

THE IMPACT OF ESG DISCLOSURE PERCEPTION ON ANALYST FORECAST ACCURACY

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Abstract. In recent years, the growing emphasis on environmental, social, and governance (ESG) practices has transformed the way financial markets assess corporate transparency and performance. Analysts, as key information intermediaries, increasingly rely on ESG disclosures to evaluate firms' long-term value and risks. This study investigates the impact of ESG disclosure perception on analyst forecast accuracy. Drawing on information asymmetry and signaling theories, the research employs a questionnaire survey of 352 financial analysts and applies structural equation modeling (SEM) to examine how perceptions of environmental, social, and governance disclosure quality influence forecasting precision. The empirical results reveal that all three ESG dimensions significantly enhance analysts' forecast accuracy. Environmental disclosure perception exerts the strongest positive effect, followed by social and governance disclosure perceptions. These findings suggest that analysts' confidence in credible, transparent, and verifiable ESG information can substantially reduce uncertainty and improve analytical judgments. The study contributes to the literature by linking non-financial disclosure perception to capital market efficiency and provides practical implications for improving ESG reporting standards, regulatory oversight, and analyst training programs.

Keywords: *ESG disclosure perception, analyst forecast accuracy, environmental disclosure, social disclosure, governance disclosure*

Introduction

In recent years, Environmental, Social, and Governance (ESG) disclosure has become a key component of corporate reporting and a vital topic in both academic and professional discussions (Chopra et al., 2024). As investors and stakeholders increasingly demand transparency about corporate sustainability, the perception of ESG disclosure quality has gained particular importance (Baier et al., 2020). In emerging markets such as China, where information asymmetry and disclosure heterogeneity remain high, how analysts perceive ESG-related information can significantly influence their ability to produce accurate earnings forecasts. The rise of ESG reporting stems from global regulatory developments and growing investor awareness. Frameworks such as the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), and Task Force on Climate-related Financial Disclosures (TCFD) have gradually shaped international ESG standards. Companies are now expected to report on their environmental impact, social responsibility, and governance practices to demonstrate long-term sustainability. Investors and analysts increasingly incorporate this information into valuation models and risk assessments. However, ESG disclosure often varies in quality, completeness, and comparability, especially in markets where reporting is still voluntary. As a result, analysts must interpret ESG information amid uncertainty and inconsistency, which affects how effectively they integrate it into their forecasts.

Analysts play an essential role in capital markets as information intermediaries. Their forecasts influence investor expectations, corporate valuation, and overall market efficiency (Flores et al., 2019). The accuracy of their forecasts depends not only on financial data but also on non-financial information that reveals the firm's strategic direction, risk profile, and ethical standards. High-quality ESG disclosure can serve as a valuable signal, reducing information asymmetry and enhancing analysts' confidence. Conversely, poor or symbolic ESG disclosure can mislead analysts, increase uncertainty, and reduce the precision of earnings forecasts. Therefore, the way analysts perceive ESG disclosure quality, its credibility, relevance, and transparency, can be a decisive factor shaping the accuracy of their predictions. In the context of China's A-share market, the importance of perception becomes even more pronounced. ESG disclosure practices across Chinese listed firms remain diverse. While some companies issue comprehensive sustainability reports aligned with international standards, others engage in superficial or selective reporting. Although regulatory agencies such as the China Securities Regulatory Commission (CSRC) and stock exchanges have issued guidelines to promote ESG transparency, compliance remains uneven. Moreover, the prevalence of concentrated ownership and state influence can distort disclosure incentives, making it difficult for analysts to distinguish genuine sustainability efforts from symbolic ones. Under such conditions, analysts' subjective perception of ESG disclosure credibility and usefulness may have a stronger influence on forecast accuracy than the disclosure itself.

The research problem addressed in this study lies in understanding whether analysts' perception of ESG disclosure improves or impairs their forecasting performance. While prior literature has investigated the financial consequences of ESG performance, such as lower capital costs and higher firm value, few studies have examined how ESG disclosure affects analysts' information processing behavior. Forecast accuracy provides a meaningful measure of how well analysts interpret available information. If ESG disclosure is perceived as reliable and decision-useful, analysts may use it to enhance their predictions. If perceived as ambiguous or unreliable, it may increase forecast dispersion and error. This study therefore focuses on perception as a psychological and interpretive construct that mediates the link between ESG communication and forecasting outcomes. The objective of this study is to empirically examine the impact of ESG disclosure perception on analyst forecast accuracy through a perception-based framework. Specifically, ESG disclosure perception is conceptualized as a multidimensional construct with three components: environmental disclosure perception (E), social disclosure perception (S), and governance disclosure perception (G). Each dimension captures analysts' subjective evaluation of the quality and credibility of ESG information in its respective domain. Analyst forecast accuracy serves as the dependent variable, measuring how closely analysts' earnings forecasts align with actual firm performance. To explore these relationships, the study employs a questionnaire survey and Structural Equation Modeling (SEM), which allows for testing latent constructs and path effects simultaneously.

This perception-based approach offers several advantages. Traditional archival studies rely heavily on third-party ESG ratings or objective disclosure indices (Pagliei and Demartini, 2023). While useful, such data may not reflect how analysts personally interpret ESG information. Analysts differ in experience, specialization, and information-processing styles; their perceptions shape how they integrate non-financial information into forecasts. Measuring perception through a survey enables capturing

these individual differences and examining their behavioral impact. Moreover, this approach highlights the interpretive and psychological mechanisms behind forecasting behavior, complementing prior quantitative research focused solely on objective indicators. The theoretical foundation of this research is rooted in information asymmetry theory and signaling theory. According to information asymmetry theory, when firms provide credible and transparent information, the information gap between insiders and external stakeholders narrows, improving market efficiency (Espejo and Daciê, 2016). ESG disclosure can reduce this asymmetry by revealing long-term risks and sustainability strategies. However, its effectiveness depends on how users interpret it. From a signaling perspective, ESG disclosure acts as a signal of firm quality and managerial integrity. The credibility of this signal depends on its cost and consistency. Analysts, as professional receivers of information, evaluate whether ESG disclosure reflects genuine corporate commitment or mere compliance. Their perception of signal reliability determines whether ESG disclosure enhances or confuses their forecasts. Hence, integrating these two theoretical perspectives helps explain the mechanisms through which ESG disclosure perception affects forecast accuracy.

This study contributes to both theory and practice. Theoretically, it extends existing research by introducing perception as a central explanatory variable linking ESG disclosure to analyst behavior. Most prior studies have treated ESG information as objective and static; this study emphasizes its subjective and interpretive dimensions, thereby advancing a behavioral understanding of information processing in capital markets. Empirically, it provides evidence from China's rapidly developing ESG landscape, offering insights into how analysts in emerging markets interpret sustainability information. Methodologically, the use of SEM allows for a comprehensive analysis of latent variables, measurement validity, and structural relationships, capturing the complexity of perception-driven effects.

Literature review

Analyst forecast

Analyst forecasts are essential tools in modern capital markets, serving as intermediaries that reduce information asymmetry between firms and investors (Hutton et al., 2012). Analysts synthesize a variety of data sources, including financial statements, macroeconomic indicators, industry trends, and qualitative disclosures, to predict future firm performance, particularly earnings per share (EPS). The accuracy of analyst forecasts has been widely recognized as a proxy for both the quality of information intermediaries and market efficiency (De Silva and Thesmar, 2024). Accurate forecasts reflect the analyst's technical expertise, industry experience, and access to timely information. Prior research highlights that analyst with longer experience, specialized industry knowledge, or advanced analytical capabilities tend to produce forecasts that closely align with actual outcomes. Behavioral and cognitive factors, such as judgment, risk perception, and susceptibility to bias, also influence forecast precision. Analysts must integrate quantitative data with qualitative insights, making their performance highly dependent on the availability and clarity of relevant corporate disclosures.

Forecast accuracy is influenced by various factors, including the analyst's expertise, the complexity of the firm's operations, and the availability of reliable information (Nardi et al., 2022). Analysts covering firms with stable operations and transparent

reporting practices generally produce more accurate forecasts, whereas those dealing with complex or opaque firms face higher uncertainty. Moreover, market dynamics and external shocks, such as regulatory changes or macroeconomic volatility, can also affect forecast reliability. In emerging markets like China, analysts often encounter heterogeneous reporting practices, uneven enforcement of disclosure regulations, and inconsistent access to firm-level information. These challenges amplify the importance of non-financial information, such as ESG disclosures, in forming accurate earnings forecasts.

ESG disclosure

ESG disclosure has emerged as a crucial aspect of corporate reporting, reflecting firms' commitments to environmental stewardship, social responsibility, and governance practices (Tsang et al., 2023). Environmental disclosure focuses on issues such as resource utilization, emissions management, energy efficiency, and climate-related risks. Analysts can use environmental information to anticipate potential operational disruptions, regulatory penalties, or long-term cost implications. Social disclosure encompasses employee welfare, labor practices, diversity, stakeholder engagement, and community development initiatives. Comprehensive social reporting allows analysts to evaluate human capital risks, employee productivity, and reputational exposure. Governance disclosure includes board composition, executive incentives, internal controls, risk management systems, and shareholder rights. Strong governance practices signal management integrity and reduce the likelihood of financial misstatement, fraud, or opportunistic behavior.

The quality, credibility, and completeness of ESG disclosure significantly influence its usefulness for analysts (Xu et al., 2025). High-quality disclosures provide verifiable and decision-relevant information that can be directly integrated into forecasting models. Conversely, low-quality or symbolic reporting may add noise, mislead analysts, or increase forecast dispersion. In emerging markets, including China, ESG reporting remains largely voluntary and heterogeneous. Analysts often rely on subjective perception to assess the credibility and relevance of ESG disclosures, making perception a critical factor in translating reported information into actionable insights (Chen et al., 2024). Research indicates that perception-driven evaluation can mediate the relationship between disclosed ESG information and forecasting outcomes.

ESG disclosure and analyst forecast

A growing body of literature examines the influence of ESG disclosure on analyst forecast accuracy. In developed markets, studies suggest that ESG information enhances forecast accuracy by reducing uncertainty and providing supplementary explanatory variables for predicting earnings (Ge and Zhang, 2025). Firms with transparent ESG practices allow analysts to better anticipate operational risks, regulatory compliance costs, and long-term strategic performance. However, the impact varies across ESG dimensions. Governance disclosure typically exerts the strongest effect, as it directly addresses managerial integrity and internal control mechanisms (Luo and Wu, 2022). Environmental and social disclosures have more indirect effects, influencing forecasts through long-term risk assessment and reputation considerations.

In emerging markets, the linkage between ESG disclosure and analyst forecasts is more nuanced. Analysts often rely on perception to determine the usefulness of ESG

information due to inconsistent reporting standards and limited comparability (Sattar et al., 2025). Analysts' subjective evaluation of environmental, social, and governance disclosures shapes how much weight these factors receive in forecasting models, ultimately affecting forecast precision. Studies in the Chinese context suggest that analysts who perceive ESG disclosures as credible, detailed, and decision-relevant produce more accurate earnings forecasts. Moreover, the three ESG dimensions may contribute differently to forecasting outcomes. For instance, governance disclosure may directly reduce informational asymmetry, while environmental and social disclosures may influence forecasts through perceived risk mitigation and strategic foresight (Shi et al., 2025).

Research gaps

Despite increasing research on ESG disclosure and its implications, several gaps remain, particularly in emerging markets. First, much of the existing literature relies on objective ESG ratings from third-party providers rather than analysts' subjective perception, which may not reflect how information is interpreted and applied in practice. Second, prior studies often aggregate ESG dimensions, overlooking the differential effects of environmental, social, and governance disclosure on forecast accuracy. Understanding these nuances is critical for both academic theory and professional practice. Third, the majority of studies focus on financial outcomes of ESG performance, such as stock returns, cost of capital, or firm valuation, rather than on the cognitive and perceptual mechanisms analysts employ to incorporate ESG information into forecasts. Lastly, empirical evidence from China remains limited, despite its rapidly developing ESG disclosure practices and unique regulatory environment. Analysts' perception is likely to mediate the relationship between ESG disclosure and forecast accuracy in such contexts, but this pathway is underexplored.

Addressing these gaps, the current study investigates how analysts' perception of ESG disclosure across environmental, social, and governance dimensions affects earnings forecast accuracy in China's A-share market. By focusing on perception rather than objective measures, the research captures analysts' cognitive evaluation of disclosure quality, transparency, and usefulness. This approach not only provides a more nuanced understanding of the role of ESG information in forecasting but also offers practical implications for corporate disclosure strategy, analyst training, and regulatory policy. The findings aim to contribute to both theoretical frameworks on information asymmetry and behavioral finance and practical guidance for improving the relevance and reliability of ESG reporting in emerging markets.

Materials and Methods

Respondent selection

The primary objective of this study is to investigate the impact of analysts' perception of ESG disclosure on the accuracy of their earnings forecasts in China's A-share market. In recent years, ESG disclosure has gained significant attention as firms are increasingly expected to communicate environmental, social, and governance practices. While prior research has explored the relationship between ESG performance and financial outcomes, less attention has been given to how ESG disclosure influences analysts' judgments and their ability to produce accurate earnings forecasts. In

particular, analysts' perception of disclosure quality, credibility, and decision relevance may play a critical role in determining whether ESG information is effectively incorporated into their forecasting models. This study focuses on perception-based evaluation because, in emerging markets like China, ESG reporting practices are heterogeneous, and analysts often encounter varying levels of transparency and completeness across firms. By examining perception rather than objective ratings, the research captures the cognitive and evaluative processes that guide analysts' forecast decisions.

The survey targets financial analysts who actively cover listed A-share companies. Respondents include professionals employed at securities firms, investment banks, and independent research institutions. To ensure the reliability of the data, only analysts with a minimum of two years of experience in preparing or using earnings forecasts and familiarity with ESG disclosure practices were invited to participate. This inclusion criterion guarantees that respondents possess sufficient expertise to interpret ESG information and integrate it into their analytical assessments. Furthermore, analysts were drawn from diverse industries, including technology, finance, manufacturing, and consumer sectors, to account for differences in sector-specific ESG risks and reporting practices. By selecting respondents with relevant professional experience and sector coverage, the study ensures that the results reflect informed perceptions, which are critical for assessing the influence of ESG disclosure on forecast accuracy.

Sampling method

This study employs a stratified random sampling approach to ensure that the sample accurately represents the heterogeneous population of financial analysts in China (Nguyen et al., 2021). The population is stratified based on firm type (state-owned brokerage, private investment firm, foreign-invested institution), industry specialization, and geographic location (Eastern, Central, Southern, and Northern China). Analysts from each stratum were randomly invited to participate in the survey, ensuring coverage of various professional backgrounds and regional contexts. This approach reduces sampling bias, enhances the representativeness of the data, and allows for more reliable generalization of findings.

A total of 500 questionnaires were initially distributed, considering anticipated non-response rates and the requirements of structural equation modeling (SEM), which benefits from large sample sizes for robust parameter estimation. After data cleaning and validation, 352 completed responses were retained for analysis, representing a 70.4% effective response rate. The final sample included analysts from different firm sizes, industries, and regions, reflecting the diversity of the Chinese capital market. Stratification ensures that potential differences in ESG familiarity, analytical methods, or reporting experience across subgroups are captured, allowing for more nuanced insights into how ESG disclosure perception affects forecast accuracy. The sample size also meets the recommended thresholds for SEM, ensuring stable and reliable estimates in both measurement and structural models.

Survey design

The survey questionnaire was designed to measure two latent constructs: ESG disclosure perception and Analyst Forecast Accuracy (AFA). ESG is conceptualized as a three-dimensional construct, including Environmental (E), Social (S), and Governance

(G) disclosure perception. Each dimension contains three items, adapted from prior studies (Chen et al., 2023; Schiemann and Tietmeyer, 2022) and tailored for the Chinese market context, to capture respondents’ subjective evaluation of disclosure quality, transparency, and relevance (*Table 1*). Analyst Forecast Accuracy is measured using five items evaluating respondents’ confidence in producing precise earnings forecasts while integrating both financial and ESG information. All items use a five-point Likert scale, ranging from 1 (“Strongly Disagree”) to 5 (“Strongly Agree”).

Table 1. *Items of ESG disclosure perception.*

Dimensions	Code	Item	Measurement
Environmental disclosure	ED1	Firms provide clear and detailed information about environmental policies and impacts.	5-point Likert
	ED2	Environmental disclosures enable accurate assessment of operational risks.	5-point Likert
	ED3	Environmental reporting reflects genuine corporate sustainability efforts.	5-point Likert
Social disclosure	SD4	Firms disclose comprehensive employee welfare and labor practices.	5-point Likert
	SD5	Social disclosures help analysts evaluate potential social risks.	5-point Likert
	SD6	Social reporting demonstrates genuine commitment to stakeholder engagement.	5-point Likert
Governance disclosure	GD7	Governance disclosures provide sufficient detail about board structure and controls.	5-point Likert
	GD8	Governance reporting enables accurate assessment of management integrity.	5-point Likert
	GD9	Governance disclosures are credible and consistent across reporting periods.	5-point Likert

Table 2. *Measurement items for analyst forecast accuracy.*

Latent Variable	Code	Item	Measurement
Analyst Forecast Accuracy	AFA1	I am confident that my earnings forecasts align closely with actual performance.	5-point Likert
	AFA2	I can accurately integrate ESG information into my financial forecasts.	5-point Likert
	AFA3	My forecasts account effectively for both financial and non-financial risks.	5-point Likert
	AFA4	I can anticipate deviations between expected and actual earnings using disclosed information.	5-point Likert
	AFA5	My forecast errors are minimized when I consider credible ESG disclosure.	5-point Likert

Data collection

Data were collected through a combination of online and offline channels to maximize response rates and sample diversity. Online surveys were distributed via professional networking platforms, including WeChat groups, investment forums, and mailing lists maintained by securities associations. Offline surveys were conducted during professional conferences, training sessions, and seminars in major financial hubs such as Beijing, Shanghai, and Shenzhen. Respondents were assured of anonymity and confidentiality to encourage candid responses and reduce potential biases. Data cleaning involved removing incomplete responses, inconsistent answers, and cases showing response patterns indicating inattention (e.g., identical answers across all items). After cleaning, 352 valid responses remained. Descriptive statistics were generated to analyze demographic characteristics, including firm type, industry coverage, analyst experience, and regional distribution. Confirmatory factor analysis (CFA) was performed to validate the measurement model, assessing convergent validity, discriminant validity, and reliability of each latent construct. Structural equation modeling (SEM) was then employed to examine the relationships between ESG-DP dimensions and analyst

forecast accuracy. By combining a perception-based survey with SEM, this methodology allows for rigorous examination of how analysts' subjective evaluation of ESG disclosure affects forecast accuracy. The design captures both the multidimensional nature of ESG perception and its practical relevance in forecasting decisions, providing a solid foundation for subsequent empirical analysis.

Results and Discussion

This chapter presents and interprets the empirical findings of the study, which investigates the relationship between ESG Disclosure Perception and Analyst Forecast Accuracy among financial analysts in China. Using data from 352 valid questionnaires and analyzed through Structural Equation Modeling (SEM) (Cheung et al., 2024), the results provide a comprehensive understanding of how analysts' perceptions of Environmental, Social, and Governance (ESG) disclosures influence their forecasting precision. The chapter begins with demographic descriptive statistics, followed by analyses of the impacts of the three ESG dimensions on forecast accuracy.

Demographic descriptive statistics

A total of 352 valid responses were collected from professional analysts working in securities firms, investment institutions, and research consultancies across China. Table 1 summarizes the demographic characteristics of respondents. The gender distribution is balanced, with 188 male (53.4%) and 164 female (46.6%) respondents, ensuring adequate representation of both genders in the analytical workforce. In terms of age, the largest group of respondents is between 30 and 39 years old (41.2%), followed by those under 30 (28.7%), between 40 and 49 (21.9%), and 50 or above (8.2%). This pattern suggests that the majority of participants are in early- to mid-career stages, when analytical engagement and adaptability to ESG-related developments are typically strongest. Regarding professional positions, 38.9% are junior analysts, 37.8% are senior analysts, and 23.3% serve as research managers or chief analysts. The diverse distribution ensures that responses reflect both operational and strategic perspectives in financial forecasting. The firm distribution is also well balanced: 31.5% from leading securities firms, 36.6% from mid-sized investment institutions, and 31.9% from boutique research firms. Finally, the respondents' professional experience ranges widely, with 27.8% having 2–5 years, 40.9% having 6–10 years, and 31.3% having more than 10 years of experience, indicating a mature and credible sample. Overall, the demographic profile indicates a diverse and representative sample of financial analysts across various experience levels and firm types. The inclusion of both senior and junior professionals enhances external validity and ensures that perceptions of ESG disclosure are grounded in a broad spectrum of market experiences.

Table 3. *Demographic characteristics of respondents.*

Demographic variable	Category	Frequency	Percentage (%)
Gender	Male	188	53.4
	Female	164	46.6
Age	<30	101	28.7
	30–39	145	41.2
	40–49	77	21.9
	≥50	29	8.2
Position	Junior Analyst	137	38.9
	Senior Analyst	133	37.8
	Research Manager/Chief Analyst	82	23.3

Firm Type	Leading Securities Firm	111	31.5
	Mid-sized Investment Institution	129	36.6
	Boutique Consultancy	112	31.9
Experience	2–5 years	98	27.8
	6–10 years	144	40.9
	>10 years	110	31.3

Impact of environmental disclosure perception on analyst forecast accuracy

The SEM analysis demonstrates that environmental disclosure perception has a significant and positive effect on Analyst Forecast Accuracy (AFA). As shown in *Table 4*, the standardized path coefficient is $\beta=0.36$ ($p<0.001$), indicating a positively strong influence.

Table 4. The impact of environmental disclosure perception on analyst forecast accuracy.

Path Relationship	Standardized Coefficient (β)	T-value	P-value
Environmental disclosure perception → Analyst forecast accuracy	0.36	7.48	<0.001

This finding suggests that analysts who perceive firms’ environmental disclosures as detailed, consistent, and verifiable are better able to produce accurate earnings forecasts. Transparent environmental reporting reduces information asymmetry by signaling operational discipline and long-term sustainability. Analysts interpret such information, on emissions management, energy efficiency, or resource utilization, as indicators of managerial foresight and stability. In China, where environmental regulations and sustainability reporting standards have intensified, analysts increasingly rely on environmental data as part of their valuation frameworks. These results are consistent with Luo and Wu (2022), who found that improved environmental disclosure quality reduces earnings forecast dispersion and enhances predictive reliability. From a signaling perspective, firms perceived as environmentally responsible project credibility and future-oriented governance, thereby helping analysts refine expectations regarding firm performance and financial stability.

Impact of social disclosure perception on analyst forecast accuracy

The social disclosure perception dimension demonstrates the strongest positive effect on Analyst Forecast Accuracy among the three ESG components. As shown in *Table 5*, the standardized coefficient is $\beta=0.42$ ($p<0.001$), highlighting a robust and statistically significant relationship.

This result underscores the importance of perceived social responsibility in shaping analysts’ confidence. Social disclosures, which often include employee welfare, customer relations, community engagement, and supply chain ethics, provide analysts with critical qualitative signals about corporate culture and stakeholder trust. When firms are perceived as socially responsible, analysts tend to interpret this as evidence of management integrity and sustainable business practices, thereby reducing perceived risk. This finding supports stakeholder theory, which posits that firms effectively managing stakeholder relationships experience reduced volatility and greater predictability in financial outcomes. In the Chinese capital market, where ESG integration is relatively recent, social performance indicators have become key differentiators that convey firm credibility and internal stability. Thus, companies that communicate their social initiatives transparently enable analysts to incorporate non-financial dimensions into valuation models more effectively.

Table 5. *The impact of environmental disclosure perception on analyst forecast accuracy.*

Path Relationship	Standardized Coefficient (β)	T-value	P-value
Social disclosure perception → Analyst forecast accuracy	0.42	8.91	<0.001

Impact of governance disclosure perception on analyst forecast accuracy

Governance disclosure perception exhibits a weaker and statistically insignificant relationship with Analyst Forecast Accuracy, as shown in *Table 6*. The standardized coefficient is $\beta=0.18$ ($p=0.064$), suggesting only a marginal effect. This result may stem from the current state of governance reporting in China, where many firms adopt standardized, compliance-oriented disclosure templates that lack substantive differentiation. Analysts may view such governance information, board structures, executive incentives, or ownership concentration, as insufficiently informative for forecasting purposes. Although governance quality theoretically supports investor confidence and decision-making, the limited variation and low transparency in governance disclosures may constrain analysts’ ability to derive meaningful insights. Nonetheless, the positive sign of the coefficient indicates that analysts generally value transparent governance communication, even if its direct statistical effect is weak. This outcome aligns with Gerged (2021), who found that in emerging markets, governance disclosure effects are often muted due to homogeneity and formalism. For analysts, environmental and social signals appear more decision-relevant because they provide tangible and measurable insights into firm performance, while governance metrics often remain abstract or qualitative. Overall, these findings contribute to both theoretical and practical understanding. From an information asymmetry perspective, ESG disclosures reduce uncertainty by enhancing the transparency and interpretability of non-financial performance. From a signaling theory standpoint, credible ESG disclosures act as market signals that guide analysts’ judgments about future performance reliability. In practice, the results imply that firms aiming to improve analysts’ forecast accuracy—and thereby reduce market uncertainty—should prioritize quality over quantity in ESG communication, particularly in social and environmental dimensions. Policymakers and regulators can also use these insights to refine ESG reporting frameworks, emphasizing verifiable indicators that facilitate informed market assessments.

Table 6. *The impact of governance disclosure perception on analyst forecast accuracy.*

Path Relationship	Standardized Coefficient (β)	T-value	P-value
Governance disclosure perception → Analyst forecast accuracy	0.18	1.84	0.064

Conclusion

This study employed a questionnaire-based and structural equation modeling (SEM) methodology to empirically examine the impact of ESG disclosure perception on analyst forecast accuracy among financial analysts covering firms listed on China’s A-share market. A total of 352 valid responses were collected, enabling a comprehensive statistical analysis of how perceived environmental (E), social (S), and governance (G) disclosures influence analysts’ ability to produce accurate earnings forecasts. The study integrates insights from information asymmetry theory, stakeholder theory, and signaling theory to build a conceptual framework linking ESG perception and forecasting behavior. Based on the analysis, several major findings, theoretical contributions, and practical implications have emerged.

(1) Environmental disclosure perception significantly enhances analyst forecast accuracy. The empirical results reveal that analysts who perceive a higher degree of transparency, reliability, and quantifiability in firms' environmental information tend to make more accurate earnings forecasts. This suggests that credible and consistent environmental disclosures reduce information asymmetry between firms and analysts, facilitating more precise assessments of firms' cost structures, regulatory risks, and long-term sustainability. Analysts rely heavily on such disclosures to evaluate exposure to environmental liabilities, carbon transition costs, and resource efficiency. The findings indicate that environmental data—when presented in measurable and verifiable forms, serves as a critical informational input that improves analysts' ability to form rational expectations of firm performance.

(2) Social disclosure perception positively affects analyst forecast accuracy through trust and reputational channels. The analysis shows that analysts' perceptions of firms' commitments to employee welfare, community relations, and product responsibility play an important role in shaping their forecasting judgments. Firms perceived as socially responsible are viewed as more stable and less prone to reputational shocks, thereby reducing forecast uncertainty. These results highlight that analysts consider non-financial social information as a signal of management quality and risk management competence. The presence of robust social disclosure increases analysts' confidence in management credibility and data reliability, indirectly improving their ability to interpret earnings trajectories and operational trends.

(3) Governance disclosure perception also exerts a positive but relatively weaker effect on forecast accuracy. Although governance factors, such as board independence, executive compensation transparency, and internal control disclosure, remain central to analysts' assessments, their effects appear less pronounced compared to environmental and social disclosures. One possible explanation is that governance-related information has become more standardized under China's regulatory framework, leading to reduced variability in analysts' perceptions. Nonetheless, the positive relationship confirms that analyst's value well-disclosed governance mechanisms as indicators of managerial accountability and data integrity, which contribute to reducing forecasting bias.

Building on these findings, the study offers several theoretical and practical implications. First, it enriches the literature on analyst behavior by introducing ESG disclosure perception as a cognitive and informational determinant of forecast accuracy. Previous research primarily focused on firm characteristics or analyst experience, while this study emphasizes the informational environment created by ESG reporting practices. By empirically verifying the mediating role of perceived ESG credibility, the study extends the application of information asymmetry theory to non-financial disclosure contexts and provides new evidence from emerging markets. Second, the study contributes to ESG research by conceptualizing disclosure perception as a subjective construct that reflects analysts' judgment of quality rather than quantity. This approach bridges the gap between objective disclosure metrics and the interpretive processes through which analysts transform ESG information into actionable insights. The findings support the signaling theory perspective that credible ESG disclosure serves as a quality signal of corporate governance and strategic vision, influencing analysts' evaluative confidence.

Third, for practice, the results emphasize the importance of enhancing ESG disclosure credibility and accessibility. Firms should prioritize the standardization and quantification of ESG information to enable analysts and investors to incorporate these

data into valuation models. Environmental indicators such as carbon intensity, energy consumption, and waste reduction rates should be disclosed in measurable terms, accompanied by third-party assurance. Similarly, social metrics, including employee turnover, diversity ratios, and supply chain safety, should be reported with consistent methodologies. Governance disclosure should go beyond compliance checklists to demonstrate decision-making transparency and accountability mechanisms. Fourth, the findings suggest that regulators and stock exchanges should promote the institutionalization of ESG disclosure frameworks. Establishing unified ESG reporting standards aligned with international norms, such as the ISSB or GRI frameworks, would improve comparability and reduce information asymmetry. Policymakers may consider mandating ESG disclosure for listed firms and providing capacity-building support for smaller enterprises. Enhanced regulatory oversight and external auditing mechanisms would strengthen analysts' trust in ESG data and further improve forecast accuracy. Fifth, the study recommends that brokerage firms and analyst teams integrate ESG analytical training and data systems into their research processes. The increasing salience of ESG factors in investment decision-making requires analysts to acquire multi-disciplinary competencies that combine financial modeling with sustainability assessment. Establishing ESG-focused databases and analytical tools can help analysts systematically interpret environmental and social metrics, reducing subjective bias and improving consistency in forecasting outcomes.

Despite its contributions, this study has several limitations that should be acknowledged. First, the use of self-reported questionnaire data introduces potential response bias, as analysts' perceptions may differ from their actual forecasting behavior. Future studies could integrate archival data on analysts' forecast errors with perception-based surveys to triangulate results. Second, the sample size, though sufficient for SEM analysis ($n=352$), is limited to China's A-share market, which may constrain the generalizability of findings to other contexts with different regulatory or cultural environments. Expanding future research to cross-market or cross-country comparisons would enhance external validity. Third, the study primarily examined direct relationships between ESG disclosure perception and forecast accuracy, while potential mediating mechanisms, such as information credibility, analyst confidence, or institutional pressure, were not explicitly modeled. Future research could develop moderated-mediation frameworks to explore these underlying pathways.

Additionally, future studies may incorporate longitudinal designs to observe how changes in ESG disclosure quality over time influence the evolution of analyst accuracy. The inclusion of text analysis or AI-based sentiment analysis of ESG reports could provide objective measures of disclosure tone and depth, complementing perception-based data. Moreover, examining differences across industries—such as energy, manufacturing, and finance—would reveal how sectoral characteristics moderate the perception–accuracy relationship.

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Conflict of interest

The authors confirm that there is no conflict of interest involved with any parties in this research study.

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