizing the strategic value of technology transitions for carbon-intensive firms (Cheema-Fox et al. 2022; Cohen et al. 2026). It is also corroborated by the positive correlations between analysts' environmental opportunity discussions

in their reports and firms' green patenting activities across both brown and green sectors, as documented in Internet Appendix 10.

In green industries, five factors emerge as significant opportunities with adjusted means significantly above one: *green technology transitions*, *environmental regulations and subsidies*, *demand for climate-adaptive products*, *changing consumer preferences*, and *changing supply-chain preferences.* Notably, these factors are often framed as environmental risks in the literature (e.g., Krueger et al. 2020; Stroebel and Wurgler 2021). By design, green technology advancement and environmental regulations aim to promote societal welfare and facilitate the net-zero transition. Although these factors may impose costs on some firms, they can create strategic advantages for others, particularly firms that are well positioned to lead the transition. Analysts' assessments reveal the dual nature of these environmental drivers and highlight the importance of firm-level environmental opportunities.

Finally, we use the Llama model to extract dominant themes from environmental discussions in analyst reports and present the results in Figure 4.[4] In brown industries (Panel A), risk discussions predominantly center on *resource depletion* and *stricter environmental policies*, aligning with the top two risk factors identified in the survey. Green industry risk discussions (Panel B) focus on *environmental degradation*, which reflects physical environmental change and again aligns closely with the survey results. Analysts also frequently mention "*overcapacity*" and "*intensified market competition*", suggesting that competitive pressures, although not classified as environmental risks, pose significant challenges for green industries. On the opportunity side (Panels C and D), *technological innovation* and *technological progress* are the most frequent themes across both sectors, aligning with the leading opportunity factor identified in the survey. Overall, the survey and textual data consistently point to physical environmental change as the most salient risk, whereas the transition to green technologies emerges as the dominant perceived business opportunity.

5. Financial Materiality of Environmental Information

Establishing the financial materiality of corporate environmental factors is critical: For environmental considerations to meaningfully influence capital allocation, they must ultimately translate into tangible financial consequences. Evaluating this materiality, however, requires

[4] Full methodological details, including the prompt used for theme extraction, are provided in Internet Appendix 11.

moving beyond the overall length of environmental discussions in analyst reports since environmental factors inherently carry opposing financial implications, ranging from downside costs to upside opportunities. An aggregated measure therefore conflates these diverging effects and obscures their true impact on valuation. To resolve this, we leverage our earlier directional classification of environmental risks and opportunities. This allows us to empirically assess whether analysts systematically embed these distinct dimensions into their quantitative financial forecasts. Moreover, because environmental factors such as regulatory changes, technological advances, and shifts in stakeholder preferences often take time to affect firms' operations and performance, we expect their long-term financial effects to be stronger than their short-term effects. We test these predictions using both survey responses and actual analyst forecast data.

First, in the survey, we use two separate questions to capture analysts' conceptualization of environmental factors and their assessment of financial consequences. As explained in Section 4, Q3 asks: "*For the firms you cover, do you see environmental and climate change factors more as a risk or an opportunity?*" We construct two indicator variables, *More as a risk* and *More as an opportunity*, to capture each respondent's conceptual categorization of environmental factors. Q6 then asks: "*For the firms you cover, please evaluate how environmental and climate change factors affect their financial performance. In the short term: _____; In the long term: _____.*" Responses range from −3 (very negative) to +3 (very positive), and we use them as our main dependent variables, *Short-Term Financial Impacts* and *Long-Term Financial Impacts*, respectively.

If analysts' risk–opportunity categorizations reflect assessments with meaningful financial implications, we expect these categorizations to predict their perceived financial impacts. Specifically, analysts who view environmental factors primarily as opportunities should report more positive financial effects, whereas those who view them primarily as risks should report more negative financial effects. By contrast, if these categorizations are merely conceptual labels, or if analysts do not form internally consistent assessments of environmental factors, Q3 responses should have little relation to Q6 financial-impact assessments. We therefore estimate the following regressions:

$$Short\text{-}Term\ Financial\ Impacts_i = \beta_0 + \beta_1 More\ as\ an\ opportunity_i + \beta_2 More\ as\ a\ risk_i + \gamma' X_i + \psi_j + \varepsilon_i \quad (2)$$

$$Long\text{-}Term\ Financial\ Impacts_i = \beta_0 + \beta_1 More\ as\ an\ opportunity_i + \beta_2 More\ as\ a\ risk_i + \gamma' X_i + \psi_j + \varepsilon_i \quad (3)$$

The dependent variables and key explanatory variables are defined above. The subscript *i* indexes surveyed analysts. X_i is a set of analyst characteristics, including gender, age, years of experience, number of firms covered, etc. Ψ_j denotes industry fixed effects.

Table 5 reports the results. Consistent with expectations, analysts who view environmental factors primarily as opportunities anticipate more positive financial outcomes. The coefficients on *More as an opportunity* range from 0.316 to 0.740 and are statistically significant in three of the four specifications. Conversely, the coefficients on *More as a risk* are consistently negative, ranging from −0.472 to −0.713, and highly significant, indicating that risk-focused analysts expect environmental factors to have adverse financial consequences. These anticipated impacts are also stronger over longer horizons. The absolute magnitudes of the long-term coefficients in columns (3) and (4) consistently exceed their short-term counterparts in columns (1) and (2). *F*-tests confirm that this difference is statistically significant in the baseline models (columns (1) and (3)), though the significance attenuates once industry fixed effects absorb cross-industry variation. Overall, these results indicate that surveyed analysts perceive environmental factors, both risks and opportunities, as financially consequential, with long-term effects exceeding short-term ones.

We next move beyond stated beliefs and examine whether analysts' qualitative environmental assessments translate into quantitative outputs. A distinct advantage of our empirical setting is that we can observe both analysts' reasoning in writing context and their ultimate financial forecasts. If environmental factors are genuinely material and have impacts on cash flows, the intensity of environmental risk and opportunity discussions within a given report should explain the accompanying earnings forecasts and stock recommendations. We estimate the following regressions:

$$\begin{aligned} FEPS_{i,m,t+k} = {} & \beta_0 + \beta_1 \%of\ EnvOpportunitySentences_{i,m,t} + \beta_2 \%of\ EnvRiskSentences_{i,m,t} \\ & + \eta ReportTone_{i,m,t} + \gamma' X_{i,m,t} + \psi_{m,t} + \varepsilon_{i,m,t} \end{aligned} \quad (4)$$

The dependent variable, $FEPS_{i,m,t+k}$, denotes analyst *i*'s one-, two-, and three-year-ahead EPS forecasts for firm *m*, scaled by the firm's stock price at the end of year *t* (*k* = 1, 2, 3). The key independent variables, *% of Env Opportunity Sentences*$_{i,m,t}$ and *% of Env Risk Sentences*$_{i,m,t}$, measure the proportions of sentences in the analyst report that discuss environmental opportunities

and risks, respectively. We control for overall report sentiment using report tone, following De Franco, Hope, Vyas, and Zhou (2015). *Report Tone* is measured as the number of positive sentiment words minus the number of negative sentiment words, divided by the total number of words in a report. $X_{i,m,t}$ is a set of control variables, including the analyst's gender, age, years of experience, number of firms covered, and the total length of the report. $\Psi_{m,t}$ represents firm-by-year fixed effects. We then repeat the analysis using stock recommendations, *Rec*, as the dependent variable. *Rec* is coded as 2 (strong buy), 1 (buy), 0 (hold), −1 (sell), and −2 (strong sell). Data on analyst forecasts and recommendations are obtained from the CSMAR database and matched to analyst reports based on broker name, analyst name, focal firm, and issuance date.

In Table 6, columns (1) to (3), the coefficients on *% Env Opportunity Sentences* are consistently positive and significant, while those on *% Env Risk Sentences* are negative and significant across all forecast horizons. Because the regressions include firm-by-year fixed effects, these results suggest that, within a given firm-year, analysts who place greater emphasis on environmental opportunities issue higher earnings forecasts than their peers, whereas those who focus more on risks issue lower forecasts. Moreover, because we control for overall report tone, these results are likely to reflect specific environmental assessments rather than an analyst's general optimism or pessimism about the firm. This within-firm-year variation is also consistent with Bastianello, Décaire, and Guenzel's (2025) findings that differences in analysts' attention allocation help explain variation in their valuations. Our evidence highlights a specific form of attention allocation: analysts' differential attention to environmental risks and opportunities. Notably, the absolute magnitude of the risk coefficients increases significantly with the forecast horizon, rising from −0.117 (column (1)) to −0.252 (column (3)). This implies that analysts expect the financial costs to materialize more fully over longer timeframes, consistent with both our survey evidence and existing literature underscoring climate risk as a long-run factor (Engle, Giglio, Kelly, Lee, and Stroebel 2020). Importantly, while prior studies show that analysts react to and predict extreme negative ESG shocks (Derrien et al. 2025; Park et al. 2025), our results point to a broader phenomenon. We find that analysts systematically process *routine* environmental information and incorporate both downside risks and positive business opportunities into their short- and long-term cash flow forecasts.[5]

[5] In unreported tests, replacing firm-by-year fixed effects with firm, industry, or year fixed effects yields consistent results, confirming these patterns hold across analysts, firms, and time. Additionally, Internet Appendix 13 shows the

In column (4), the dependent variable is stock recommendations (*Rec*). The coefficients on *% Env Opportunity Sentences* and *% Env Risk Sentences* are 0.042 and −0.071, respectively, and both are statistically significant. This indicates that analysts incorporate environmental considerations—both risks and opportunities—as material inputs into their investment recommendations, rather than treating them as symbolic or peripheral. Together, the consistent evidence from both the survey and analyst reports suggest that analysts regard environmental risks and opportunities as financially material and systematically embed them into earnings projections and investment recommendations.

6. *Value* or *Values*?

6.1 Analysts' *Value*- versus *Values*-Orientation

Having established that analysts systematically integrate environmental risks and opportunities into their quantitative valuation models, a fundamental question remains regarding their underlying motivation. Do analysts discuss environmental issues solely because they are value relevant, or do they also internalize broader societal externalities and act as conduits for investors' non-pecuniary preferences? This question speaks directly to a central debate in modern corporate finance: the distinction between maximizing shareholder wealth versus maximizing shareholder welfare (e.g., Hart and Zingales, 2017). Or, as Starks (2023) succinctly frames it, the dichotomy between "*value*" and "*values*." We combine the survey responses with textual evidence from analyst reports to examine analysts' stance on this issue.

To probe these motivations, we ask surveyed analysts (Q4): "*Do you try to influence your covered firms to invest in reducing their environmental impact?*" Respondents select from three options: (a) "*I don't try to influence*" (28.3%), (b) "*Only when it can increase firm value*" (aligned with *value*, 57.2%), and (c) "*Yes, I usually do (even when it does not increase firm value)"* (aligned with *values*, 14.5%). The results are summarized in Figure 5A and Table 7 Panel A. Despite strong professional incentives to prioritize profitability, a nontrivial 14.5% of analysts adopt a *values*-oriented approach, indicating a willingness to promote sustainability even absent financial upside.

results hold when restricting the sample to non-state-owned enterprises (non-SOEs). This indicates our findings are not driven by institutional features unique to Chinese SOEs or by analyst catering but apply broadly to market-oriented firms.

Nonetheless, the majority 57.2% align with a pure *value*-maximization perspective. Thus, analysts focusing exclusively on financial *value* outnumber *values*-oriented analysts by nearly four to one.

Inferring analysts' orientations from research reports is more challenging than interpreting their survey responses. We use fine-tuning procedures similar to that described in Section 2.2 to independently classify whether each environmental sentence is *value*-related and whether it is *values*-related. Thus, the *value* and *values* classifications are not mutually exclusive. This approach allows us to measure the extent to which analysts frame environmental issues in terms of financial *value* versus broader social or environmental *values*.

We first classify whether a sentence is *value*-related by examining whether it explicitly links an environmental topic to firm-level financial outcomes, such as growth, sales, costs, margins, financing, or profitability. For instance, statements that environmental policies "*may lead to explosive growth*" or that recycled materials provide a "*cost advantage*" while capturing a "*green premium*" are classified as *value*-related. Consistent with analysts' role as financial intermediaries, 63.4% of environmental sentences explicitly link environmental issues to firm-level financial outcomes.

We classify a sentence as *values*-related if it explicitly links environmental issues to nonfinancial externalities, such as ecological quality, public health, social welfare, or effects on local communities. Importantly, we do not require *values*-related discussions to exclude financial considerations. Our objective is to identify whether nonfinancial *values* enter analysts' discussions, not whether they are the sole motivation. Accordingly, some sentences are classified as both *value*- and *values*-related. For example, one report states that "*environmental protection is the best bridge between the environment and the economy in the current context*" and that greater environmental investment can achieve "*the win-win goal of both economic growth and environmental improvement.*" Another discusses "*flue gas treatment and technological upgrades to the combustion system*" as "*meeting stricter environmental requirements and achieving ultra-low emissions, thereby indirectly increasing the firm's earnings.*" Although these statements connect environmental actions to financial outcomes, they also explicitly invoke environmental externalities and are therefore classified as both *value*- and *values*-related. In total, 6.5% of environmental sentences fall into this category.

Other sentences mention externalities without directly referring to firm-level financial outcomes and are classified as *values*-related only. For example, one report states, "*Once*

completed, the project will play an important role in improving the ecological environment of Yining City and also provide new development opportunities for surrounding residents, businesses, and the tourism industry." Another notes that "*water gas from ceramic kilns can cause significant harm to crops, air quality, and human health"*. These sentences explicitly focus on environmental or social externalities without mentioning firm-level financial consequences, although they may appear alongside *value*-related discussions elsewhere in the same report. Overall, 5.1% of environmental sentences are classified as *values*-related only.

Finally, some passages merely describe environmental policies or regulations without discussing either firm-level financial implications or broader social and environmental externalities. These passages are classified as neither and account for 31.5% of environmental sentences. Internet Appendix 5 provides additional classification examples.

We also evaluate the performance of the fine-tuned models. As shown in Internet Appendix 6, the test-sample accuracy rates for *value*- and *values*-related classifications are 0.93 and 0.91, respectively, and the corresponding precision rates are also 0.93 and 0.91. These performance metrics are somewhat lower than those for environmental-relevance and environmental risk versus opportunity classifications, likely because distinguishing *value*- and *values*-related content, especially identifying *values*-related content, is conceptually less straightforward and more challenging. Nevertheless, the results indicate relatively strong performance by the fine-tuned models.

Figure 5B and Table 7 Panel B summarize this textual analysis at the report level. Among the 75,611 reports containing environmental content, a substantial majority, 67.1%, address these matters solely in terms of financial *value*. Nonetheless, 22.7% of reports incorporate some nonfinancial *values*-related discussions. As expected, analysts almost always pair these environmental or societal considerations with financial ones; it is extremely rare (1.9%) for a report to discuss environmental issues from a purely nonfinancial standpoint. Conditional on mentioning environmental issues, the average report contains 3.40 *value*-related sentences and 0.62 *values*-related sentences, indicating that *value*-oriented content occurs approximately 5.5 times as often as *values*-related content. These patterns remain robust when restricting the sample to brokers without substantial government ownership (Panel C of Internet Appendix 14).

Together, the survey and textual evidence demonstrate that while a meaningful minority of analysts, approximately 15–25%, incorporate broader societal considerations, the vast majority

evaluate environmental issues exclusively through a financial lens. This pervasive *value*-driven approach among sell-side analysts aligns with Edmans et al.'s (2026) buy-side evidence that most asset managers are unwilling to sacrifice financial returns for ESG goals. Ultimately, the combined evidence underscores the primacy of financial *value* in global capital markets.

6.2 Characteristics of *Value*- and *Values*- Orientation

What leads an analyst to look beyond firm-level financial returns and consider broader social and environmental externalities? Does it reflect analysts' own preferences? Those of their clients and employers, or both? If a *values* orientation reflects an analyst's underlying philosophical stance, it should persist over time and be associated with personal characteristics and experiences, such as concern about climate change, gender, age, and educational background. Alternatively, if analysts' *values*-oriented discussions are shaped by career incentives and the preferences of their institutional clients and employers, such discussions should be positively associated with the *values* preferences of investors and brokerage houses. To examine these possibilities, we estimate two sets of regression models, one using the survey data and the other using the analysts' reports data. Using the survey data, we estimate Equation (5):

$$\begin{aligned} Aligned\ with\ Values_i = {} & \beta_0 + \beta_1 Personal\ Concern_i + \beta_2 Female_i + \beta_3 Age_i + \beta_4 Education_i \\ & + \beta_5 Experience_i + \gamma' X_i + \psi_j + \varepsilon_i \end{aligned} \quad (5)$$

The dependent variable, *Aligned with Values*$_i$ is an indicator equal to one if analyst *i* reports attempting to influence covered firms to reduce their environmental impact even when doing so does not increase firm value (Survey Q4). *Personal Concern*$_i$ is based on the analyst response to Survey Q1, "*Personally, are you concerned about pollution and climate change?*", and is coded on a scale from 1 to 5. *Female*$_i$, *Age*$_i$ *Education*$_i$, and *Experience*$_i$ captures the analyst's gender, age, educational attainment, and years of experience, respectively. X_i includes other analyst characteristics, such as location. Ψ_j denotes industry fixed effects. Columns (1) and (2) of Table 8 report the results.

Using the report data, we estimate Equation (6) to examine a broader set of personal and institutional predictors and to assess persistence over time:

$$\begin{aligned} Values\ Ratio_{i,t} = {} & \beta_0 + \beta_1 Green\ Investors_{i,t} + \beta_2 Broker\ Values\ Culture_{i,t} + \beta_3 Female_{i,t} + \beta_4 Age_{i,t} \\ & + \beta_5 Education_{i,t} + \beta_6 Experience_{i,t} + \beta_7 Values\ Ratio_{i,t-1} + \gamma' X_{i,t} + \psi_{j,t} + \varepsilon_{i,t} \end{aligned} \quad (6)$$

The dependent variable, *Values Ratio*$_{i,t,}$ is the ratio of *values*-related sentences to the sum of *value*- and *values*-related sentences in analyst *i*'s reports in year *t*. This measure captures analyst *i*'s orientation toward *values* as opposed to *value*. To reduce measurement error, we limit the sample to analyst-years with at least 10 reports. Among key explanatory variable, *Green Investors*$_{i,t}$ is the natural logarithm of one plus of the number of firms covered by analyst *i* in year *t* that have significant ownership by green investors, defined as holdings exceeding 5%. We identify green investors as funds whose names or mandates explicitly refer to environmental, ecological, or sustainability objectives. *Broker Values Culture*$_{i,t}$ is an indicator equal to one if the brokerage house explicitly incorporates social, environmental, or sustainability considerations into its stated corporate culture, and zero otherwise. *Values Ratio*$_{i,t-1}$ is the lagged dependent variable. Columns (3) and (4) report the results.

Table 8 reveals several interesting patterns. First, analysts' *value*-versus-*values* orientations appear persistent. In column (4), the coefficient on lagged *Values Ratio* is positive and significant at the 1% level, indicating that analysts who discuss *values* more in year *t*–1 are more likely to do so again in year *t*. It is worth noting that adding lagged *Values Ratio* increases the R-squared only modestly, from 0.288 to 0.300 (columns (3) and (4)). This pattern is consistent with Sautner et al. (2026), who find that analyst fixed effects account for only a small share of the variance in *values*-oriented questions during earnings calls. Nonetheless, the statistically significant autoregressive coefficient in column (4) suggests meaningful persistence in analysts' *values* orientation. Figure 6 provides complementary evidence by tracking analysts over a five-year horizon. In year *t*, we sort analysts covering the same industry into tertiles based on their *Values Ratio*, and then compute the proportion of analysts who remain in, or move into, the top tertile through year *t*+1 to year *t*+5. As the sorting is done within industries, the results are not driven by variations in industry coverage. We find that analysts in the top *Values Ratio* tertile in year *t* are substantially more likely to remain there in subsequent years, with retention rates between 65% and 76%. By contrast, analysts in the middle and bottom tertiles have probabilities below 20% of transitioning into the top tertile. Untabulated tests confirm that the differences between the top and bottom tertiles are statistically significant at the 5% level or above in all five years.

Second, analysts' *values* orientations are associated with their personal concerns and demographic characteristics, indicating the presence of an analyst-specific style. Survey respondents who express greater concern about pollution and climate change are more likely to

report that they promote environmental objectives even when doing so does not increase firm value. Female and older analysts are more likely to discuss *values* in their research reports, consistent with psychological and sociological evidence that women and older individuals exhibit, on average, more prosocial behavior (e.g., Eagly and Crowley, 1986; Mayr and Freund, 2020). Educational attainment is negatively associated with *values* orientation. One possible interpretation is that additional formal training in finance and economics reinforces an emphasis on net present value (NPV) and shareholder value. Because we do not observe the content of analysts' education, however, this interpretation should be viewed as suggestive. Other personal characteristics, including the pollution level in an analyst's city of residence, residence in a mega city, and years of experience, are either not significantly or only weakly associated with *values* orientation.

Third, external considerations including the orientations of analysts' employers and clients also play an important role. The coefficients on *Green Investors* and *Broker Values Culture* are all positive and statistically significant. Analysts place greater emphasis on nonfinancial environmental and social considerations when they cover firms with greater ownership by green investors and when they work for brokerage houses whose stated cultures emphasize social, environmental, or sustainability objectives. These findings indicate that the *value*-versus-*values* orientation reflected in analysts' research is driven neither solely by analysts' personal tendencies nor solely by catering to the preferences of clients and employers. Rather, it reflects a combination of analysts' own preferences and the norms and preferences of their institutional environments.

Lastly, we circle back to analysts' assessments of environmental risks and opportunities in Section 4 and examine whether these assessments are related to analysts' *value*-versus-*values* orientation. In particular, we ask whether *values*-oriented analysts are more likely than *value*-oriented analysts to view environmental issues as opportunities (as opposed to risks). We find that the correlation between *Values Ratio* (the percentage of *values*-sentences scaled by the sum of *value*- and *values*-sentences in a report) and *Opportunity Ratio* (the percentage of environmental opportunity-sentences scaled by the sum of opportunity- and risk-sentences in a report) is statistically indistinguishable from zero (see Internet Appendix 12). We also re-estimate the valuation models in Table 6 by replacing the percentages of environmental risk- and opportunity-sentences with the percentages of *value*- and *values*-sentences. As also shown in Internet Appendix 12, in three out of four columns, the coefficients are insignificant, suggesting that analysts' *value*-

versus *values*-orientation is orthogonal to their directional financial assessments. *Values* analysts do not seem to be more optimistic than *Value* analysts.

To summarize, evidence from both the survey and analyst reports indicates that most analysts adopt a financial value-maximization approach to environmental issues, whereas a nontrivial minority, approximately15% to 25%, aligns with a broader *values*-oriented perspective. The *value*-versus-*values* orientation appears to reflect both an analyst-specific style and the influence of their clients and employers, as evidenced by its persistence over time and its associations with analyst characteristics, institutional investor preferences, and brokerage house cultures. Finally, *value* versus *values* orientation does not appear to systematically affect how analysts assess environmental risks and opportunities or evaluate firms' overall financial prospects.

7. Matching Between the Analyst Survey and Report Samples

Our survey and textual evidence clearly point in the same direction across the core dimensions of this study. Nevertheless, to address concerns that survey responses may not accurately capture analysts' true beliefs, we conduct a cross-sample matching exercise that links surveyed analysts to their own research reports in the report sample. The report sample contains analyst identifiers and rich demographic and professional information, while the survey collects respondents' background characteristics. Using a probabilistic matching algorithm, we link each survey respondent to likely counterparts in the report sample based on location, brokerage size, gender, experience, number of firms covered, and the incomplete list of covered firms. Because the survey does not contain explicit identifiers, exact matching is not feasible. Nonetheless, we successfully identify matches for 385 surveyed analysts, each linked to an average of 1.3 counterparts in the report sample (i.e., the mapping is not always one-to-one).

We then compare survey responses with the textual content of reports issued by the matched analysts. Table 9 presents the results. Panel A classifies respondents by their self-reported attention to environmental issues (Survey Q2). Column (4) shows that respondents reporting high environmental attention (row (c)) devote, on average, 4.7% of their report text to environmental matters, significantly higher than the 2.7% for respondents reporting low attention (row (a)). This pattern indicates that analysts who report greater attention to environmental topics indeed allocate more discussion to these issues in their research outputs.

Panel B classifies respondents according to their assessments of environmental risks versus opportunities for their covered firms (Survey Q3). Columns (3) and (4) show that respondents who view environmental factors primarily as opportunities have a significantly higher *Opportunity Ratio* in their reports than those who view them primarily as risks. This result suggests that analysts' stated perceptions of environmental issues are systematically reflected in their written reports.

Panel C groups respondents by their *value*-versus-*values* orientations based on Survey Q4. Columns (3) and (4) show that respondents aligned with *values* exhibit a significantly higher *Values Ratio* in their reports than those aligned with *value*. Thus, analysts who report a stronger willingness to promote environmental objectives regardless of financial consequences are more likely to incorporate broader societal and environmental considerations into their research analyses.

Taken together, the close alignment between survey responses and report content provides supporting evidence for the validity of survey responses as measures of analysts' beliefs and analytical approaches to environmental issues. This consistency further reinforces the credibility and robustness of our findings.

8. Analysts' View: What Drives Corporate Sustainability Policies?

Which factors most effectively motivate firms to adopt more sustainable practices? Because analysts closely follow firms and interact with management, investors, and other market participants, their assessments provide a unique perspective on the relative importance of different pressures. In the survey, we ask surveyed analysts to evaluate the influence of eight commonly discussed drivers of corporate environmental improvements. Specifically, we ask: "*Please evaluate the extent to which the following factors cause the firms you follow to reduce their environmental impact*" (Q8). These factors range from government policies and regulations (e.g., Greenstone 2003; He et al. 2020) and investor and creditor pressure (e.g., Pástor et al. 2021; Broccardo, Hart, and Zingales 2022; Houston and Shan 2022) to public and media pressure (e.g., Heese and Pacelli 2024). We also include supply chain dynamics (e.g., Dai et al. 2021), consumer preferences (e.g., Duan, Li, and Michaely 2024), employee demand (e.g., Krueger, Metzger, and Wu. 2025), rebranding incentives (e.g., Duchin, Gao, and Xu 2025), and firms' intrinsic commitment to sustainability (e.g., Hart and Zingales 2017).

Table 10 reports the results, ranking these factors by their average ratings. Two drivers emerge as the most influential: government regulations (row (a)) and public and media pressure

(row (b)). On a scale from 1 ("No influence at all") to 5 ("Highest degree of influence"), these factors receive mean scores of 3.69 and 3.55, respectively. Both are significantly above the midpoint of 3 and statistically higher than those of other factors. Their influence is also stronger in high-polluting sectors: Analysts covering brown industries rate regulations and public scrutiny significantly higher than those covering green industries. Apart from these two factors and rebranding incentives (row (d)), the ratings of the remaining factors do not differ significantly between brown and green industries, and the relative rankings are similar across the two industry groups. Analysts' assessments align with a well-established consensus in the economics and finance literature that formal regulatory mandates is a primary catalyst for corporate environmental abatement. A large body of empirical work documents the real effects of environmental policies on firm-level emissions and operational decisions (e.g., Greenstone 2003; He et al. 2020). Stroebel and Wurgler's (2021) survey of finance academics, practitioners, and policymakers also identifies regulation as the most influential driver of improvement in corporate environmental practices. Analysts' high ranking of media scrutiny then points to an increasingly important governance channel. Recent studies corroborate this view, demonstrating that public pressure and social media campaigns effectively curb corporate environmental violations and reduce facility-level emissions (Buntaine et al. 2024; Heese and Pacelli 2024).

Beyond regulatory and public channels, analysts identify supply chain and consumer demands as material drivers of corporate sustainability. Supply-chain demand ranks third (row (c)), and consumer demand fifth (row (e)), with both factors scoring significantly above the midpoint. These ratings likely reflect the growing salience and monitoring of Scope 3 (value-chain) emissions. The International Sustainability Standards Board's IFRS S2, issued in 2023, requires firms to disclose material Scope 3 emissions. As these reporting expectations become formalized, supply chain decarbonization and consumer ESG awareness increasingly act as binding market constraints on firm behavior (Dai et al. 2021; Duan et al. 2024).

Another highly rated factor is firms' efforts to rebrand as greener (row (d)). This factor ranks fourth, with an average score of 3.28, significantly above the midpoint of 3. By contrast, firms' intrinsic commitment to sustainability ranks sixth, with a mean of 3.08 (row (f)), which is statistically lower than that for rebranding. This disparity suggests that analysts view reputational incentives as stronger drivers of corporate environmental behavior than intrinsic *values*. These perceptions also echo growing concerns about greenwashing (e.g., Duchin et al. 2025).

Strikingly, analysts rank investor and creditor demand as the second least impactful driver (mean 3.03, row (g)), a score statistically indistinguishable from the midpoint. While this perception sharply contrasts with the extensive literature emphasizing investor-driven sustainability (e.g., Barber, Morse, and Yasuda 2021; Ilhan, Krueger, Sautner, and Starks 2023), it is consistent with recent empirical evidence. A growing body of work documents that institutional investors exert minimal treatment effects on firm environmental behavior (Atta-Darkua et al. 2026; Heath et al. 2023) and generate only modest selection effects through the cost of capital in both the U.S. and international settings (Gantchev et al. 2022; Berk and van Binsbergen 2025). This skepticism also echoes the theoretical insights from Broccardo et al. (2022), who demonstrate that investor impact relies on specific governance strategies—namely, coordinated voice, of which the required conditions may rarely hold in practice. The consistency between our evidence and this broader literature suggests that our findings are likely not confined to the Chinese institutional context but reflect more generalized market dynamics.

Finally, employee influence ranks last, registering an average score of 2.56, significantly below the midpoint (row (h)). This suggests that surveyed analysts view employees as wielding minimal power over corporate environmental decisions. This finding contrasts with Western empirical evidence documenting the "sustainability wage gaps," whereby employees accept lower compensation at more responsible firms (Flammer and Luo, 2017; Krueger et al. 2025). We propose that this divergence may reflect two compounding frictions. First, employees' willingness to accept lower wages does not necessarily translate into the formal bargaining power needed to shape executive-level climate policy. Second, our results capture perceptions in an emerging market context, where labor market institutions, participatory governance mechanisms, and workers' bargaining power vis-à-vis management may differ systematically from those in developed economies (Armangué-Jubert, Guner, and Ruggieri, 2025).

Overall, analysts' assessments suggest that corporate environmental improvements are most strongly driven by regulatory pressure and public scrutiny. Market-based channels also matter, particularly through supply chains, consumers, and reputational incentives, but investors, creditors, and employees appear to exert more limited influence. These patterns indicate that, at least from analysts' perspective, meaningful changes in firms' environmental behavior are more likely to arise from formal rules and public accountability than from capital-market pressures alone.

9. Discussion and Conclusions

This paper investigates whether and how sell-side analysts systematically integrate corporate environmental practices into their routine research and valuation models. We triangulate survey responses from 505 analysts, textual analysis of 273,664 analyst reports, and quantitative data on earnings forecasts and stock recommendations from China. By cross-validating analysts' stated beliefs with their written research and quantitative outputs, we provide comprehensive evidence on the extent of their environmental coverage, how they assess the financial materiality of environmental risks versus opportunities, their underlying motivations (*value* versus *values*), and their views on the primary catalysts for corporate sustainability.

First, we document that analysts routinely devote substantial attention to environmental topics. Over 80% of the survey respondents report paying moderate or high attention to environmental and climate-related information. More than one quarter of analyst reports include environment-related discussions. Even during periods of relatively low policy attention, approximately 20%–25% of reports discuss environmental matters. Environmental considerations therefore do not appear peripheral but instead constitute a significant component of analysts' research agendas. Analysts' expertise can thus be leveraged to deepen our understanding of corporate environmental practices.

Second, analysts highlight environmental opportunities, especially those arising from the transition to green technologies. In our survey, 44% of the analysts perceive environmental issues as both risks and opportunities, and 26% view them primarily as opportunities. That means, a total of 71% recognize an opportunity component in environmental matters. Consistent with this perception, 87% of the analyst reports referencing environmental topics identify related business opportunities, with even higher rates in green industries. Moreover, analysts treat both environmental opportunities and risks as financially material, as reflected in their survey responses, earnings forecasts, and stock recommendations. These findings align with practitioner narratives (e.g., Fink 2021) and extend the literature's traditionally risk-focused perspective on environmental matters (e.g., Krueger et al. 2020; Bolton and Kacperczyk 2021). Analysts' pronounced emphasis on environmental opportunities highlights the need for deeper research into the upside potential of the low-carbon transition and the role of financial markets in facilitating it.

Third, while a nontrivial minority of analysts incorporate nonfinancial *values* considerations when engaging with environmental matters, the majority still adopt a pure financial

value-maximization approach. About 15% of surveyed analysts indicate that they would promote sustainability regardless of its financial consequences, reflecting a *values*-oriented perspective. By contrast, more than 55% support sustainability *only* when it enhances firm value, consistent with a value-maximization view. Similarly, nearly 90% of the analyst reports discussing environmental topics emphasize financial implications, whereas only about 20% address externality or ethical considerations, typically alongside financial considerations. Analysts' *value*-versus-*values* orientation appears to reflect both an analyst-specific style and the influence of their institutional clients and employers. To the extent that analysts' orientations reflect the preferences of these institutional stakeholders, the dominance of pure value-maximization approach documented in our study contrasts with standard sustainable investing models that incorporate environmental performance directly into investors' objective functions (e.g., Pedersen, Fitzgibbons, and Pomorski 2021) and with the shareholder welfare maximization framework proposed by Hart and Zingales (2017). However, it aligns with recent evidence on fund managers' preferences (Edmans et al. 2026), suggesting a shared emphasis on financial returns among both buy-side and sell-side analysts and across nations. Future work should bear this in mind when theoretically or empirically modeling their preferences. Further, these findings also suggest that while analysts and institutional investors do pay attention to environmental issues, their focus is largely on financial *value* rather than *values.* As a result, any influence they exert on firms' environmental behavior is likely to arise when environmental improvements align with value creation, rather than from intrinsic preferences for better environmental performance.

Fourth, analysts view government regulations and public/media scrutiny as the most influential drivers of corporate environmental improvements, especially in heavily polluting industries. By contrast, investors and employees are perceived as having more limited influence. Specifically, despite extensive scholarly interest in investor-driven sustainability (e.g., Barber et al 2021; Bolton and Kacperczyk 2021; Broccardo et al. 2022), analysts rank investor and creditor influence seventh out of eight factors, and it trailed behind other forces such as customer and supplier demand. These assessments suggest that meaningful changes in corporate environmental practices are more likely to arise from a combination of regulatory frameworks and public/media scrutiny rather than from capital market-driven mechanisms alone.

Although our analysis is based on sell-side analysts in China, we argue that the findings and insights regarding analysts' attitudes toward climate change and environmental issues are not

confined to a particular country or region. From a macro perspective, China is one of the world's largest economies and greenhouse gas emitters, and similar to the U.S. and Europe, climate and environmental risks play a prominent role in government policy and public opinions. From a micro perspective, prior evidence unrelated to climate change shows that analysts in China perform similar information intermediary functions as their counterparts in the U.S. and other markets (e.g., Jia, Wang, and Xiong 2017). They also face broadly comparable career concerns and incentive structures (e.g., Bushman, Piotroski, and Smith 2005). Given these parallels, we do not expect major differences in analysts' general approach to environmental coverage, particularly with respect to their assessments of environmental risks versus opportunities and their emphasis on *value* over *values*.

One might argue that our findings of limited perceived influence of institutional investors in China reflect the country's distinctive corporate governance structure. Indeed, corporate governance in China is generally considered weaker than in the U.S. or Europe (e.g., Allen, Qian, Shan, and Zhu 2024), and institutional ownership levels are lower (Leippold, Wang, and Zhou 2022). However, prior research shows that institutional investors in China exert meaningful influence over corporate decisions across a wide range of domains, such as investment efficiency (Cao, Gong, Kim, Shi, and Wang 2025), innovation (Jiang and Yuan 2018), and stock price dynamics (Cheng, Du, Wang, and Wang 2019). These findings suggest that institutional investors in China are not generally ineffective monitors. Moreover, the limited influence of institutional investors on corporate sustainability policies in China may not be dissimilar to that in the U.S. Recent empirical studies using U.S. and global data also find that institutional investors exert limited impact on firms' sustainability performance (e.g., Atta-Darkua et al. 2026; Heath et al. 2023) and modest effect through the cost of capital (Berk and van Binsbergen 2025). These patterns suggest that analysts' skepticism toward investor influence in the sustainability domain may have broader applicability. On the other hand, the perceived limited influence of employees may be more context-specific, as labor dynamics may differ markedly between developed and emerging economies (Armangué-Jubert et al. 2025). Exploring these cross-country commonalities and divergences offers a promising avenue for future research.

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Appendix. Variable Definitions

Variable	Definition
Variables constructed from survey responses	
More as a Risk	Based on survey responses to Q3: "For the firms you cover, do you see environmental and climate change factors more as a risk or an opportunity?" This variable equals one if the respondent selects "More as a risk," and zero otherwise.
More as an Opportunity	Based on survey responses to Q3: "For the firms you cover, do you see environmental and climate change factors more as a risk or an opportunity?" This variable equals one if the respondent selects "More as an opportunity," and zero otherwise.
Short-Term Financial Impacts	Based on survey responses to Q6: "For the firms you cover, please evaluate how environmental and climate change factors affect their financial performance. In the short term: ___." Responses range from −3 (negative) to +3 (positive).
Long-Term Financial Impacts	Based on survey responses to Q6: "For the firms you cover, please evaluate how environmental and climate change factors affect their financial performance. In the long term: ___." Responses range from −3 (negative) to +3 (positive).
Aligned with *Value*	Based on survey responses to Q4: "Do you try to influence your covered firms to invest in reducing their environmental impact?" This variable equals one if the respondent selects "Only when it can increase firm value," and zero otherwise.
Aligned with *Values*	Based on survey responses to Q4: "Do you try to influence your covered firms to invest in reducing their environmental impact?" This variable equals one if the respondent selects "Yes, I usually do (even when it does not increase firm value)," and zero otherwise.
Personal Concern	Based on survey responses to Q1: "Personally, are you concerned about pollution and climate change?" This variable is coded on a scale from 1 to 5.
Variables constructed from analyst reports, forecasts, and recommendations	
Total No. of Sentences	The total number of sentences in an analyst report.
No. of Env Related Sentences	The number of environment-related sentences in an analyst report.
% of Env Related Sentences	The number of environment-related sentences divided by the total number of sentences in an analyst report.
No. of Env Risk Sentences	The number of environment-related sentences that discuss environmental risks in an analyst report.
% of Env Risk Sentences	The number of environmental risk-related sentences divided by the total number of sentences in an analyst report.
No. of Env Opportunity sentences	The number of environment-related sentences that discuss environmental opportunities in an analyst report.

% of Env Opportunity Sentences	The number of environmental opportunity-related sentences divided by the total number of sentences in an analyst report.
No. of *Value*-Related Sentences	The number of environment-related sentences that link environmental issues to firm-level financial outcomes, such as growth, revenues, costs, or financing.
No. of *Values*-Related Sentences	The number of environment-related sentences that link environmental issues to social or environmental externalities, such as effects on the natural environment, human well-being, societal welfare, or broader economic development.
Values Ratio	The number of values-related sentences divided by the sum of value- and values-related sentences in an analyst report.
Opportunity Ratio	The number of environmental opportunity-related sentences divided by the sum of environmental opportunity- and risk-related sentences in an analyst report.
FEPS (t+k)	The k-year-ahead EPS forecast, scaled by the firm's closing stock price in year t and multiplied by 100 (k = 1, 2, 3). Data is obtained from CSMAR.
Rec	Stock recommendations coded on a 5-point scale: 2 = Strong Buy, 1 = Buy, 0 = Hold, −1 = Sell, and −2 = Strong Sell). Data is obtained from CSMAR.
Forecast Horizon	The natural logarithm of the number of days from the forecast issuance date to the actual earnings announcement date. Both dates are obtained from CSMAR.
Report Tone	The number of positive sentiment words minus the number of negative sentiment words in an analyst report, divided by the total number of words in the report. Positive and negative sentiment words are identified using the Chinese business and finance sentiment lexicon developed by Jiang et al. (2021).
Other control variables	
Green Investors	The natural logarithm of one plus the number of firms covered by the analyst in a given year that have significant ownership by green investors, defined as ownership exceeding 5%. We identify green investors as funds whose names or mandates explicitly refer to environmental, ecological, or sustainability objectives.
Broker *Values* Culture	An indicator variable equal to one if the brokerage's official website explicitly incorporates social, environmental, or sustainability considerations into its stated corporate culture, and zero otherwise.
High Pollution	An indicator equal to one if the annual average Air Quality Index (AQI) of the city in which the brokerage house is headquartered exceeds the sample median across all city-years, and zero otherwise. AQI data are obtained from China's national air quality monitoring stations and averaged at the city-year level.

Female	An indicator variable equal to one if the analyst is female, and zero otherwise.
Age	The analyst's age. In the survey sample, age is based on responses to question G3: "Your age is ___?" In the analyst-report sample, age is estimated by adding 22, 24, or 27 years to the analyst's years of experience, depending on whether the analyst holds a bachelor's, master's, or doctoral degree, respectively.
Education	In the survey sample, educational attainment is based on responses to question G4: "What diploma(s) do you have? (Please check all that apply)." In the analyst-report sample, it is based on the analyst's highest degree. The variable equals ln(16), ln(19), or ln(23) for analysts whose highest degree is a bachelor's, master's, or doctoral degree, respectively.
Experience	In the survey sample, analyst experience is based on responses to question G1: "How long have you been working as a sell-side analyst?" The variable equals 1 for "Less than 2 years," 3 for "2–4 years," 6 for "5–8 years," and 9 for "More than 8 years." In the analyst-report sample, experience is measured as the number of years since the analyst's first earnings forecast in the DZH dataset.
Mega City	An indicator variable equal to one if the analyst's brokerage house is headquartered in one of China's four first-tier cities: Beijing, Shanghai, Guangzhou, or Shenzhen, and zero otherwise.
No. of Firms Covered	In the survey sample, this variable is based on responses to question G8: "How many firms do you currently cover?" It equals 4 for "Less than 5 firms," 8 for "5–10 firms," 15 for "11–20 firms," and 25 for "More than 20 firms." In the analyst-report sample, it is measured as the total number of firms on which the analyst issued reports in the prior year.

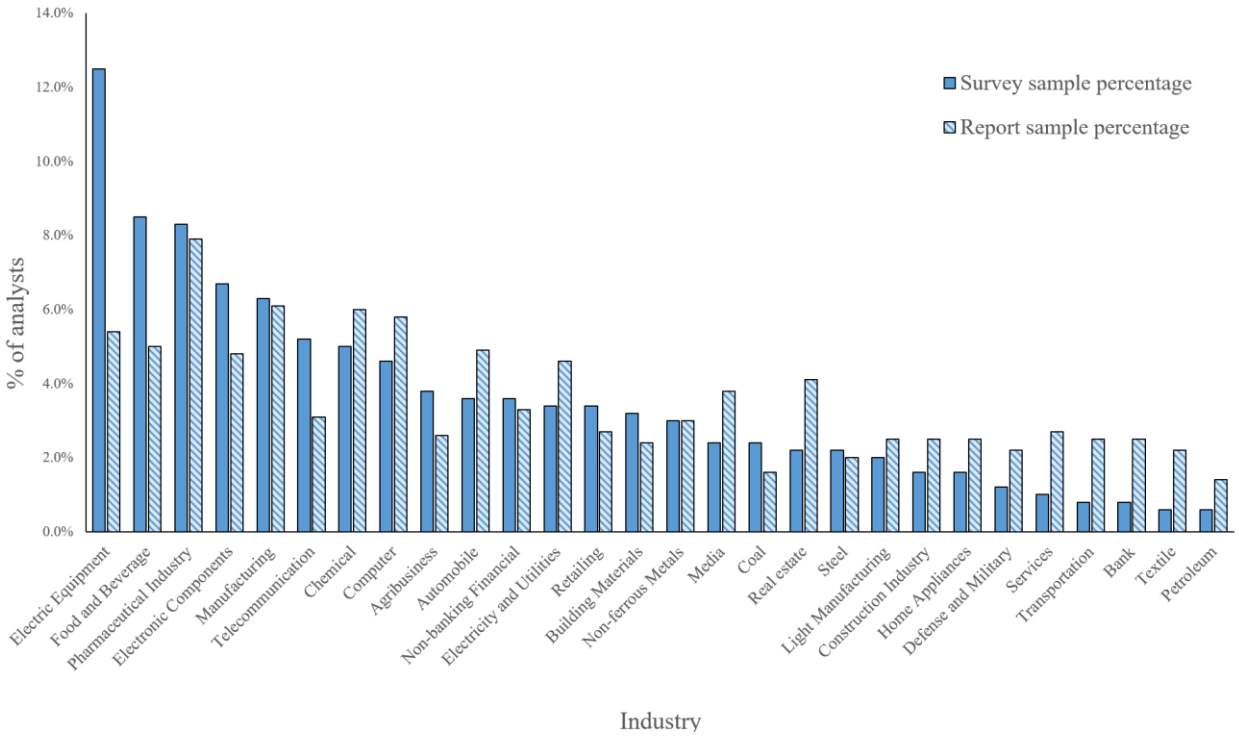


Figure 1. Industry Distribution of Survey Respondents and Analyst Reports

This figure presents the industry distributions of survey respondents and analyst reports. Industries are classified using the CITIC Securities industry classification and sorted by the percentage of survey respondents. Solid and hatched bars represent survey respondents and analyst reports, respectively.

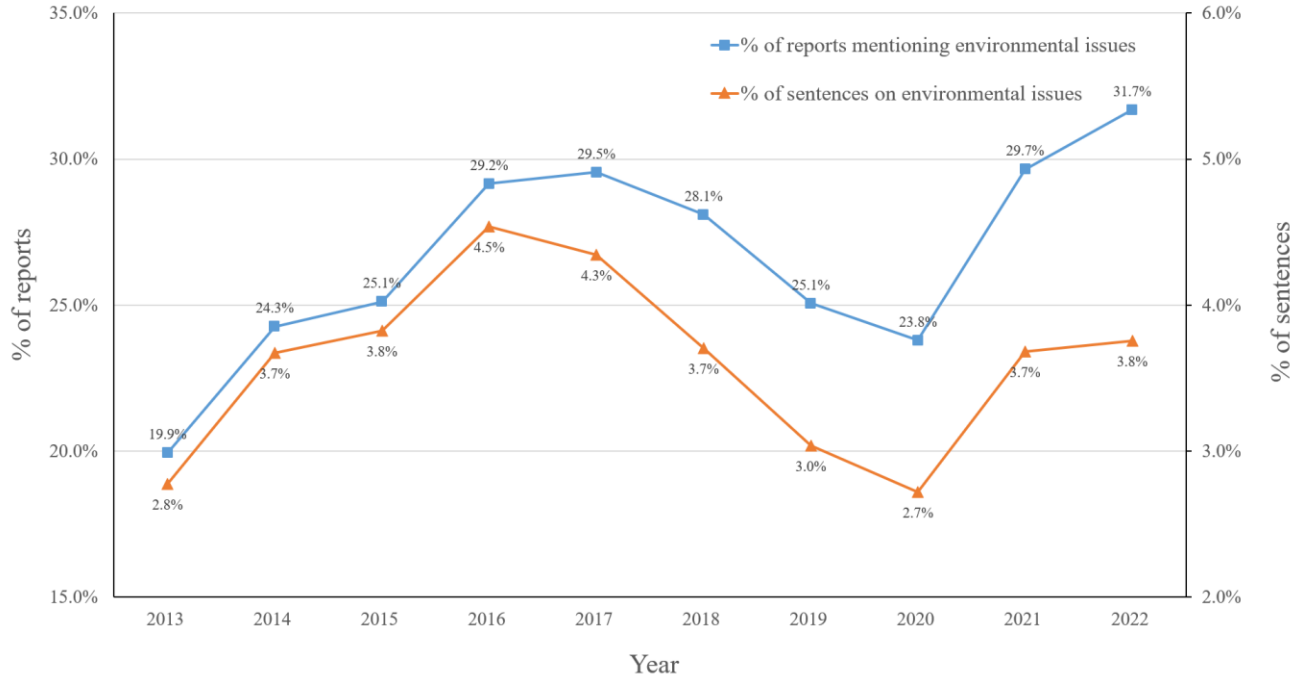
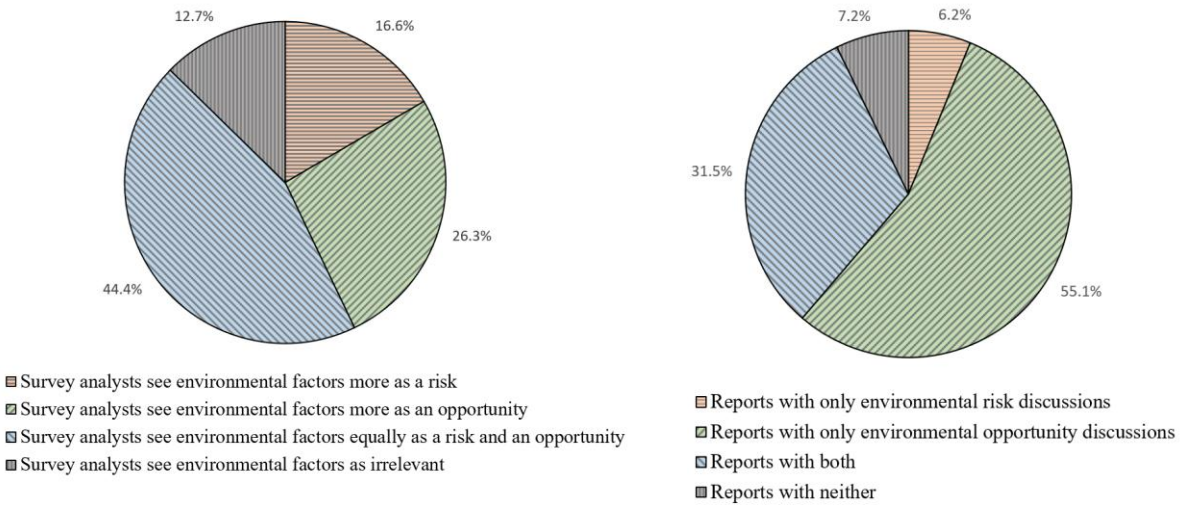


Figure 2. Time Trends in Analysts' Environmental Coverage

This figure presents the annual trends in analysts' environmental coverage. The blue line, measured on the left axis, shows the percentage of reports that mention environmental issues in each year. The orange line, measured on the right axis, shows the average percentage of environment-related sentences in analyst reports in each year.



A. Evidence from Survey **B. Evidence from Analyst Reports**

Figure 3. Analysts' Evaluations of Environmental Risks and Opportunities

Figure 3A shows the distribution of responses to Survey Q3: "For the firms you cover, do you view environmental and climate change factors more as a risk or an opportunity?" Respondents chose from: (a) "More as a risk," (b) "More as an opportunity," (c) "Equally as a risk and an opportunity," and (d) "Environmental and climate change is irrelevant to the firms I cover (i.e., neither a risk nor an opportunity)." Figure 3B reports the percentage of environment-related analyst reports that contain only environmental risk discussions, only environmental opportunity discussions, both, or neither.



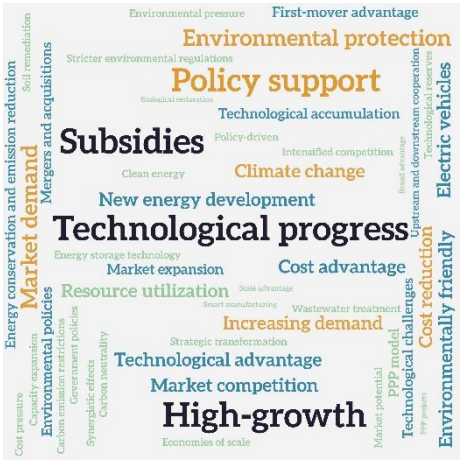
A. Risk Discussions in Brown Industries



B. Risk Discussions in Green Industries



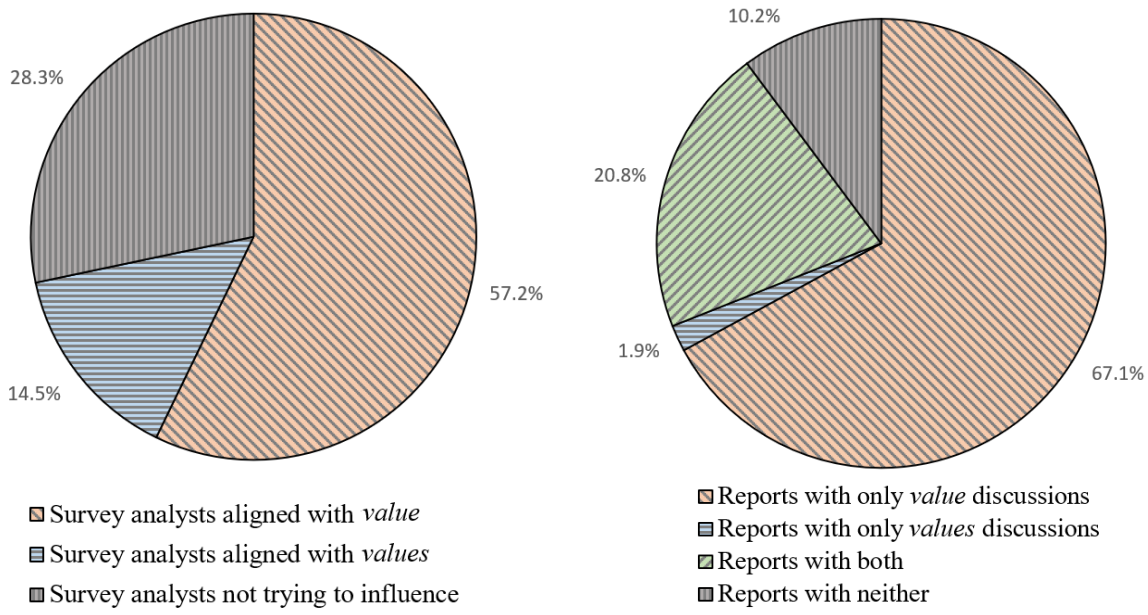
C. Opportunity Discussions in Brown Industries



D. Opportunity Discussions in Green Industries

Figure 4. Themes in Analysts' Environmental Discussions

Figures 4A–4D present the 50 most frequent themes in analysts' discussions of environmental risks and opportunities in brown and green industries. We use a prompt with the Llama model to extract themes from the environmental discussions in each report. We then calculate theme frequencies separately for risk discussions in brown industries, risk discussions in green industries, opportunity discussions in brown industries, and opportunity discussions in green industries. Font size reflects frequency, and the three most frequent themes in each panel are shown in black. Internet Appendix 11 provides the extraction methodology and prompt.



A. Evidence from Survey **B. Evidence from Analyst Reports**

Figure 5. Analysts' *Value* versus *Values* Orientation

Figure 5A shows the distribution of responses to Survey Q4: "Do you try to influence your covered firms to invest in reducing their environmental impact?" Respondents selected from: (a) "I don't try to influence," (b) "***Only*** when it can increase firm value" (aligned with *value*), and (c) "Yes, I usually do (even when it does not increase firm value)" (aligned with *values*). Figure 5B reports the percentage of environment-related analyst reports that contain only *value*-related discussions, only *values*-related discussions, both, or neither.

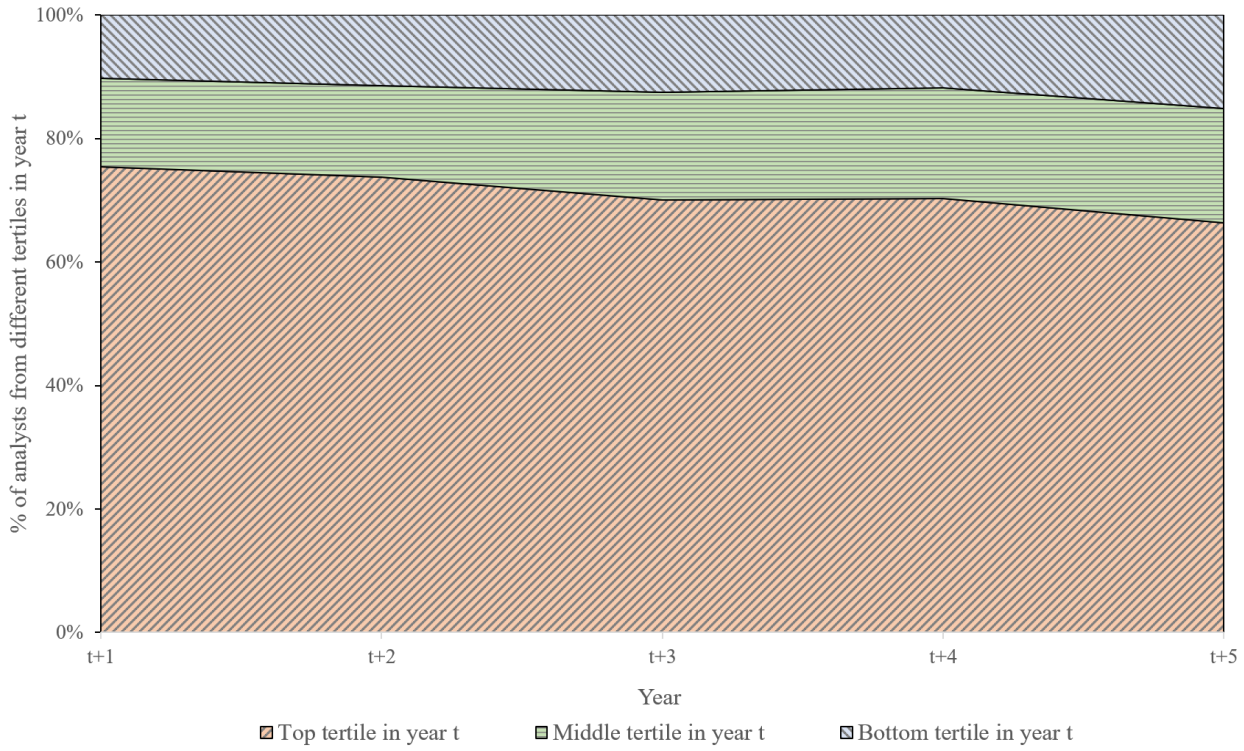


Figure 6. Persistence and Transition into the Top *Values* Tertile

In year t, analysts covering the same industry are sorted into tertiles based on their *Values Ratio*. For each year from $t + 1$ through $t + 5$, the figure reports the proportions of analysts in the top *values* tertile who belonged to the top, middle, or bottom tertile in year t. For example, among analysts in the top tertile in year $t + 1$, 75.5% were in the top tertile in year t, while 14.2% and 10.3% were previously in the middle and bottom tertiles, respectively.

Table 1. Analyst Characteristics: Survey and Report Samples

This table presents the characteristics of the survey respondents and analysts identified from firm-specific research reports issued between 2013 and 2022. For survey respondents, the information is collected from the first part of the survey. For report-sample analysts, gender and educational background are obtained from CSMAR and the SAC website. Experience is measured as the number of years since the analyst's first report in the database. Age is estimated by adding 22, 24, or 27 years to experience, depending on whether the analyst holds a bachelor's, master's, or doctoral degree, respectively. Broker revenue and location are obtained from CSMAR. The number of firms covered is measured as the number of distinct firms for which the analyst issues reports. All information is measured as of 2022 or the most recent year in which the analyst is active in the database.

Demographic information	Survey (%)	Reports (%)	Demographic information	Survey (%)	Reports (%)
Gender			Revenue of the broker (RMB)		
Male	57.6	74.6	< 1 billion	12.7	8.1
Female	42.4	25.4	1–10 billion	48.5	48.5
Age			10–20 billion	18.4	18.2
< 30	55.6	50.7	> 20 billion	20.4	25.2
30–40	37.6	48.5	City		
41–50	4.4	0.9	Beijing	21.6	26.3
> 50	2.4	0.0	Shanghai	38.6	39.3
Experience			Shenzhen	24.6	19.8
< 2 years	46.1	41.2	Guangzhou	4.6	3.8
2–4 years	30.5	27.8	Others	10.7	11.0
5–8 years	16.2	20.6	Number of firms covered		
> 8 years	7.1	10.5	< 5	15.5	26.6
Highest degree			5–10	33.9	21.6
Bachelor's	13.1	6.6	11–20	28.1	26.0
Master's	81.8	84.7	> 20	22.6	25.8
PhD	5.2	8.7			
No. of Obs.	505	5,261	No. of Obs.	505	5,261

Note: The earliest forecast record we can trace dates back to 2003. Because our sample period ends in 2022, the maximum observable analyst experience is therefore capped at 19 years. As a result, estimated analyst ages are capped at 41, 43, and 46 years, based on their level of education. Consequently, the percentages of analysts in the 41–50 and > 50 age groups are underestimated.

Table 2. Analysts' Environmental Coverage

Panel A reports summary statistics for environmental coverage in analyst reports. Columns (1) – (3) report the mean, standard deviation, and median for the full sample of analyst reports. Columns (4) – (6) report the same statistics for reports containing at least one environmental discussion. Panel B summarizes responses to survey Q2: "*On a scale of 1 to 5, how do you rate your level of attention to environmental and climate change information? In absolute terms ___; Relative to my industry peers* ___." Columns (1) and (2) report the mean and standard deviation of the scores. Column (3) reports the results from a *t*-test for the null hypothesis that the mean score is equal to 3 (the midpoint). Columns (4) – (6) report the percentage of respondents selecting scores of 1–2, 3, and 4–5, respectively. Variable definitions are provided in the Appendix. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Analyst Report Sample

	All reports			Reports with env. discussions		
	Mean	Std.	Median	Mean	Std.	Median
	(1)	(2)	(3)	(4)	(5)	(6)
Total No. of Sentences	35.72	51.79	19.00	53.83	72.71	21.00
No. of Env Related Sentences	1.48	5.72	0.00	5.37	9.87	2.00
% of Env Related Sentences	3.8%	8.5%	0.0%	13.6%	11.4%	9.8%
No. and % of reports	273,664 (100%)			75,611 (27.6%)		
No. and % of unique firm-years	17,524 (100%)			11,171 (63.7%)		
No. and % of unique firms	3,931 (100%)			3,275 (83.3%)		

Panel B. Survey Sample (N = 505)

	Mean	Std.	H0: Mean = 3	% of respondents choosing		
				1 or 2	3	4 or 5
	(1)	(2)	(3)	(4)	(5)	(6)
(a) In absolute terms	3.38	0.95	***	16.8%	35.3%	47.9%
(b) Relative to industry peers	3.27	1.01	***	20.6%	36.4%	43.0%
(b) − (a)	-0.12***					

Table 3. Analysts' Evaluations of Environmental Risks and Opportunities

Panel A reports responses to survey Q3: "*For the firms you cover, do you view environmental and climate change factors more as a risk or an opportunity?*" The number and percentage of respondents choosing each option are presented. Panel B reports the average numbers of sentences related to environmental risks and opportunities in the analyst reports. Columns (1) – (5) report statistics for all reports with environmental discussions, reports with only environmental risk discussions, reports with only environmental opportunity discussions, reports with both, and reports with neither, respectively. Panel C presents summary statistics by industry type. Brown industries are those included in the CSRC's high-polluting industry list; green industries are all others. Variable definitions are provided in the Appendix. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Survey Sample

	Total no. of respondents	No. of respondents choosing	% of respondents choosing
	(1)	(2)	(3)
More as a risk	505	84	16.6%
More as an opportunity	505	133	26.3%
Equally as a risk and an opportunity	505	224	44.4%
Irrelevant	505	64	12.7%

Panel B. Analyst Report Sample

	All reports with env. discussions	Reports with only risk discussions	Reports with only opportunity discussions	Reports with both	Reports with neither
	(1)	(2)	(3)	(4)	(5)
No. of Env Risk Sentences	0.77	1.18	0	2.20	0
No. of Env Opportunity Sentences	3.79	0	2.54	7.61	0
No. and % of reports	75,611 (100%)	4,668 (6.2%)	41,678 (55.1%)	23,798 (31.5%)	5,467 (7.2%)

Panel C. Across Brown and Green Industries

	Brown Industries			Green Industries			Brown - Green
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	
	(1)	(2)	(3)	(4)	(5)	(6)	(2) − (5)
More as a risk (survey)	180	0.22	0.42	325	0.14	0.34	0.09**
More as an opportunity (survey)	180	0.17	0.37	325	0.32	0.47	-0.15***
No. of Env Risk Sentences (reports)	24,677	0.94	1.99	50,934	0.68	1.61	0.26***
No. of Env Opportunity Sentences (reports)	24,677	2.92	5.31	50,934	4.22	7.39	-1.30***

Table 4. Importance of Environmental Risk and Opportunity Factors

This table presents the responses to survey Q7: "*Please evaluate how the following factors affect the firms you cover*." Respondents rate each factor from −3 (very negatively) to +3 (very positively). Panel A reports risk factors, and Panel B reports opportunity factors. *% negative responses* (*% positive responses*) is the percentage of analysts assigning a negative (positive) score to each factor. *Adj. mean* is the weighted mean based on the proportion and average score of negative (positive) responses, scaled by the average weighted mean across the eight factors within each panel. Brown industries are those included in the CSRC's high-polluting industry list; green industries are all others. *, **, and *** indicate adjusted means statistically greater than one at the 10%, 5%, and 1% levels, respectively.

Panel A. Importance of Environmental Risk Factors

		All		Brown Ind.		Green Ind.	
		% negative responses	Adj. mean	% negative responses	Adj. mean	% negative responses	Adj. mean
		(1)	(2)	(3)	(4)	(5)	(6)
(a)	Physical climate and environmental change (e.g., extreme weather, floods, air pollution)	36.2%	3.45***	50.0%	4.63***	28.6%	2.74***
(b)	Environmental regulations or subsidies (e.g., production limits, the "carbon peaking and neutrality" target, subsidies for PV power and new energy products)	12.6%	1.07	23.3%	1.89**	6.7%	0.61
(c)	Changes in employees' preferences (e.g., some talents prefer to work for green firms or in less polluted areas)	9.5%	0.72	13.9%	1.04	7.1%	0.54
(d)	Changes in consumers' preferences (e.g., consumers' preference for green products or loyalty to green brands)	8.1%	0.61	14.4%	1.10	4.6%	0.33
(e)	Changes in customers' and suppliers' preferences (e.g., supply chain decarbonization initiatives, Scope 3 disclosure requirements)	7.1%	0.61	11.1%	1.10	4.9%	0.33
(f)	Transitions to green technologies and green products (e.g., transition from fossil fuels to clean energy)	6.5%	0.60	10.0%	1.00	4.6%	0.35
(g)	Demand for climate-adaptive goods (e.g., demand for air conditioners, weather insurance products)	7.5%	0.54	12.7%	0.90	4.6%	0.33
(h)	Changes in investors' and creditors' preferences (e.g., emergence of green bonds and ESG funds)	7.3%	0.53	10.5%	0.80	5.5%	0.38

Panel B. Importance of Environmental Opportunity Factors

		All		Brown Ind.		Green Ind.	
		%. positive responses	Adj. mean	%. positive responses	Adj. mean	%. positive responses	Adj. mean
		(1)	(2)	(3)	(4)	(5)	(6)
(a)	Transitions to green technologies and green products (e.g., transition from fossil fuels to clean energy)	71.9%	1.35***	70.0%	1.19**	72.9%	1.44***
(b)	Environmental regulations or subsidies (e.g., production limits, the "carbon peaking and neutrality" target, subsidies for PV power and new energy products)	64.8%	1.19***	48.9%	0.82	73.5%	1.40***
(c)	Demand for climate-adaptive goods (e.g., demand for air conditioners, weather insurance products)	61.2%	1.10**	55.0%	0.88	64.6%	1.22***
(d)	Changes in consumers' preferences (e.g., consumers' preference for green products or loyalty to green brands)	63.6%	1.09***	54.4%	0.88	68.6%	1.21***
(e)	Changes in customers' and suppliers' preferences (e.g., supply chain decarbonization initiatives, Scope 3 disclosure requirements)	64.0%	1.04	59.4%	0.91	66.5%	1.11**
(f)	Changes in investors' and creditors' preferences (e.g., emergence of green bonds and ESG funds)	54.1%	0.89	47.2%	0.69	57.8%	1.00
(g)	Changes in employees' preferences (e.g., some talents prefer to work for green firms or in less polluted areas)	51.5%	0.80	45.0%	0.62	55.1%	0.90
(h)	Physical climate change and pollution (e.g., extreme weather, floods, air pollution)	34.5%	0.53	25.0%	0.39	39.7%	0.61

Table 5. Financial Impacts of Environmental Factors: Survey Evidence

This table presents regression estimates of the relationship between surveyed analysts' evaluations of environmental risks and opportunities and their assessments of the financial impacts of environmental factors. *Short-Term Financial Impacts* and *Long-Term Financial Impacts* are based on the responses to Q6: "*For the firms you cover, please evaluate how environmental and climate change factors affect their financial performance*." *More as an opportunity* and *More as a risk* are based on responses to Q3: "*For the firms you cover, do you see environmental and climate change factors more as a risk or an opportunity?*" Detailed variable definitions are provided in the Appendix. *t*-statistics based on robust standard errors clustered at the industry level are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Short-Term Financial Impacts		*Long-Term Financial Impacts*	
	(1)	(2)	(3)	(4)
More as an opportunity	0.440***	0.316	0.740***	0.527***
	(3.827)	(1.694)	(9.174)	(5.141)
More as a risk	-0.472**	-0.481**	-0.713***	-0.705***
	(-2.408)	(-2.521)	(-3.155)	(-2.947)
Female	-0.114	-0.062	0.019	0.051
	(-1.043)	(-0.521)	(0.192)	(0.458)
Age	-0.001	0.000	-0.009	-0.008
	(-0.159)	(0.026)	(-1.047)	(-0.950)
Experience	-0.031	-0.025	0.002	0.015
	(-1.265)	(-0.852)	(0.095)	(0.501)
No. of firms covered	-0.101**	-0.111**	-0.044	-0.061
	(-2.477)	(-2.474)	(-0.760)	(-1.101)
Education	1.205	1.169	1.336	1.468
	(1.248)	(1.236)	(1.126)	(1.246)
Large broker	0.097	0.133	0.033	0.103
	(0.648)	(0.987)	(0.253)	(0.810)
Constant	0.997	1.049	1.049	0.646
	(0.344)	(0.370)	(0.304)	(0.186)
Observations	505	505	505	505
R-squared	0.099	0.188	0.159	0.265
FE	No	Industry	No	Industry
F-tests of equality between the coefficient on *More as an opportunity* in col. (1) and (3)				$p = 0.017$
F-tests of equality between the coefficient on *More as a risk* in col. (1) and (3)				$p = 0.058$
F-tests of equality between the coefficient on *More as an opportunity* in col. (2) and (4)				$p = 0.181$
F-tests of equality between the coefficient on *More as a risk* in col. (2) and (4)				$p = 0.143$

Table 6. Environmental Factors in Analysts' Forecasts and Recommendations

This table reports regressions of analysts' EPS forecasts and stock recommendations on their discussions of environmental risks and opportunities in the reports. $FEPS_{(t+k)}$ refers to the 1-, 2-, and 3-year ahead EPS forecasts, scaled by the firm's stock price at the end of year t (k = 1, 2, 3) and multiplied by 100. *Rec* represents stock recommendation, coded as 2, 1, 0, −1, and −2, for strong buy, buy, hold, sell, and strong sell recommendations, respectively. *% of Env Opportunity sentences* and *% of Env Risk sentences* are the percentages of environmental opportunity- and risk-related sentences in an analyst report, respectively. Variable definitions are provided in the Appendix. *t*-statistics based on robust standard errors clustered at the firm level are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLE	*FEPS(t+1)* (1)	*FEPS(t+2)* (2)	*FEPS(t+3)* (3)	*Rec* (4)
% of Env Opportunity Sentences	0.048***	0.041*	0.057*	0.042***
	(3.003)	(1.833)	(1.751)	(3.934)
% of Env Risk Sentences	-0.117***	-0.175**	-0.252***	-0.071**
	(-2.636)	(-2.529)	(-2.613)	(-2.349)
Report Tone	0.619***	0.720***	0.916***	0.459***
	(15.200)	(12.982)	(13.037)	(16.709)
Experience	-0.000	0.000	0.003*	-0.002***
	(-0.305)	(0.090)	(1.907)	(-3.727)
No. of firms covered	-0.002	-0.002	-0.007**	0.000
	(-1.168)	(-0.990)	(-2.370)	(0.456)
Total no. of sentences	0.001	0.003***	0.011***	0.027***
	(0.873)	(2.907)	(6.570)	(26.922)
Female	-0.001	-0.001	-0.005*	0.001
	(-0.747)	(-0.363)	(-1.864)	(1.176)
Forecast Horizon	0.072***	0.374***	0.440***	
	(23.414)	(19.500)	(17.703)	
Constant	0.773***	-0.875***	-0.938***	-0.085***
	(47.102)	(-7.290)	(-6.028)	(-21.284)
Observations	273,664	273,036	244,571	228,718
R-squared	0.964	0.961	0.957	0.107
FE		Firm-by-year FE, Broker FE		
F-test of equal coefficients on *% of Env. Opportunity sentences* col. (1) and (3)				$p = 0.85$
F-test of equal coefficients on *% of Env. Risk sentences* col. (1) and (3)				$p < 0.01$

Table 7. Analysts' *Value* versus *Values* Orientation

Panel A presents responses to survey Q4: "*Do you try to influence your covered firms to invest in reducing their environmental impact?*" Respondents choose from three options: (a) "*I don't try to influence*," (b) "***Only** when it can increase firm value,*" classified as aligned with *value*, and (c) "*Yes, I usually do (even when it does not increase firm value),*" classified as aligned with *values*. Panel B reports the average numbers of *value*- and *values*-related environmental sentences in analyst reports. Columns (1) – (5) report statistics for all reports with environmental discussions, reports with only *value*-related environmental discussions, reports with only *values*-related environmental discussions, reports with both, and reports with neither, respectively.

Panel A. Survey Sample

	Total no. of respondents	No. of respondents choosing	% of respondents choosing
	(1)	(2)	(3)
Aligned with *value*	505	289	57.2%
Aligned with *values*	505	73	14.5%
Not trying to influence	505	143	28.3%

Panel B. Analyst Report Sample

	All reports with env. discussion	Reports with only v*alue* discussion	Reports with only *values* discussion	Reports with both	Reports with neither
	(1)	(2)	(3)	(4)	(5)
No. of *Value*-related Sentences	3.40	2.82	0	7.24	0
No. of *Values*-related Sentences	0.62	0	1.22	2.87	0
No. and % of reports	75,611 (100%)	50,753 (67.1%)	1,441 (1.9%)	15,742 (20.8%)	7,675 (10.2%)

Table 8. Characteristics of *Value* versus *Values* Orientation

This table presents regressions of analysts' *value*-versus-*values* orientation on analyst and broker characteristics. Columns (1) and (2) use survey data. *Aligned with Values* equals one if the respondent answers Q4 by selecting "*Yes, I usually do (even when it does not increase firm value)*," and zero otherwise. Columns (3) and (4) use analyst-year observations from the report sample. *Values Ratio* is the ratio of *values*-related sentences to the sum of *value*- and *values*-related sentences in analyst reports, aggregated at the analyst-year level. Detailed variable definitions are provided in the Appendix. *t*-statistics based on robust standard errors clustered at the industry level are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Survey Sample		Report Sample	
	DV = *Aligned with Values*		DV = *Values Ratio*	
VARIABLE	(1)	(2)	(3)	(4)
Personal Concern	0.063***	0.051***		
	(3.854)	(3.242)		
Green Investors			0.011**	0.009**
			(2.155)	(2.082)
Broker *Values* Culture			0.017**	0.014*
			(2.109)	(1.824)
Values Ratio *t*-1				0.119***
				(7.082)
Female	-0.033	-0.022	0.023**	0.020**
	(-1.301)	(-0.898)	(2.722)	(2.417)
Age	0.007*	0.006*	0.201*	0.216*
	(1.969)	(1.749)	(1.868)	(2.019)
Education	0.323	0.346	-0.008**	-0.008**
	(0.719)	(0.780)	(-2.160)	(-2.395)
Experience	0.011	0.011	-0.023	-0.026*
	(1.394)	(1.122)	(-1.630)	(-1.794)
Mega City	-0.074	-0.103*	-0.007	-0.008
	(-1.340)	(-1.981)	(-0.743)	(-1.018)
High Pollution			-0.003	-0.006
			(-0.382)	(-0.731)
Constant	-1.202	-1.181	-0.317	-0.369
	(-0.890)	(-0.884)	(-1.155)	(-1.347)
Observations	505	505	4,739	4,739
R-squared	0.062	0.140	0.288	0.300
FE	No	Industry	Industry-year	Industry-year

Table 9. Matched Analyst Survey and Report Analyses

This table presents analyses of the matched sample between the survey respondents and analysts identified from reports. In all panels, column (1) reports the number of matched survey respondents selecting each response option, and column (2) reports the average number of report-sample analyst counterparts matched to each survey respondent. Panel A classifies respondents based on Survey Q2: "*On a scale of 1 to 5, how do you rate your level of attention to environmental and climate change information? In absolute terms."* Panel B classifies respondents based on Survey Q3: "*For the firms you cover, do you view environmental and climate change factors more as a risk or an opportunity?*" Panel C classifies respondents based on Survey Q4: "*Do you try to influence your covered firms to invest in reducing their environmental impact?*" Variable definitions are provided in the Appendix. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Environmental Coverage Across the Two Samples

	No. of matched respondents choosing	Avg no. of matched counterparts per respondent	*% of Env Related Sentences*	
			Median	Mean
	(1)	(2)	(3)	(4)
(a) 1 or 2	67	1.02	1.2%	2.7%
(b) 3	132	1.27	1.6%	3.8%
(c) 4 or 5	186	1.28	3.2%	4.7%
(c) – (a)			2.0%***	2.0%***

Panel B: Evaluations of Environmental Risks and Opportunities Across the Two Samples

	No. of matched respondents choosing	Avg no. of matched counterparts per respondent	*Opportunity Ratio*	
			Median	Mean
	(1)	(2)	(3)	(4)
(a) More as a risk	59	1.03	73.0%	71.4%
(b) More as an opportunity	103	1.07	77.1%	75.8%
(b) – (a)			4.1%*	4.4%*

Panel C: *Value* versus *Values* Orientation Across the Two Samples

	No. of matched respondents choosing	Avg no. of matched counterparts per respondent	*Values Ratio*	
			Median	Mean
	(1)	(2)	(3)	(4)
(a) Aligned with *value*	220	1.24	4.3%	8.0%
(b) Aligned with *values*	57	1.43	7.6%	10.8%
(b) – (a)			3.3%***	2.8%*

Table 10. Drivers of Corporate Sustainability Policies

This table reports responses to survey Q8: "*Please evaluate the extent to which the following factors cause the firms you follow to reduce their environmental impact.*" Respondents rate each factor from 1 ("Not at all") to 5 ("Highest degree"). Columns (1) and (2) report the means and standard deviations. Column (3) and (4) report *t*-tests for the null hypotheses that the mean score is equal to 1 (no influence at all) and 3 (the midpoint), respectively. Column (5) reports pairwise *t*-tests comparing each factor's mean score across factors, with significance tested at the 5% level. Columns (6) and (7) report the mean scores for analysts following brown and green industries, respectively, and column (8) reports the difference. Brown industries are those included in the CSRC's high-polluting industry list; green industries are all others. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Mean	Std. Dev.	H0: Mean score = 1 (No influence at all)	H0: Mean score = 3 (midpoint)	Rows with sig. different mean scores	Brown Ind.	Green Ind.	Brown − Green
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(6) - (7)
(a) Regulations and policies	3.69	1.12	***	***	(b)–(h)	3.82	3.62	0.20*
(b) Public and media pressure	3.55	1.01	***	***	(a), (c)–(h)	3.65	3.49	0.16*
(c) Demand for sustainability from up and down the supply chain	3.32	1.13	***	***	(a)–(b), (f)–(h)	3.42	3.26	0.16
(d) Efforts to rebrand the firm as a green(er) firm	3.28	1.12	***	***	(a)–(b), (f)–(h)	3.42	3.20	0.22**
(e) Consumers' demand for sustainability	3.24	1.11	***	***	(a)–(b), (f)–(h)	3.25	3.24	0.01
(f) Firms' intrinsic preference for sustainability	3.08	1.06	***	*	(a)–(e), (h)	3.14	3.04	0.10
(g) Investors' and creditors' demand for sustainability	3.03	1.05	***	n.s.	(a)–(e), (h)	2.98	3.06	-0.08
(h) Employees' preference for sustainability	2.56	1.08	***	(-) ***	(a)–(g)	2.56	2.56	0.00
No. of analysts	505					180	325	*F*-test $p = 0.06$

Internet Appendix 1. Survey Instrument in English and Chinese

- We are a team of researchers from the University of Hong Kong, the Hong Kong Polytechnic University, and the University of International Business and Economics. This survey is part of our research project to understand whether and how sell-side analysts incorporate environmental and climate change information into day-to-day activities.
- This survey is anonymous. We will **not** share your personal information or individual responses with any third party or your brokerage firm.
- Please answer ***all questions***. The survey will take about 10 minutes.
- Please take this survey seriously. As a token of appreciation, we would like to invite you to *a lucky draw after the survey*. 50% of respondents will be randomly selected by the system to win RMB 200 each (Qualified analysts only).

GENERAL INFORMATION

G1: How long have you been working as a sell-side analyst?
☐ < 2 years ☐ 2 - 4 years ☐ 5 - 8 years ☐ > 8 years

G2: Your Gender is _____? ☐ Male ☐ Female

G3: Your Age is _____? ☐ < 30 ☐ 30 - 40 ☐ 41 - 50 ☐ > 50

G4: What diploma(s) do you have? (Please check all that apply)
☐ Bachelor ☐ Master ☐ Ph.D. ☐ Professional certificate (e.g., CFA and CPA)
☐ Other, please specify:_____

G5: What is your brokerage firm's level of annual revenue (in RMB)?
☐ < 1 billion ☐ 1 - 10 billion ☐ 10 - 20 billion ☐ > 20 billion

G6: Which city is your job based in?
☐ Beijing ☐ Shanghai ☐ Shenzhen ☐ Guangzhou ☐ Other, please specify:_____

G7: Which of the following best describes the nature of your research as a sell-side analyst?
☐ Firm/Industry research ☐ Macro research ☐ Strategy research ☐ Other, please specify:_____

G8: How many firms do you cover currently?
☐ < 5 firms ☐ 5 -10 firms ☐ 11 - 20 firms ☐ > 20 firms ☐ N.A.

G9: Which industry does your research mainly focus on? _____

G10. Could you list a few firms that you cover? (If applicable) _____

SURVEY QUESTIONNAIRE

Q1: Personally, are you concerned about pollution and climate change?
□Not at all concerned □Slightly concerned □Somewhat concerned □Moderately concerned □Extremely concerned

Q2. On a scale of 1 to 5, how do you rate your level of attention to *environmental and climate change information*? (1 = lowest; 5 = highest)
In absolute terms: _____
Relative to my industry peers: _____

Q3. For the firms you cover, do you see *environmental and climate change factors* more as a risk or an opportunity?
☐ More as a risk.
☐ More as an opportunity.
☐ Equally as a risk and an opportunity.
☐ Climate change is irrelevant to my covered firms (i.e., neither a risk nor an opportunity).

Q4: Do you try to influence your covered firms to invest in reducing their environmental impact?
☐ I don't try to influence.
☐ ***Only*** when it can increase firm value.
☐ Yes, I usually do (even when it does not increase firm value).

Q5: How do you trust the following data sources about firms' environmental performance? (-3= Do not trust at all; +3= Trust completely)

	-3	-2	-1	0	1	2	3
ESG ratings by domestic institutions (e.g., Wind ESG ratings)	□	□	□	□	□	□	□
ESG ratings by foreign institutions (e.g., MSCI ESG ratings)	□	□	□	□	□	□	□
Environmental data released by government agencies (e.g., Environmental Survey and Reporting database of China)	□	□	□	□	□	□	□
Corporate disclosure on environmental information (e.g., firms' ESG and annual reports)	□	□	□	□	□	□	□

Q6: For the firms you cover, please evaluate how *environmental and climate change factors* affect their financial performance.

	-3 Very negatively	-2	-1	0 Neutral/ No impact	1	2	3 Very positively
In the short term:	□	□	□	□	□	□	□
In the long term:	□	□	□	□	□	□	□

Q7: Please evaluate how the following factors affect *the firms you cover.*

-3 Very negatively	-2	-1	0 Neutral/ No impact	1	2	3 Very positively
Physical climate and environmental change (e.g., extreme weather, floods, air pollution)						
□	□	□	□	□	□	□
Environmental regulations or subsidies (e.g., production limits, "carbon peaking and neutrality" target, subsidies for PV power and new energy products)						

□	□	□	□	□	□	□
Transitions to green technologies and green products (e.g., transition from fossil fuels to clean energy)						
□	□	□	□	□	□	□
Demand for climate-adaptive goods (e.g., demand for air conditioners, weather insurance products, etc.)						
□	□	□	□	□	□	□
Changes in investors' and creditors' preferences (e.g., emergence of green bonds and ESG funds)						
□	□	□	□	□	□	□
Changes in consumers' preferences (e.g., consumers' preference for green products or loyalty to green brands)						
□	□	□	□	□	□	□
Changes in customers' and suppliers' preferences (e.g., supply chain decarbonization initiatives, scope 3 disclosure requirements)						
□	□	□	□	□	□	□
Changes in employees' preferences (e.g., some talents prefer to work for green firms, or in less polluted areas)						
□	□	□	□	□	□	□

Q8. Please evaluate the extent to which the following factors cause <u>the firms you follow</u> to *reduce their environmental impact*?
(1= Not at all; 5=Highest degree)

	1	2	3	4	5
□ Environment- and climate-related regulations and policies	□	□	□	□	□
□ Firms' intrinsic preference for sustainability (regardless of financial consequences)	□	□	□	□	□
□ Employees' preference for sustainability	□	□	□	□	□
□ Investors' and creditors' demand for sustainability	□	□	□	□	□
□ Consumers' demand for sustainability	□	□	□	□	□
□ Demand for sustainability from up and down the supply chain	□	□	□	□	□
□ Public and media pressure	□	□	□	□	□
□ Efforts to rebrand the firm as a green(er) firm	□	□	□	□	□

Q9: Please evaluate whether and to what extent the following investments can *increase the value of the firms you follow*.
(1= Not at all; 5=Highest degree)

	1	2	3	4	5
□ Investments in environmental protection projects (e.g., carbon reduction projects, development of new energy products, etc.)	□	□	□	□	□
□ Investments to provide better disclosure of environmental information (e.g., detailed disclosure of carbon and toxic emissions)	□	□	□	□	□
□ Investments in rebranding the firm as greener (e.g., hire external consultants to write a sustainability report)	□	□	□	□	□
□ Investments to achieve better ESG ratings	□	□	□	□	□

Q10: Please evaluate whether and to what extent the following factors motivate you to collect and provide environmental and climate information.
(1= Not at all; 5=Highest degree)

	1	2	3	4	5
□ Your personal concern about pollution and climate change.	□	□	□	□	□

□ Environmental information is useful in valuation analysis.	□	□	□	□	□
□ Environmental information is demanded by investors.	□	□	□	□	□
□ Recent occurrence of environmental incidents.	□	□	□	□	□
□ Encouragement or pressure from your brokerage house.	□	□	□	□	□

Q11: Please evaluate whether and to what extent your *coverage of environmental information* can help you…
(1= Not at all; 5=Highest degree)

	1	2	3	4	5
□ make more accurate financial forecasts.	□	□	□	□	□
□ make better recommendations.	□	□	□	□	□
□ provide investors with more information they expect to receive.	□	□	□	□	□
□ obtain a reputation and advance the career.	□	□	□	□	□

Q12. Please evaluate whether and to what extent you can influence your covered firms' environmental policies through the following ways.
(1= Not at all; 5=Highest degree)

	1	2	3	4	5
□ ***Private*** communication with corporate managers	□	□	□	□	□
□ ***Public*** communication channels, such as conference calls, site visits, etc.	□	□	□	□	□
□ Discussing environmental issues in research reports	□	□	□	□	□
□ Raising concerns about environmental issues with influential investors	□	□	□	□	□
□ Adjusting recommendations and financial forecasts to reflect the impact of the firm's environmental performance	□	□	□	□	□

End of the questionnaire. Thank you for your support!

- 我们是来自香港大学、香港理工大学和对外经济贸易大学的研究团队。本问卷是我们研究项目的一部分，旨在了解卖方分析师是否以及如何将环境和气候变化信息纳入日常研究中。
- 本问卷采用匿名方式，我们***不会***向任何第三方或您的证券公司披露您的个人信息或个人回答。
- 请回答***所有问题***。本问卷预计需要 10 分钟。
- 请您认真填写此问卷。为表示感谢，我们诚邀您在*完成问卷后参加抽奖*。系统将随机选取 50%的参与者，每人赢取人民币 200 元（仅限符合资格的分析师）。

基本信息

G1: 您从事卖方分析师的工作多长时间了？
□ 小于 2 年　□ 2 - 4 年　□ 5 - 8 年　□ 大于 8 年

G2: 您的性别是_____？ □ 男性 □ 女性

G3: 您的年龄是_____？ □ 小于 30 岁 □ 30 - 40 岁 □ 41 - 50 岁 □ 大于 50 岁

G4: 您拥有哪些学位或证书？ (请选择所有适用项目)
□ 本科 □ 硕士 □ 博士 □ 专业证书（例如，CFA、CPA）
□ 其他，请具体说明：_____

G5: 您所在的证券公司的年营业收入位于以下哪个区间？
□ 小于 10 亿元　□ 10 - 100 亿元　□ 100 - 200 亿元　□ 大于 200 亿元

G6: 您在哪个城市工作？
□ 北京 □ 上海 □ 深圳 □ 广州 □ 其他，请具体说明：_____

G7: 以下选项中哪个最能描述您作为卖方分析师的研究性质？
□ 公司/行业研究　□ 宏观研究　□ 策略研究　□ 其他，请具体说明：_____

G8: 您目前覆盖多少家公司？
□ 少于 5 家公司　□ 5 - 10 家公司　□ 11 - 20 家公司　□ 多于 20 家公司　□ 不适用

G9: 您的研究主要集中在哪个行业？ _____

G10: 您能列举一些覆盖的公司吗？（如适用） _____

问卷正文

Q1: 从个人角度而言，您是否担忧环境污染和气候变化？
□完全不担忧　□轻微担忧　□有些担忧　□中度担忧　□极度担忧

Q2. 请您用 1 到 5 的等级评估一下您对*环境和气候变化信息*的关注程度。（1 表示最低，5 表示最

高）
从绝对程度来说：_____
相对于同行来说：_____

Q3: 针对<u>您覆盖的公司</u>而言，您将*环境和气候变化因素*更多的视为风险还是机遇？
☐ 更多视为风险。
☐ 更多视为机遇。
☐ 风险与机遇相当。
☐ 环境和气候变化与我覆盖的公司无关（既不是风险也不是机遇）。

Q4: 您是否会尝试影响您覆盖的公司，使其增加在保护环境方面的投资？
☐ 我不会尝试影响。
☐ *<u>只有</u>*在这些投资能增加公司价值时会。
☐ 是的，我通常会这样做（即使不增加公司价值）。

Q5: 您是否信任以下关于企业环境表现的数据来源？
(-3=完全不信任； 3= 完全信任)

	-3	-2	-1	0	1	2	3
国内机构的 ESG 评级 (例如，万得 ESG 评级)	□	□	□	□	□	□	□
国外机构的 ESG 评级 (例如，MSCI 的 ESG 评级)	□	□	□	□	□	□	□
政府机构公布的环境数据 (例如，中国环境调查和报告数据库)	□	□	□	□	□	□	□
企业关于环境信息的披露（例如，企业 ESG 报告和年报）	□	□	□	□	□	□	□

Q6: 针对<u>您覆盖的公司</u>，请评估*环境和气候变化因素*如何影响这些公司的财务绩效？

	-3 非常负面	-2	-1	0 中性/无影响	1	2	3 非常正面
短期财务绩效	□	□	□	□	□	□	□
长期财务绩效	□	□	□	□	□	□	□

Q7:请评估以下因素如何影响*<u>您覆盖的公司</u>*。

-3 非常负面	-2	-1	0 中性/无影响	1	2	3 非常正面
污染和气候变化（例如，极端天气、洪水、空气污染等）						
□	□	□	□	□	□	□
环境政策或补贴（例如，环保限产、双碳目标、对光伏和新能源产品的补贴等）						
□	□	□	□	□	□	□
向绿色技术和绿色产品转型的趋势（例如，从化石能源向清洁能源的转变）						
□	□	□	□	□	□	□
应对污染和气候变化的产品需求（例如，对空调、天气保险产品的需求等）						
□	□	□	□	□	□	□
投资者和债权人偏好的变化（例如，绿色债券、ESG 基金的出现）						
□	□	□	□	□	□	□

消费者偏好的变化（例如，消费者对绿色产品的偏好或对绿色品牌的忠诚度）						
□	□	□	□	□	□	□
客户和供应商偏好的变化（例如，供应链脱碳倡议、温室气体范围三排放要求)						
□	□	□	□	□	□	□
员工偏好的变化（例如，一些人才更愿意为绿色企业工作、或在污染较少的地区工作）						
□	□	□	□	□	□	□

Q8: 请评估以下因素是否、以及在何种程度上导致您跟踪的公司*减少其对环境的负面影响*。
（1=无影响；5=最高程度）

	1	2	3	4	5
□ 环境和气候相关的政策和法规	□	□	□	□	□
□ 公司对可持续性的偏好（无论财务后果如何）	□	□	□	□	□
□ 员工对可持续性的偏好	□	□	□	□	□
□ 投资者和债权人对可持续性的要求	□	□	□	□	□
□ 消费者对可持续性的要求	□	□	□	□	□
□ 供应链上下游对可持续性的要求	□	□	□	□	□
□ 公众和媒体的压力	□	□	□	□	□
□ 重构公司（更）绿色环保形象的意愿	□	□	□	□	□

Q9: 请评估以下投资是否、以及在何种程度上能*提升您覆盖的公司的价值*。
（1=无提升；5=最高程度）

	1	2	3	4	5
□ 投资于环境保护工程（例如，碳减排项目、开发新能源产品等）	□	□	□	□	□
□ 投资于提供更好的环境信息披露 （例如，对碳排放和有毒气体排放的详细披露）	□	□	□	□	□
□ 投资于建设更环保的公司形象 （例如，聘请外部顾问编写可持续发展报告）	□	□	□	□	□
□ 投资于获得更高的 ESG 评级	□	□	□	□	□

Q10: 请评估以下因素是否、以及在何种程度上驱动您*收集和提供环境及气候信息*。
（1=无影响；5=最高程度）

	1	2	3	4	5
□ 您个人对污染和气候变化议题的关切。	□	□	□	□	□
□ 环境信息对价值分析很有用。	□	□	□	□	□
□ 投资者对环境信息的需求。	□	□	□	□	□
□ 最近发生的环境事件。	□	□	□	□	□
□ 您所在的证券公司的鼓励或要求。	□	□	□	□	□

Q11: 请评估*关注环境信息*是否、以及在何种程度上能够帮助您：
（1=无影响；5=最高程度）

	1	2	3	4	5
□ 提高财务预测的准确性。	□	□	□	□	□
□ 做出更好的推荐。	□	□	□	□	□
□ 向投资者提供更多他们期望获得的信息。	□	□	□	□	□
□ 获得更好的声誉并有助于职业发展。	□	□	□	□	□

Q12. 请评估您是否、以及在何种程度上能通过以下方式影响您覆盖的公司的环境政策。（1=无影响；5=最高程度）

	1	2	3	4	5
□ 与企业管理团队*私下*沟通	□	□	□	□	□
□ 通过*公开*渠道进行沟通，如电话会议、实地访问等	□	□	□	□	□
□ 在研究报告中讨论环境问题	□	□	□	□	□
□ 向有影响力的投资者表达对该公司环境问题的担忧	□	□	□	□	□
□ 调整推荐信息和财务预测，以反映公司环境表现的影响	□	□	□	□	□

问卷结束。感谢您的支持！

Internet Appendix 2. Survey Delivery and Response Rate

We delivered the survey through two channels. First, we contacted 20 brokerage houses and asked them to distribute the survey internally among their analysts. Second, we reached out to the Securities Association of China (SAC), a self-regulatory organization in the securities industry, and asked the SAC to help distribute the survey among its members. Each analyst received a barcode and accessed the survey through *Wenjuanxing*, a widely used online platform in China (e.g., Chen, Ma, Martin, and Michaely 2022). This process ensures anonymity and voluntary participation. To incentivize participation, we offered lucky draws. In the first round, we collected a total of 457 initial responses. These responses indicate a non-response bias, with most analysts coming from environmentally friendly industries and fewer than ten from those covering petroleum, coal, and steel industries.[1] To address this, we asked the brokerage houses to send reminders specifically to analysts following high pollution industries. We obtained another 98 responses following this practice, resulting in 555 responses in total.

As we distributed the survey through brokerage houses and the SAC, we could not track the exact number of recipients. Assuming the survey request reached all active equity analysts in China (approximately 4,500 at the time), our response rate exceeded 12.3% (555/4,500). This rate compares favorably to other surveys, such as 7.5% in the researcher and practitioner survey by Stroebel and Wurgler (2021), and 9.89% in the board secretary survey by Lu, Shin and Zhang (2023). We believe three factors contributed to our high response rate. First, we provided lucky draws with a 50% chance of winning 200 CNY (around 30 USD) upon finishing the survey. For comparison, Krueger et al. (2020) provided small gifts in a survey of investment professionals and received a 40% response rate. Second, our survey was distributed through brokerage houses and the SAC, rather than cold emails. Sponsorship by an organization or person within the survey audience's social network can help increase the response rate (Cycyota and Harrison 2006). Lastly, the reminders helped bring us additional responses. Survey experts also suggest that follow-ups help increase response rate (e.g., Fox, Crask and Kim 1998; Sheehan 2001).

[1] This non-response bias by groups with potentially low ESG awareness is also documented by other ESG-related survey studies (e.g., Krueger et al. 2020).

Internet Appendix 3. Examples of Environment-Related and Non-Environment-Related Discussions in Analyst Reports

Category	Definition	Examples from analyst reports
Environment-related discussions	Sentences that explicitly mention topics, activities, policies, or impacts related to the environment, climate change, sustainable development, carbon emissions, energy transition, natural resources, biodiversity, or other environment-related issues.	1. "Continued low temperatures and economic recovery will sustain strong coal demand through year-end." 2. "Stricter environmental regulations and increased downstream concentration are driving consolidation in the concrete admixture industry." 3. "The acquisition of Zhiyun Shares is strategically significant, enhancing the company's position in the new energy vehicle, creating a new profit driver and overall competitiveness. "
Non-environment-related discussions	Sentences where the content is completely unrelated to the environment and climate-related topics previously defined. These sentences typically discuss general business or economic matters (e.g., economics, finance, markets, industries, company operations, personnel, strategy) and does not contain any explicit or implied connection to environmental or climate issues.	1. "In 2007, the company's investment income reached RMB 80.95 million, a year-on-year increase of 68%." 2. "The company is streamlining its store network by closing unprofitable locations to improve the overall store quality." 3. "We believe the company's strategic shift away from real estate and towards high-tech industries aligns with China's economic transition and offers significant profit potential. "

Internet Appendix 4. Examples of Opportunity- and Risk-Related Environmental Discussions in Analyst Reports

Category	Definition	Examples from analyst reports
Opportunity-related environmental discussion	Sentences that are environmental-related and imply positive impacts on the focal firm.	1. "Driven by environmental protection and energy consumption regulations, the average price of high-grade cement reaches a record high; We expect the company's actual 2018 performance to be near the upper end of its guidance range." 2. "The recovery in overall downstream production and customer demand, coupled with strong growth in the electric vehicle (EV) sector, drove the company's exceptional performance in the fourth quarter." 3. "The company expects to further lower its overall debt financing costs by utilizing carbon emission reduction support policies."
Risk-related environmental discussion	Sentences that are environmental-related and imply negative impacts on the focal firm.	1. "Adverse weather conditions, such as high humidity, heavy rainfall, and thunderstorms, could damage photovoltaic power generation equipment, causing operational disruptions at the company's photovoltaic power stations and negatively impacting production and operations." 2. "The anticipated reduction in government subsidies is expected to negatively impact the company's performance in 2023." 3. "Increased market preference for green and environmentally friendly products could lead to slower revenue growth or even a decline in sales, potentially hindering the company's operating performance."

Internet Appendix 5. Examples of *Value, Values,* Both, and Neither-Related Environmental Discussions in Analyst Reports

Category	Examples from analyst reports
Value-related environmental discussions	1. "The company operates in the animal health sector, engaging in biological products and chemical pharmaceuticals, which are subject to stringent environmental regulations. Failure to meet these environmental standards could negatively impact on the company's performance and product sales." 2. "The successful issuance of a RMB 1 billion-green bond (first tranche), which expanded the company's funding sources, largely offset any significant changes in non-current liabilities during the reporting period." 3. "Leveraging its low-carbon and environmentally friendly operations, the company has established stable sales and partnership channels, including long-term relationships with high-profile clients like Boeing and Airbus."
Values-related environmental discussions	1. "The papermaking process generates significant amounts of black liquor, a byproduct that, if discharged untreated, severely pollutes water resources." 2. "Annual emissions from the thermal power industry reach approximately 2.5 million tons, severely affecting air quality." 3. "Without effective water pollution control, China's future water resources may be insufficient to support sustainable economic development."
Environmental discussions related to **both** *value* and *values*	1. "Rising environmental access barriers are creating a dual impact: while robustly driving energy conservation and ecological protection, they are also causing market share to concentrate around industry leaders with superior capital, technology, and scale." 2. "Advancements in ecological restoration technology provide both ecological and economic benefits, improving the environment while enhancing the financial performance of related sectors."

	3. "Carbon dioxide emissions from motor vehicles is a primary contributor to greenhouse gases, and it will in turn drive growth in the vehicle inspection product market."
Environmental discussions related to **neither** *value* nor *values*	1. "A total of 15.97 million KVAH of lead-acid battery capacity was phased out, comprising 7.80 million KVAH in plate production capacity and 8.17 million KVAH in assembly capacity." 2. "Goldwind Science & Technology, founded in 1998 as Xin Feng Ke Gong Mao and converted into a joint-stock company under its current name in 2001, is the leading company in the wind turbine industry."

Internet Appendix 6. Performance Metrics for Classification Tasks Using Fine-Tuned Large Language Models

This table reports out-of-sample performance metrics for the three sentence-classification tasks performed using fine-tuned Llama-3-8B models. For each task, we randomly sample 10,000 sentences and have two research assistants independently label them. We allocate 80% of the labeled data to a training set and 20% to a test set. Panel A reports the performance of the environment versus non-environment classifier. Panel B reports the performance of the environmental risk versus opportunity classifier. Panel C reports the performance of the *value* versus *values* classifier. Accuracy, precision, recall, and F1-score are evaluated on the held-out test set. Support denotes the number of evaluation instances per class.

Tasks	Accuracy	Precision	Recall	F1-score
Panel A: Classification of Environment- vs. Non-Environment-related Discussions				
Environment-related discussions	0.97	0.97	0.97	0.97
Panel B: Classification of Environmental Risk and Opportunity Discussions				
Risk-related discussions	0.96	0.96	0.96	0.96
Opportunity-related discussions	0.95	0.94	0.96	0.95
Panel C: Classification of *Value* and *Values*-Related Environmental Discussions				
Value-related discussions	0.93	0.93	0.93	0.93
Values-related discussions	0.91	0.91	0.91	0.91

Internet Appendix 7. Methodology and Summary Statistics of AI-related and Cybersecurity-Related Discussions in Analyst Reports

To build keyword dictionaries for Artificial Intelligence (AI) and cybersecurity risks, we use a similar approach to Li, Mai, Shen, and Yan (2021). Specifically, we begin with a set of seed words for each topic and expand them using the Word2Vec model. For AI, the seed words include Artificial Intelligence, AI, GPU, computing power, neural network, TensorFlow, auto-drive, among others. The seed words for cybersecurity are drawn from Florackis, Louca, Michaely, and Weber (2023), and include terms such as cybersecurity, hacking, social engineering, denial of service, phishing, cyberattacks, etc. Using this process, we generate a dictionary of 119 AI-related terms and 185 cybersecurity-related terms, as listed in Panel A (after translation into English). We then apply a standard bag-of-words approach to identify discussions that contain AI- and cybersecurity-related keywords in analyst reports. The summary statistics are reported in Panel B.

Panel A. Keyword Dictionaries

AI related keywords (119)	Cybersecurity related keywords (185)
image recognition, supercomputer, VR, computing power, super brain, parallel computing, natural language, IBM, TensorFlow, modality, knowledge, vision, SenseTime, software application, human brain, Google Assistant, intelligent algorithm, intelligence, IT, SLAM, high computing power, interaction technology, expert system, pattern recognition, Google, AI, cutting-edge technology, CRISPR, field of computer science, SDN, autonomous driving, AR, Spark, smart home, humanoid, human-computer dialogue, simulation technology, internet, TurboX, enterprise application, Siri, internet of everything, human-machine, Turing, intelligence analysis, Nvidia, voiceprint recognition, vocabulary, DuerOS, face recognition, computing technology, voiceprint, new generation, Cortana, perception, future-oriented, portrait, attendee, NLP, DT, communications cloud, AIoT, Yitu, modeling, neural network, mode of interaction, iot information, informatics, DeepMind, heterogeneous computing, AlphaGo, coprocessor,	privacy, system security, IP address, WAF, trojan horse, anti-submarine warfare, security risk, security vulnerability, eavesdropping, terrorist, conflict, security flaw, detection, assault, public opinion pressure, destroy, situation, cyber warfare, vulnerability, provocation, firewall, attacker, proactive defense, data protection, intrusion, security hole, crime, interception, serious threat, assailant, cyberspace, weakness, threat, CNCERT, downtime, attack and defense, major loss, cybersecurity, aggressor, backdoor, classified, attack, flaw, endanger, rear door, system failure, DDoS, paralysis, severe consequences, hijacking, impact, rule of law, spy, communication security, outage, ICT, combat, penetration, cyber attack, network firewall, containment, wiretapping, incident, harm, stolen, system vulnerability, trojan, malware, data security, domestic software, steal, web, strike, password, fragility, adversary, internet surveillance, information technology application innovation, fatal, casualties, virtual space,

cloud, Xiaoice, Megvii, go, machine, algorithm, IBM Watson, cerebellum, human-computer interaction, cloud-side, CSDN, cloud, DAMO Academy, Caffe, AI Cloud, inference, cloud-edge, brain-like, artificial neural network, learning, brain science, AIUI, Horizon Robotics, real world, brain, Watson, computing power, Fintech, computer, semantic, speech, intelligence, voice input, Cambricon, AI, Apollo, Duer, next generation, frontier of science and technology, machine translation, information retrieval, human, virtual reality, GPU, motion sensing, BYOD, network application	jeopardy, intercept, FireEye, session hijacking, internet security, malicious, network attack, personal privacy, individual privacy, deterrence, malicious program, capture, terrorism, enemy, interference, NSFOCUS, military operation, hacker, active defense, access control, authorization, fraud, extortion, encryption technology, cyberwar, espionage, harassment, personnel casualties, data leakage, counter, security policy, cracker, kaspersky, theft, harmful information, malicious software, business secret, network warfare, information security, hidden danger, criminal act, espionage agent, cripple, endpoint, annoyance, confidentiality, black hat, back door, battlefield, strike down, cyber protection, web attack, monitoring, adware, DNS, hacking attempt, malicious code, huge loss, incursion, severe damage, wake-up call, topsec, ransom, leak, hacker attack, harmfulness, surveillance, hack, system flaw, negative impact, antivirus, national security agency, crisis of confidence, log, worm, online attack, terminal, crackdown, highly susceptible, exploit, wurm, confrontation, challenge, cyberspace administration, intercepting, pilferage, web application, breach, overhearing, URL, disclosure, positive defense, violence, spam, offensive, air defense, snooping, purloin, scam, e-government, insurgent, reconnaissance, protection system, airstrike

Panel B. Summary Statistics:

	All reports	Reports with AI discussions	Reports with cyber-security discussions
No. and % of reports	273,664 (100%)	44,835 (16.4%)	10,633 (3.9%)
No. and % of unique firm-years	17,524 (100%)	8,747 (49.9%)	5,020 (28.6%)
No. and % of unique firms	3,931 (100%)	2,946 (74.9%)	2,261 (57.5%)

Internet Appendix 8. Events and Analysts' Environmental Coverage

Panel A presents summary statistics for groups of reports defined by the presence or absence of different environment-related events. Column (1) reports the number and percentage of reports in each group. Column (2) reports the average percentage of environmental sentences per report. *** indicates that the mean for the with-event group is statistically higher than that for the without-event group. Column (3) reports the total number and percentage of environmental sentences across all reports in each group. Panel B presents regression estimates of the relationship between environment-related events and analysts' environmental coverage. The dependent variable, *% of Env Related Sentences*, is the number of environment-related sentences divided by the total number of sentences in an analyst report, expressed in percentage points. *t*-statistics based on robust standard errors clustered at the industry level are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A

	No. and % of Reports	% of Env Related Sentences per report	Total No. and % of Env Related Sentences Across All Reports
	(1)	(2)	(3)
All reports	**273,664 (100%)**	**3.751%**	**406,222 (100%)**
Environmental Penalty = 1	400 (0.1%)	8.644%***	972 (0.2%)
Environmental Penalty = 0	**273,264 (99.9%)**	**3.745%**	**405,250 (99.8%)**
Natural Disaster = 1	39,537 (14.5%)	3.961%***	66,202 (16.3%)
Natural Disaster = 0	**234,127 (85.6%)**	**3.716%**	**340,020 (83.7%)**
Flood/Landslide = 1	17,275 (6.31%)	4.252%***	33,913 (8.4%)
Flood/Landslide = 0	**256,389 (93.69)**	**3.718%**	**372,309 (91.7%)**
Abnormal High Temperature =1	45,484 (16.6%)	3.762%	68,439 (16.9%)
Abnormal High Temperature =0	**228,180 (83.4%)**	**3.701%**	**337,783 (83.2%)**

Panel B

	DV=% of Env Related Sentences			
VARIABLES	(1)	(2)	(3)	(4)
Environmental Penalty	1.778***			
	(2.714)			
Natural Disaster		0.059*		
		(1.935)		
Flood/Landslide			0.189***	
			(4.208)	
Abnormal High Temperature				0.048*
				(1.676)
Constant	3.750***	3.749***	3.746***	3.744***
	(4,924.612)	(832.682)	(1,299.191)	(781.265)
Observations	273,664	273,664	273,664	273,664
R-squared	0.687	0.687	0.687	0.687
Firm-year FE	Yes	Yes	Yes	Yes
Broker FE	Yes	Yes	Yes	Yes

Data and Variable Definitions:

Data on environmental penalties are obtained from the China Research Data Services (CNRDS) database. Data on natural disasters, floods and landslides are obtained from the Emergency Events Database (EM-DAT), maintained by the Centre for Research on the Epidemiology of Disasters (CRED) at UCLouvain. Temperature data are obtained from the Chinese Environment Database of CNRDS.

Environmental penalty equals one if the focal firm received any environmental penalty (i.e., a fine, warning, or public censure) within three months preceding the report issuance date, and zero otherwise.

Natural Disaster equals one if a climate-related disaster occurred in the province of the analyst's brokerage headquarters within seven days before the report issuance date, and zero otherwise. Geophysical events, including earthquakes and dry mass movements, are excluded from the definition of climate-related disasters.

Flood/Landslide equals one if a flood or rain-induced landslide occurred in the province of the analyst's brokerage headquarters within seven days before the report issuance date, and zero otherwise.

Abnormal High Temperature equals one if the seven-day average maximum temperature exceeds the calendar-month average maximum temperature by more than one standard deviation in the city of the analyst's brokerage headquarters, and zero otherwise.

Internet Appendix 9. Tone of Analysts' Environmental and Non-Environmental Discussions

This table reports the tone of analysts' environmental versus non-environmental discussions in their reports. Tone is calculated as the number of positive sentiment words minus the number of negative sentiment words, scaled by the total number of words, based on the Chinese business and finance sentiment lexicon developed by Jiang et al. (2021). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	N	Mean	SD
(a) Tone of non-environmental sentences	75,611	0.041	0.020
(b) Tone of environmental sentences	75,611	0.050	0.054
(c) Tone of environmental risk sentences	28,466	-0.017	0.067
(d) Tone of environmental opportunity sentences	65,476	0.066	0.047
(b) - (a)		0.009***	
(d) - (c)		0.083***	

Internet Appendix 10. Analysts' Environmental Opportunity Discussions and Firms' Green Innovation

This table reports the correlation coefficients between analysts' discussions of environmental opportunities for firm *i* in year *t* and firm *i*'s green patents year *t*. Green patent data is obtained from the Green Patent Research Database (GPRD) on the Chinese Research Data Services (CNRDS) platform. The GPRD classifies green patents according to the IPC Green Inventory published by the World Intellectual Property Organization (WIPO). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	All industries		Brown industries		Green Industries	
	No. of Env Opportunity Sentences	% of Env Opportunity Sentences	No. of Env Opportunity Sentences	% of Env Opportunity Sentences	No. of Env Opportunity Sentences	% of Env Opportunity Sentences
	(1)	(2)	(3)	(4)	(5)	(6)
No. of green patents	0.161***	0.186***	0.073***	0.086***	0.159***	0.187***

Internet Appendix 11. Methodology and Full Prompt Used to Generate Themes in Environmental Risk and Opportunity Discussions

To illustrate the major environmental risks and opportunities discussed in analyst reports, we use prompts in the Llama model to identify key themes in these discussions. Specifically, we use the following prompt in Llama 3 to generate themes in analysts' environmental risk and opportunity discussions:

"*As a sell-side equity analyst specializing in climate change impacts, risk and opportunity identification, your task is to analyze sentences extracted from sell-side equity analyst research reports. These sentences pertain to climate and environmental change-related risks and opportunities. Your objective is to extract and interpret the underlying drivers of these risks and opportunities, even when these drivers are not explicitly stated in the sentence itself. Your ultimate goal is to summarize these drivers into a comma-separated list of keywords for each sentence. Let's think step by step:*

1. Identify the core drivers: Extract the fundamental causes or primary sources that give rise to the risk or opportunity described in the sentence. These drivers often manifest as underlying trends, events, policies, technological advancements, or market shifts.

2. Summarize as keywords: Condense the identified core drivers into one to three concise and relevant keywords. These keywords should clearly and accurately encapsulate the essence of the driving factors. Avoid using full sentences or lengthy phrases."

We apply this prompt to all environment-related discussions in analyst reports and obtain the key words (i.e., themes). We then count the frequency of each theme in the risk environmental discussions in brown industries, the risk discussions in green industries, the opportunity discussions in brown industries, and the opportunity discussions in green industries, respectively. Finally, we use the themes and their frequencies to generate the word clouds in Figure 4A-4D.

Internet Appendix 12. *Values* Orientation, Assessment of Environmental Risks-Opportunities and Financial Prospect

Panel A reports the correlation between *Values Ratio* and *Opportunity Ratio. Opportunity Ratio* is defined as the number of environmental opportunity-related sentences divided by the sum of environmental risk- and opportunity-related sentences in an analyst report. *Values Ratio* is defined as the number of *values*-related sentences divided by the sum of *value*- and *values*-related sentences in an analyst report. Panel B re-estimates the regressions reported in Table 6 by replacing the percentages of environmental risk- and opportunity-related sentences with the percentages of *values*- and *value*-related sentences, respectively.

Panel A. Correlation between *Values Ratio* and *Opportunity Ratio*

Correlation Coefficient	Opportunity Ratio (2)
Values Ratio	0.01 n.s.

Panel B. *Value* versus *Values* Orientation, Forecasts, and Recommendations

VARIABLE	*FEPS(t+1)* (1)	*FEPS(t+2)* (2)	*FEPS(t+3)* (3)	*Rec* (4)
% of Values Sentences	0.009	0.016**	0.015	0.007
	(1.630)	(2.281)	(1.616)	(1.428)
% of Value Sentences	0.001	-0.000	-0.000	0.001
	(0.440)	(-0.013)	(-0.061)	(0.778)
Analyst experience	0.000	0.001	0.004**	-0.003***
	(0.100)	(0.824)	(2.319)	(-5.593)
No. of firms covered	-0.001	-0.001	-0.003	0.002**
	(-0.667)	(-0.398)	(-1.029)	(2.503)
Total no. of sentences	-0.001	0.002	0.008***	0.025***
	(-0.816)	(1.443)	(4.822)	(24.754)
Female	-0.001	-0.002	-0.006**	0.002
	(-1.076)	(-1.010)	(-2.094)	(1.645)
Large broker	-0.002*	-0.007***	-0.001	-0.001
	(-1.699)	(-3.244)	(-0.371)	(-1.022)
Forecast horizon	0.073***	0.378***	0.445***	
	(23.566)	(19.607)	(17.820)	
Constant	0.798***	-0.867***	-0.935***	-0.058***
	(49.757)	(-7.216)	(-5.992)	(-16.257)
Observations	257,304	256,721	229,507	219,647
R-squared	0.964	0.960	0.956	0.103
FE	Firm-year	Firm-year	Firm-year	Firm-year
F-test of equal coefficients on *% of Values sentences* col. (1) and (3)				$p = 0.37$
F-test of equal coefficients on *% of Value sentences* col. (1) and (3)				$p = 0.82$

Internet Appendix 13. Re-evaluation of Table 6 by Restricting the Sample to Non-SOEs

This table re-estimates the regressions reported in Table 6 using only reports, forecasts, and recommendations for non-SOE firms.

VARIABLE	*FEPS(t+1)* (1)	*FEPS(t+2)* (2)	*FEPS(t+3)* (3)	*Rec* (4)
% of Env Opportunity Sentences	0.043**	0.029	0.051	0.038***
	(2.229)	(1.010)	(1.225)	(3.050)
% of Env Risk Sentences	-0.147**	-0.253***	-0.348***	-0.073**
	(-2.463)	(-2.679)	(-2.636)	(-2.148)
Report tone	0.645***	0.714***	0.930***	0.387***
	(12.029)	(9.594)	(9.934)	(11.689)
Analyst experience	0.001	0.001	0.004*	-0.002***
	(0.366)	(0.238)	(1.841)	(-3.337)
No. of firms covered	-0.003*	-0.002	-0.006	-0.000
	(-1.719)	(-0.695)	(-1.627)	(-0.254)
Total no. of sentences	0.001	0.003**	0.011***	0.027***
	(0.954)	(2.005)	(5.059)	(22.627)
Female	0.001	0.002	-0.003	0.002*
	(0.342)	(0.676)	(-0.681)	(1.908)
Forecast horizon	0.092***	0.491***	0.585***	
	(22.089)	(17.986)	(16.422)	
Constant	0.643***	-1.604***	-1.815***	-0.079***
	(28.812)	(-9.423)	(-8.172)	(-16.225)
Observations	179,308	178,992	162,742	147,469
R-squared	0.951	0.948	0.944	0.102
FE		Firm by Year FE, Broker FE		
F-test of equal coefficients on *% of Env. Opportunity sentences* col. (1) and (3)				$p = 0.52$
F-test of equal coefficients on *% of Env. Risk sentences* col. (1) and (3)				$p < 0.01$

Internet Appendix 14. Re-Examination of Key Results Based on Analysts Employed at Brokerages without Substantial Government Ownership

We re-run the analyses in Table 2 Panel A, Table 3 Panel B, and Table 7 Panel B using only analyst reports issued by brokerages without substantial government ownership. For the survey data, because we do not have precise identifiers for individual respondents, we do not construct a corresponding subsample and therefore do not re-estimate those analyses.

Panel A. Re-evaluation of Table 2 Panel A Based on Analysts Employed at Brokerages without Substantial Government Ownership

	All reports			Reports with env. discussions		
	Mean	Std.	Median	Mean	Std.	Median
Total No. of Sentences	35.45	51.61	18.00	53.47	71.41	20.00
No. of Env Related Sentences	1.42	5.60	0.00	5.31	9.82	2.00
% of Env Related Sentences	3.7%	8.5%	0.0%	13.8%	11.5%	10.0%
No. and % of reports	48,290 (100%)			12,947 (26.8%)		
No. and % of unique firm-years	11,133 (100%)			5,112 (45.9%)		
No. and % of unique firms	3,090 (100%)			2,036 (65.9%)		

Panel B. Re-evaluation of Table 3 Panel B Based on Analysts Employed at Brokerages without Substantial Government Ownership

	All reports with env. discussion	Reports with only risk discussions	Reports with only opportunity discussions	Reports with both	Reports with neither
No. of Env Risk Sentences	0.77	1.17	0	2.22	0
No. of Env Opportunity Sentences	3.79	0	2.46	7.54	0
No. and % of reports	12,947 (100%)	930 (7.2%)	6,904 (53.3%)	4,071 (31.4%)	1,042 (8.0%)

Panel C. Re-evaluation of Table 7 Panel B Based on Analysts Employed at Brokerages without Substantial Government Ownership

	All reports with env. discussion	Reports with only *value* env. discussion	Reports with only *values* env. discussion	Reports with both	Reports with neither
No. of *Value*-related Sentences	3.34	2.75	0	7.22	0
No. of *Values*-related Sentences	0.65	0	1.26	2.94	0
No. and % of reports	12,947 (100%)	8,570 (66.2%)	291 (2.3%)	2,730 (21.1%)	1,356 (10.5%)

Internet Appendix 15. Re-evaluation of Key Survey Results by Re-Sampling Male and Female Analyst Respondents

We re-sample male and female survey respondents to match the gender distribution observed in the analyst report sample, where male: female = 74.6%:25.4%. To maximize the number of observations, we randomly select 97 female and 291 male (i.e., all males) from the survey respondents and re-evaluate the key survey results.

Re-evaluation of Table 2 Panel B: Analysts' Environmental Coverage in Survey Sample

Level of attention to environmental and climate change information (on a scale of 1 to 5)	Mean	Std	H0: Mean level=3	% of respondents choosing 1 or 2	3	4 or 5
(a) In absolute terms	3.34	0.96	***	17.8%	36.3%	45.9%
(b) Relative to industry peers	3.21	1.03	***	22.7%	36.3%	41.0%
(a) - (b)	0.13***					

Re-evaluation of Table 3 Panel A: Analysts' Perceptions of Environmental Risks and Opportunities in the Survey Sample

... view environmental factors more as a risk or an opportunity to covered firms?	Total no. of respondents	No. of respondents choosing	% of respondents choosing
More as a risk	388	61	15.7%
More as an opportunity	388	101	26.0%
Equally as a risk and an opportunity	388	173	44.6%
Irrelevant	388	53	13.7%

Re-evaluation of Table 4: Analysts' Perceptions of the Importance of Environmental Risk and Opportunity Factors

Panel A. Importance of Environmental Risk Factors

		All Industries	
		% negative responses	Adj. mean
(a)	Physical climate and environmental change (e.g., extreme weather, floods, air pollution)	35.6	3.47***
(b)	Environmental regulations or subsidies (e.g., production limits ("carbon peaking and neutrality" target, subsidies for PV power and new energy products)	12.9	1.07
(c)	Changes in employees' preferences (e.g., some talents prefer to work for green firms or in less polluted areas)	8.7	0.70
(d)	Changes in consumers' preferences (e.g., consumers' preference for green products or loyalty to green brands)	7.7	0.56
(e)	Changes in customers' and suppliers' preferences (e.g., supply chain decarbonization initiatives, Scope 3 disclosure requirements)	6.2	0.68

(f)	Transitions to green technologies and green products (e.g., transition from fossil fuels to clean energy)	6.9	0.56
(g)	Demand for climate-adaptive goods (e.g., demand for air conditioners, weather insurance products)	7.7	0.56
(h)	Changes in investors' and creditors' preferences (e.g., emergence of green bonds and ESG funds)	7.0	0.50

Panel B. Importance of Environmental Opportunity Factors

	All Industries	
	%. positive responses	Adj. mean
(a) Transitions to green technologies and green products (e.g., transition from fossil fuels to clean energy)	72.9	1.35***
(b) Environmental regulations or subsidies (e.g., production limits, "carbon peaking and neutrality" target, subsidies for PV power and new energy products)	63.9	1.15***
(c) Demand for climate-adaptive goods (e.g., demand for air conditioners, weather insurance products)	61.6	1.10**
(d) Changes in consumers' preferences (e.g., consumers' preference for green products or loyalty to green brands)	64.4	1.10***
(e) Changes in customers' and suppliers' preferences (e.g., supply chain decarbonization initiatives, Scope 3 disclosure requirements)	65.7	1.06
(f) Changes in investors' and creditors' preferences (e.g., emergence of green bonds and ESG funds)	55.4	0.89
(g) Changes in employees' preferences (e.g., some talents prefer to work for green firms or in less polluted areas)	53.3	0.82
(h) Physical climate change and pollution (e.g., extreme weather, floods, air pollution)	35.1	0.53

Re-evaluation of Table 5: Perceived Environmental Risks and Opportunities and Financial Impacts

	Short-Term Financial Impacts		*Long-Term Financial Impacts*	
	(1)	(2)	(3)	(4)
More as an opportunity	0.345***	0.126	0.778***	0.451***
	(2.999)	(0.667)	(8.422)	(3.193)
More as a risk	-0.446**	-0.500**	-0.620**	-0.692**
	(-2.212)	(-2.455)	(-2.562)	(-2.522)
Female	-0.086	-0.037	-0.043	-0.013
	(-0.889)	(-0.338)	(-0.475)	(-0.116)
Analyst age	0.003	0.003	-0.013	-0.015
	(0.241)	(0.270)	(-1.134)	(-1.352)
Analyst experience	-0.014	-0.012	0.001	0.004
	(-0.538)	(-0.343)	(0.047)	(0.115)
No. of firms covered	-0.068	-0.064	-0.041	-0.022

	(-1.163)	(-0.872)	(-0.855)	(-0.395)
Educational background	1.685	1.455	1.554	1.430
	(1.488)	(1.388)	(1.474)	(1.359)
Large broker	0.086	0.127	-0.108	-0.066
	(0.863)	(1.518)	(-1.204)	(-0.935)
Constant	-0.643	0.023	0.561	1.026
	(-0.190)	(0.008)	(0.177)	(0.326)
Observations	388	388	388	388
R-squared	0.077	0.198	0.162	0.293
FE	No	Ind	No	Ind
F-tests of equal coefficients on *More as an opportunity* in col. (1) and (3)				$p < 0.001$
F-tests of equal coefficients on *More as a risk* in col. (1) and (3)				$p = 0.253$
F-tests of equal coefficients on *More as an opportunity* in col. (2) and (4)				$p = 0.046$
F-tests of equal coefficients on *More as a risk* in col. (2) and (4)				$p = 0.275$

Re-evaluation of Table 7 Panel A: Analysts' Choice between *Value* versus *Values* in the Survey Sample

Motivation to influence covered firms' environmental policies	Total no. of respondents	No. of respondents choosing	% of respondents choosing
Aligned with *value*	388	218	56.2%
Aligned with *values*	388	58	15.0%
Not trying to influence	388	112	28.9%

Re-evaluation of Table 8 Columns (1) and (2): Determinants for Analysts' *Value* versus *Values* Orientation

	Survey Sample	
	DV=*Aligned with Values*	
VARIABLES	(1)	(2)
Attention to Env topics	0.084*	0.063
	(2.017)	(1.512)
Female	-0.002	0.006
	(-0.049)	(0.175)
Age	0.013***	0.012**
	(3.047)	(2.517)
General experience	-0.004	-0.004
	(-0.406)	(-0.438)
Number covered firms	0.046**	0.048**
	(2.244)	(2.654)
Constant	-1.052	-0.833
	(-0.640)	(-0.505)
Observations	388	388
R-squared	0.056	0.177

FE	No	Ind

Re-evaluation of Table 10. Analysts' Perceptions of Drivers of Corporate Sustainability Policies

	Mean	Std. Dev.	H0: Mean score=1 (No influence at all)	H0: Mean score=3 (midpoint)	Sig. diff in mean score vs rows
	(1)	(2)	(3)	(4)	(5)
(a) Regulations and policies	3.64	1.13	***	***	3-8
(b) Public and media pressure	3.58	1.01	***	***	3-8
(c) Demand for sustainability from up and down the supply chain	3.33	1.15	***	***	1-2, 6-8
(d) Efforts to rebrand the firm as a green(er) firm	3.31	1.11	***	***	1-2, 6-8
(e) Consumers' demand for sustainability	3.23	1.14	***	***	1-3, 6-8
(f) Firms' intrinsic preference for sustainability	3.07	1.06	***	*	1-5, 8
(g) Investors' and creditors' demand for sustainability	3.05	1.05	***	n.s.	1-5, 8
(h) Employees' preference for sustainability	2.57	1.07	***	(-) ***	1-7
No. of analysts	388				

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