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A New Scale for Evaluating Disclosure in Earnings Calls on Emerging Markets

Rodrigo dos Reis Maia [1, 2*], Jorge Miguel Bravo [1, 2, 3, 4, 5]

[1] *NOVA IMS, Universidade Nova de Lisboa, Lisbon, 1070-312, Portugal.*

[2] *Centro de Investigação em Gestão de Informação (MagIC), 1070-312 Lisbon, Portugal.*

[3] *Department of Economics, Université Paris-Dauphine PSL, 75775 Paris, France.*

[4] *BRU-ISCTE-IUL, 1649-026 Lisbon, Portugal.*

[5] *CEFAGE-UE, 7000-809 Évora, Portugal.*

Abstract

Corporate disclosure via earnings calls is a vital mechanism for financial transparency and stakeholder communication, enabling investors to evaluate firms' performance, governance practices, and strategic direction. Yet existing approaches to assessing disclosure quality are often outdated, fragmented, or narrowly focused on sustainability, thereby neglecting the governance dimension of transparency. This study develops and validates a comprehensive, reliable, and optimized scale to measure the quality of corporate disclosure in earnings calls, integrating both sustainability and governance perspectives. Using a systematic scale-development process grounded in a robust conceptual framework, we collected data from 74 investors and analysts across multiple stages, focusing on Brazilian listed companies. Exploratory factor analysis yielded a refined three-dimensional structure comprising Analyst Disclosure, ESG (environmental, social and governance), and Artificial Intelligence. Findings indicate that investors increasingly regard artificial intelligence as central to evaluating disclosure credibility and informing investment decisions. This research advances disclosure measurement by offering a novel, empirically validated instrument that captures evolving communication dynamics. The proposed scale provides theoretical and practical contributions by strengthening the links between governance, sustainability, and financial transparency, and it establishes a foundation for future cross-market validation in emerging economies.

Keywords:

Corporate Disclosure;
Earnings Calls;
Scale Development;
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1- Introduction

In capital markets, information is the foundation of investment decisions, shaping perceptions of corporate value, performance, and prospects. Among the most important channels for disseminating information are earnings reports and conference calls, collectively referred to as "earnings calls". These events allow senior management to communicate directly with investors and analysts, combining mandatory financial reporting with strategic narratives and interactive dialogue. Through structured presentations and spontaneous question-and-answer sessions, earnings calls foster transparency, reduce information asymmetry, and influence market expectations [1, 2].

Publicly traded companies typically host quarterly earnings calls, integrating formal financial disclosures with strategic discussions to engage investors. These calls provide insights into operational performance, management priorities, and the firm's outlook, establishing a regular rhythm for information dissemination. Extensive research highlights their dual purpose in the earnings disclosure process: reducing information asymmetry to support share-price

* **CONTACT**: 20220517@novaims.unl.pt

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stability while strategically managing disclosure to temper unrealistic expectations [1, 2]. However, despite this substantial body of research, existing approaches often focus on specific aspects—such as tone, content, or sentiment—without capturing the overall complexity of earnings calls [3, 4].

This gap in the literature has become increasingly evident in the post-pandemic era, as earnings calls have evolved from audio-only teleconferences to multimodal webcasts incorporating visual, auditory, and textual cues. Studies have examined linguistic tone and sentiment [5-7], but few have explored how non-verbal elements interact with spoken content to influence investor perceptions [8]. This evolution expands analytical opportunities, allowing richer interpretations of managerial intent and confidence through both verbal and non-verbal signals. Advances in natural language processing (NLP), voice analytics, and facial recognition further enable quantitative analyses of these multidimensional interactions.

Simultaneously, the rise of artificial intelligence (AI) in financial communication—through automated transcription, sentiment analysis, and summarisation—offers new tools for assessing disclosure effectiveness. Yet prior research lacks a systematic framework that integrates these technological dimensions into the analysis of disclosure. Earlier studies typically focus on narrow constructs such as earnings management [9] and information asymmetry [4, 10], without examining how these dimensions interact within a unified disclosure framework.

Moreover, the growing emphasis on environmental, social, and governance (ESG) factors has shifted scholarly attention away from traditional governance themes such as financial transparency and disclosure. While ESG research has advanced stakeholder-oriented accountability [11], it has inadvertently overshadowed the role of earnings calls in maintaining investor confidence and supporting market efficiency. A multidimensional framework that integrates transparency, ESG, and emerging technologies offers a more comprehensive and up-to-date approach to corporate disclosure.

Scale development has been widely applied in governance and ESG-related research to measure complex, multidimensional constructs such as corporate social responsibility [12], stakeholder engagement [13], and behavioural biases in investment decisions [14]. Similarly, emerging research has employed scale-development methods to assess perceptions of artificial intelligence [15]. Despite this growing application across governance, behavioural finance, and ESG domains, no prior study has applied a scale-development approach to the context of earnings calls. This gap highlights an opportunity to develop and validate a measurement instrument that captures the nuances of managerial communication, sentiment, and transparency during earnings calls, thereby extending the methodological rigour of scale development into an under-explored area of corporate disclosure research.

To fill this gap, this study develops and validates a multidimensional scale to assess earnings-call effectiveness. Drawing on stakeholder theory, signalling and disclosure theories, and legitimacy theory, nine disclosure dimensions were conceptualised: voluntary disclosure, regulated disclosure, management forecasts, earnings management, information asymmetry, analyst disclosure, investor perception, sustainability, and artificial intelligence. This approach addresses the lack of integrated frameworks in prior research by introducing a theory-driven and empirically validated measurement tool. The scale-development process followed Churchill's (1979) [16] methodological principles—item generation, expert validation, pilot testing, and factor analyses—and subsequent enhancements proposed by Bagozzi et al. (1991) [17] and refined by Turker (2009) [12], to ensure methodological rigour and conceptual coherence.

Empirical data were collected from 74 analysts and investors in Brazil, a major emerging market characterised by volatility, stringent regulation, and frequent economic shocks. This context enables a distinctive examination of how investors interpret disclosure quality in dynamic environments, addressing a literature dominated by studies of developed markets. Although Brazil's context may limit generalisability, many participants manage global assets, suggesting applicability to similar emerging markets.

This research addresses two key questions: (i) What are the critical dimensions of an optimised scale for evaluating financial transparency in earnings calls? (ii) How do these dimensions influence the assessment of earnings calls from the perspective of investors and analysts?

The study makes three main contributions: (1) integrating multiple governance theories into a unified conceptual framework; (2) developing a validated measurement tool to capture the multidimensional nature of earnings calls; and (3) providing practical insights for managers, investors, and regulators seeking to enhance communication transparency and trust.

The remainder of the paper is structured as follows: Section 2 presents the literature review and conceptual framework; Section 3 reviews existing measurement methodologies and introduces the scale development process; Section 4 presents the results and discussion; and Section 5 provides concluding remarks, discusses limitations, and outlines future studies.

2- Literature Review

2-1- Theoretical Foundations of Conceptual Framework

Earnings calls are a vital platform for disseminating information about a company's financial condition and business operations to the public. Such information is pivotal for investors, enabling informed decisions regarding the company's

securities, as underscored by the Securities and Exchange Commission (SEC) [18]. Regular disclosure practices, such as quarterly earnings reports, are integral to maintaining market transparency and fostering investor trust. Earnings calls—typically held quarterly—are a critical communication tool through which management conveys a firm's performance and governance practices to external investors [1]. These disclosures provide valuable insights into profitability, financial health, and outlook, allowing investors to assess corporate performance relative to market expectations and make well-informed investment decisions.

Corporate governance mechanisms play a crucial role in aligning the interests of managers with those of shareholders. This alignment mitigates agency problems arising from conflicts of interest between shareholders (principals) and managers (agents) [19]. Among the many functions of governance, ensuring transparency and accuracy in corporate communication has become increasingly important—particularly given investor reliance on timely information. In this context, effective governance structures, such as independent and accountable boards, enhance disclosure quality by promoting the release of accurate, comprehensive, and timely information to shareholders [20, 21]. To ensure the timely dissemination of financial information, firms employ both direct and indirect channels to communicate performance to the investment community. Direct channels include financial reports, earnings calls, and press releases, offering detailed and timely updates on a company's financial position, operational outcomes, and strategic direction. By contrast, indirect channels rely on financial analysts and other intermediaries to interpret and disseminate disclosures, thereby making them more accessible and comprehensible to a broader investor audience [1].

A review of survey methodologies in the corporate disclosure literature reveals that developing effective scales for assessing corporate governance and related constructs requires a rigorous, multi-phase process to ensure both reliability and validity. DeVellis & Thorpe (2022) [22] outline a foundational approach beginning with construct definition and item generation, followed by reliability testing and factor analysis. Similarly, Netemeyer et al. (2003) [23] highlight the importance of construct validity, achieved through careful item formulation and testing across diverse populations. Scholars such as Fabrigar et al. (1999) and Worthington & Whittaker (2006) [24, 25] emphasise the correct application of exploratory factor analysis (EFA), cautioning against the use of principal component analysis (PCA) as a substitute for common factor analysis. In addition, Bagozzi et al. (1991) [17] advocate theory-driven scale development, emphasising the integration of conceptual frameworks to enhance construct validity. Complementing these perspectives, Hinkin (1998) [26] underscores the importance of theoretical grounding and empirical testing during content and construct validation.

Advanced multivariate techniques, including exploratory and confirmatory factor analyses, are indispensable for scale validation, particularly in complex fields such as finance [27]. These statistical methods ensure that developed scales accurately capture the multifaceted nature of governance and behavioural constructs. Furthermore, Hung et al. (2009) [28] highlight the importance of financial literacy in shaping governance quality and investment outcomes. Their findings indicate that governance practices promoting transparency and accountability significantly bolster investor confidence and reduce irrational behaviour. Similarly, Hoffmann & Post (2012) [29] show that adequate governance disclosures mitigate investor overconfidence, encouraging more rational and informed investment behaviour.

Corporate disclosure through earnings calls is theoretically grounded in stakeholder theory, signalling theory, and disclosure theory, which together explain how firms communicate strategic, financial, and governance information to diverse audiences. Stakeholder theory underpins dimensions related to investor perception and analyst disclosure, reflecting the informational needs and expectations of multiple stakeholder groups [30, 31]. Signalling and disclosure theories provide a rationale for voluntary disclosure—particularly in question-and-answer (Q&A) sessions—regulated disclosure, and management forecasts; credible, timely, and structured disclosure reduces information asymmetry and guides investment decisions [32]. Dimensions such as earnings management and information asymmetry are also grounded in these theories, capturing the extent to which firms signal financial performance transparently and mitigate uncertainty for stakeholders. Sustainability disclosures are supported by stakeholder theory and the recent ESG literature, emphasising the firm's broader societal responsibilities [33]. The inclusion of artificial intelligence reflects the role of AI-enabled communication tools in enhancing the clarity, accessibility, and interpretability of disclosures, thereby strengthening credibility and information processing [15]. Methodologically, we adopt a systematic scale-development approach based on Churchill's (1979) [16] principles, incorporating item generation, content validation, pilot testing, and both exploratory and confirmatory factor analyses. Collectively, these theoretical foundations provide a robust basis for operationalising corporate disclosure across nine dimensions, which our study empirically reduces to three through factor analysis.

Despite these contributions, a notable gap remains in the literature concerning the direct measurement of earnings calls as a tool for assessing corporate governance. This under-explored area presents an opportunity to build on established frameworks by applying them to the specific context of earnings calls. Doing so offers a novel perspective on how governance and investor relations may be measured effectively through communication practices. This context sets the foundation for the proposed scale development, which aims to bridge this gap by drawing on established principles in governance theory and investment-behaviour research.

2-2- Structure Methodology Measures in Finance

Methodological approaches in finance are deeply rooted in the study of corporate governance and investment behaviour—two domains that closely intersect with the analysis of earnings calls. While the extant literature has yet to

offer psychometric scales specifically tailored to earnings calls, existing research provides a strong theoretical and methodological foundation for their development. This body of work demonstrates significant interconnections between governance, investor behaviour, and financial communication. Churchill's (1979) [16] seminal framework for construct development— enhanced by Bagozzi et al. (1991) [17] —remains foundational for the iterative refinement of measurement scales, with an emphasis on item reliability, dimensionality, and construct validity. Although originating in marketing, Churchill's paradigm continues to inform scale development across disciplines.

In the context of earnings calls, corporate governance concerns the mechanisms, processes, and structures that direct and control organisations, with the objectives of ensuring accountability, safeguarding stakeholder interests, and promoting financial transparency. The development of measurement instruments to assess governance practices has evolved alongside the broadening scope of governance research. Beck et al. (2000) [34], for example, pioneered indices designed to capture aspects of financial development and governance structures at the macro level. Their cross-national database aggregates multiple indicators, facilitating comparative analyses of governance frameworks. Although not psychometric in nature, their work underscores the necessity of standardised measurement in governance research.

Within behavioural research, Podsakoff et al. (2003) [35] identified challenges such as common method bias—an essential consideration for the development of governance-related scales. Constructs such as board independence or shareholder rights are often subject to measurement inconsistencies, necessitating rigorous validation techniques, including confirmatory factor analysis (CFA). These methodologies ensure the reliability and validity of governance scales by addressing the complexity of organisational constructs. More recently, Jungo et al. (2024) [36] contributed indirectly to the measurement of governance by demonstrating the influence of financial literacy among stakeholders. Their findings suggest that decision-makers' financial expertise significantly affects governance practices, highlighting financial literacy as an essential dimension within governance scales. Transparent and accountable governance, in turn, reinforces investor confidence and behaviour, creating a dynamic feedback loop between governance quality and financial decision-making.

Investment behaviour, as explored in behavioural finance, investigates how cognitive biases, perceptions of risk, and levels of confidence influence investment decisions. Scale development in this area has been instrumental in advancing theoretical understanding and practice. Grable & Lytton (1999) [37] developed a widely cited risk-tolerance instrument grounded in psychometric principles—item development, reliability assessment, and construct validation. Their scale differentiates among levels of risk tolerance and has proved useful in portfolio advisory and financial-planning contexts. Hoffmann & Post (2012) [29] expanded this work by introducing a scale to measure investor confidence, linking it directly to trading behaviours. Their research shows that investor overconfidence frequently results in excessive trading, underscoring the behavioural subtleties that such scales must capture. Importantly, transparent corporate governance has been shown to mitigate such biases by improving the quality and accessibility of information.

Additionally, Farrell et al. (2016) [38] introduced a financial self-efficacy scale designed to assess individuals' confidence in managing their personal finances. This tool integrates both cognitive and emotional dimensions, reflecting the multifaceted nature of financial behaviour. The scale is particularly relevant to retail investors, whose perceptions of financial competence play a significant role in shaping their investment choices.

Recent studies have advanced multidimensional scales to assess corporate practices. Cantele & Landi (2024) [39] focus on corporate sustainability, distinguishing static and dynamic approaches. Afşar & Yazıcı (2025) [40] develop a sector-spanning governance-capacity scale, while Wang et al. (2025) [41] examine digital sustainability, offering actionable insights. Hossain et al. (2024) [42] explore corporate shared prosperity with an innovative ESG-integrated scale, and Oh et al. (2024) [43] measure public perceptions of ESG performance. Collectively, these studies highlight the growing emphasis on multidimensional, practically relevant measurement instruments, complementing the present study's focus on earnings-call communication.

Taken together, these contributions demonstrate that robust scale development in corporate governance and investment behaviour requires the integration of psychometric techniques with domain-specific financial theory. Drawing on these established methodologies, the present study aims to construct a reliable and valid measurement tool tailored to the context of earnings calls. In this area, the convergence of governance mechanisms and investor perceptions is both under-explored and highly consequential.

2-3- Research on Earnings Calls - Domain Identification and Item Generation

The literature on corporate disclosure and its impact on investor behaviour provides a rich, multifaceted account of how information dissemination shapes market dynamics. This foundation is instrumental for domain identification and item generation in scale development. This chapter reviews the current state of the art, focusing on seminal studies that have advanced understanding of the key domains of earnings calls: earnings management; the informativeness of financial reports; the benefits of common accounting standards; voluntary disclosure mechanisms; sustainability-related disclosures; non-verbal cues in managerial communication; and technological advancements in information analysis.

Graham et al. (2005) [2] investigate the extent to which executives engage in earnings management and voluntary disclosure, concluding that managers often prioritise short-term earnings over cash flows to maintain credibility and influence share prices. This prioritisation highlights the centrality of earnings in investor assessments and perceptions of

strategic success. Healy and Palepu (2001) [1] explore the informativeness of regulated financial reports, finding that their value to investors varies systematically across firms and economic conditions. They also underscore the critical role of financial analysts, whose forecasts and recommendations enhance market efficiency. The adoption of common accounting standards has been shown to yield considerable efficiency gains by reducing redundancies in information production and improving comparability across firms [44, 45]. Watts (2003) [45] further emphasise the principle of conservative accounting, which helps ensure that reported losses remain credible even in the absence of external verification, thereby fostering greater trust and stability in financial markets.

Conference calls function as an effective form of voluntary disclosure, reducing information asymmetry among investors, especially during question-and-answer (Q&A) sessions. Research by Beyer et al. (2010) and Brown et al. (2004) [44, 46] highlights how earnings calls facilitate direct communication between management and investors, enabling real-time responses to financial results. Firms that receive higher analyst ratings for their disclosure practices tend to experience more favourable outcomes when issuing public debt [47, 48], suggesting that strategic communication enhances market confidence. Dhaliwal et al. (2011, 2012) [49, 50] provide evidence that Corporate Social Responsibility (CSR) disclosures yield financial benefits, such as a reduced cost of equity capital. Firms with strong CSR profiles also attract more institutional investors and increased analyst attention. Moreover, CSR initiators during seasoned equity offerings raise significantly more capital than non-initiators, and CSR disclosures have been linked to improved analyst-forecast accuracy—particularly for firms with high financial opacity.

Mayew & Venkatachalam (2012) [51] introduce a novel methodology for measuring non-verbal cues, such as vocal tone, in conference calls. Their findings show that non-verbal communication conveys executive sentiment and confidence, adding interpretive value beyond the content of spoken words. Similarly, Fiset et al. (2021) [52] demonstrate the influence of charismatic rhetoric used by CEOs, showing that delivery style can substantially shape investor perceptions and decisions. Druz et al. (2020) [53] investigate the relationship between negativity in earnings calls and firm fundamentals, finding that heightened negativity often precedes a deterioration in company performance. The sentiment expressed in these calls thus serves as an early-warning indicator for investors.

The emergence of artificial intelligence (AI) and machine learning marks a transformative moment in the analysis of financial communication. Druz et al. (2020) [53] emphasise that these technologies enable deeper, more sophisticated interpretations of the subtle signals managers send to the market. As AI capabilities evolve, their ability to process large datasets will yield novel insights into managerial intent and stakeholder reactions, aligning with trends in data-driven decision-making. Maia & Bravo (2024) [54] explore the predictive power of AI and machine-learning models in interpreting managerial communication, highlighting their potential to reshape investor analysis. Kraus & Feuerriegel (2017) [55] show that deep neural networks—specifically long short-term memory (LSTM) models—outperform traditional methods in predicting share-price movements from financial disclosures. Likewise, Berkovitch et al. (2025) [56] apply AI-driven sentiment analysis to corporate disclosures using natural language processing (NLP), successfully forecasting stock-market reactions. Their model enhances the informativeness and timeliness of corporate communication, aligning disclosures more closely with investor expectations.

The current body of research illustrates the complex interplay between information dissemination, stakeholder perception, and market dynamics. Whether through regulated reporting or voluntary mechanisms such as earnings calls, effective disclosure practices are essential for reducing information asymmetry and enhancing market efficiency—particularly during Q&A sessions. Advances in the analysis of non-verbal communication and the application of AI-based tools further enrich this field, offering increasingly detailed insights into managerial intent and investor responses.

However, a significant gap remains concerning the development of standardised survey instruments to evaluate the effectiveness and impact of earnings disclosures. Addressing this gap presents an opportunity to contribute meaningfully to corporate-communication research by offering rigorous tools for the comparative evaluation of disclosure practices across contexts and firms.

Drawing on the state of the art reviewed above, the present study proposes a novel measurement scale comprising nine key dimensions of earnings calls: voluntary disclosure (especially in Q&A sessions), regulated disclosure, management forecasts, earnings management, information asymmetry, analyst disclosure, investor perception, sustainability, and artificial intelligence. Each dimension represents a critical facet of corporate disclosure and aims to capture the strategic and regulatory elements that influence stakeholder engagement and market response during earnings calls. This comprehensive framework provides a robust foundation for future empirical analysis and theoretical advancement in the study of financial communication.

3- Research Methodology

3-1- Scale Design

As illustrated in Figure 1, we developed the scale following a standardised scale-development process outlined by Bagozzi et al. (1991) [17] and subsequently refined by Turker (2009) [12]. The initial step comprised domain identification and conceptualisation to establish a comprehensive conceptual framework [57]. This framework centres on disclosure, defined as information about a company's financial condition and business operations that is publicly

available and enables investors to make informed decisions regarding the company's securities. In most markets, earnings disclosures are issued quarterly. Financial reporting and disclosure are vital channels through which management communicates firm performance and governance practices to external investors [1].

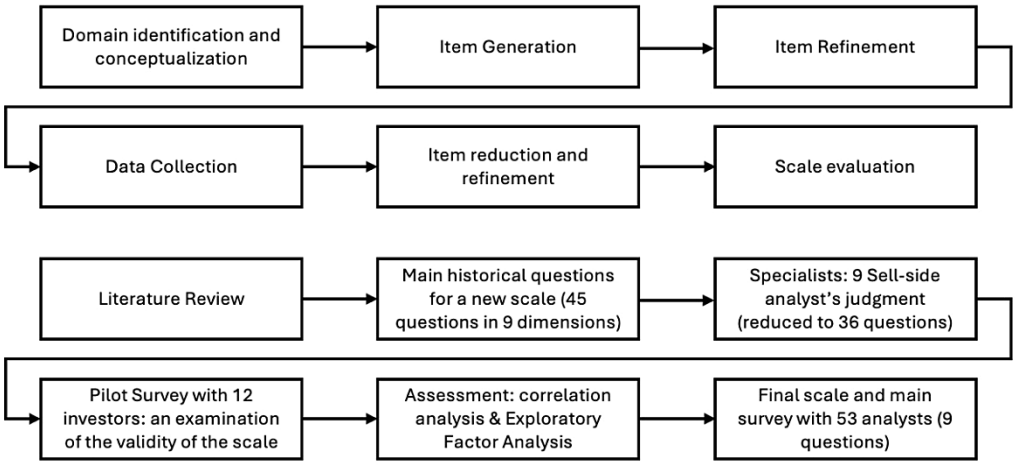

Figure 1. Scale design framework

Corporate governance comprises the mechanisms by which shareholders ensure that the board of directors oversees managerial actions in alignment with shareholder interests. Governance research typically addresses agency problems inherent in relationships between boards, managers, and shareholders [19]. Firms disclose information either directly—via financial reports and press releases—or indirectly, through financial intermediaries such as analysts who interpret and disseminate information to the broader investment community [1]. This scale-development approach is designed to ensure both reliability and validity, yielding a robust instrument for measuring the construct of interest. The first phase involved conceptualising the scale in accordance with a working definition of earnings calls. Healy and Palepu's (2001) [1] framework was selected as the most appropriate classification framework for corporate disclosure. Their work is widely regarded as among the most comprehensive in the field, providing a strong theoretical basis for the scale's conceptual foundation (see Table 1; the complete survey instrument is provided in Appendix I).

Table 1. Survey questions designed by the author based on Healy & Palepu (2001) [1]

Code	Survey question	Source of inspiration
Q11	Do you trust the information provided in the Earnings Calls?	Are firm disclosures made outside the financial statements credible?
Q12	Do you think sell-side analysts trust the information presented during Earnings Calls?	Do investors evaluate disclosures that are included directly in the financial statements differently from those that are included as supplemental disclosures?
Q21	Do you support the regulation of Earnings Calls?	Why is there a need for regulation of disclosure in capital markets?
Q22	Do you believe earnings indicators should be standardised?	What types of disclosures should be regulated, and which should not?
Q23	Do you believe current earnings accounting practices are effective?	How effective are accounting standards in facilitating credible communication between managers and outside investors?
Q41	Do you think short-term market pressures influence management's disclosure decisions?	What factors affect management's disclosure choices?
Q42	Do you think corporate governance is linked to the quality of earnings disclosures?	What is the relation between disclosure, corporate governance, and management incentives?
Q43	Do you think the board of directors can influence the Earnings Calls process?	What role do boards and audit committees play in the disclosure process?
Q61	Do you consider analysts effective intermediaries for investors?	How effective are financial analysts as information intermediaries?
Q62	Do you think the level of disclosure affects analysts' effectiveness?	How does corporate disclosure affect analyst coverage of firms?
Q63	Do you choose investment coverage based on the level of disclosure?	Ratings of disclosure quality (AIMR scores) show an increase in stock liquidity, analyst following, institutional ownership, and stock performance.
Q71	Do you think investors are influenced by Earnings Calls?	How do investors respond to corporate disclosures?
Q72	Do you think the quality of Earnings Calls affects investor perception?	What factors influence investors' perception of the quality of capital market disclosures across economies?
Q73	Do you think companies can enhance corporate governance through improved disclosure?	How does disclosure affect resource allocation in the economy?
Q75	Do you think investors assess information from conference calls differently than regulated disclosures?	Do investors evaluate disclosures that are included directly in the financial statements differently from those that are included as supplemental disclosures?

To generate the initial item pool, we employed a deductive content-analysis approach, as outlined by Elo & Kyngäs (2008) [58]. We compiled candidate statements from prior literature [1, 2] and integrated insights from key studies on disclosure practices and management forecasts. Graham et al. (2005) [2] was especially influential, offering critical perspectives on how firms communicate financial forecasts and the motivations underlying these disclosure strategies. These contributions were instrumental in shaping the scale's conceptual foundation (see Table 2).

Table 2. Survey questions designed by the author based on Graham et al. (2005) [2]

Code	Survey question	Source of inspiration
Q13	Do you believe that voluntary disclosure during Earnings Calls demonstrates transparency?	Promotes a reputation for transparent and accurate reporting
Q14	Do you think voluntary disclosure provides important information to investors that is not included in mandatory financial disclosures?	Provides important information to investors that is not included in mandatory financial disclosure.
Q15	Do you think management is consistent with their voluntary disclosures?	Avoid setting a disclosure precedent that may be difficult to continue.
Q31	How important is it for a company to meet its earnings forecast?	How important are the following earnings benchmarks to your company when you report a quarterly earnings number?
Q32	Is a management's forecast linked to its credibility?	Meeting earnings benchmarks help us build credibility with the capital market.
Q33	Is a management forecast linked to the company's stock price?	Meeting earnings benchmarks helps us maintain or increase our stock price.
Q34	Is a management's forecast linked to stock price volatility?	Meeting earnings benchmarks helps us maintain or reduce stock price volatility.
Q35	Is a management's forecast linked to the company's future growth?	Meeting earnings benchmarks helps us convey our future growth prospects to investors.
Q44	Do you think management might alter strategic decisions to improve quarterly earnings?	Near the end of the quarter, it looks like your company might come in below the desired earnings target.
Q45	Do you think management might adjust strategic decisions to reduce quarterly earnings?	Reduces the return that investors demand (i.e. smaller risk premium).
Q51	Could Earnings Calls help to diminish the asymmetry in earnings forecasts?	Increases the predictability of our company's future prospect.

In addressing information asymmetry, Beyer et al. (2010) [44] provide pivotal evidence. Their study offers valuable insights into the dynamics of information dissemination and its influence on market participants—critical considerations for designing a comprehensive scale to evaluate earnings calls. The evolving application of artificial intelligence (AI) in financial communication was likewise incorporated into the scale-development process. Key contributions include Mayew and Venkatachalam's (2012) [51] research on voice-tone analysis, which offers a nuanced understanding of how vocal cues influence perception and trust in financial disclosures, and Druz et al.'s (2020) [53] work on textual sentiment analysis, which illuminates how language and emotional tone in financial communications shape stakeholder interpretation and reactions.

Understanding interactions among the board, management, and shareholders is also fundamental to the scale's effectiveness. This dimension is well articulated by Armstrong et al. (2010) [19], whose research informed the scale's conceptual structure. Their work elucidates the internal dynamics of corporate governance, providing a theoretical basis for capturing the strategic and relational complexities embedded in earnings calls (see Table 3). In summary, the scale-development process followed a meticulous path of conceptualisation and refinement, drawing on established theoretical frameworks and empirical research. Integrating insights from information asymmetry, governance structures, and emerging AI-driven communication tools ensures that the resulting scale is both robust and relevant. The scale thus constitutes a valuable instrument for academic research and practical applications in assessing the effectiveness of earnings calls.

Table 3. Survey questions were designed by the author based on complementary sources.

Code	Survey question	Source of inspiration	Source
Q24	Do you think the amount of accounting information provided is excessive?	Common accounting standards can result in efficiency gains by reducing investors' duplication of information production and enhancing comparability of disclosures across firms.	Beyer et al. and Dye [44, 59]
Q25	Do you prefer companies to be more conservative in their accounting practices?	Conservative accounting is based on the idea that, absent asymmetric verification, losses reported by management are informative even if they cannot be verified by an outside party.	Beyer et al. and Watts [44, 45]
Q52	Do you think conference calls help to reduce information asymmetry in general?	Hypothesize that conference calls are a voluntary disclosure mechanism that leads to long-term reductions in information asymmetry among equity investors.	Beyer et al. and Brown et al. [44, 46]
Q53	Do you think conference calls slow down the speed of analytical reactions in the earnings disclosure process?	Conference calls result in timelier analyst and investor reactions to the future implications of currently reported earnings.	Beyer et al. and Kimbrough [44, 60]

Q54	Do you think companies reduce information asymmetry when they have a cash need?	Report evidence consistent with firms having high analyst ratings of disclosure policies prior to issuing public debt.	Healy et al. and Beyer et al. [1, 44]
Q55	Do you think there are managers who lack sufficient information?	For example, managers can build reputations for being uninformed.	Beyer et al. and Einhorn & Ziv [44, 47]
Q64	Do you think analyst consensus can influence management's reporting decisions?	Find that firms manage earnings to meet analysts' forecasts.	Burgstahler & Eames [61]
Q65	Do you think conference calls help in better predicting future earnings?	Forecast errors will decrease more during conference call quarters than during non-conference call quarters.	Bowen et al. [62]
Q74	Do you think conference calls generate more market volatility?	Calls are associated with a greater increase in small trades, consistent with investors trading on the information released during the call, and higher price volatility during the call.	Bushee et al. and Beyer et al. [3, 44]
Q81	Do you think disclosing ESG information during Earnings Calls improves a company's cost of capital?	Corporate social responsibility disclosure is associated with a subsequently lower cost of equity capital.	Dhaliwal et al. [49]
Q82	Do you believe that disclosing ESG information attracts more investors?	Further, firms initiating CSR disclosure with superior CSR performance attracts dedicated institutional investors and analyst coverage.	Dhaliwal et al. [49]
Q83	Do you think ESG information supports better follow-on investment decisions?	Among firms conducting SEOs, CSR disclosure beginners raise a significantly larger amount of equity capital than non-initiators.	Dhaliwal et al. [49]
Q84	Do you think ESG information support more accurate analyst forecasts?	Ceteris paribus, CSR disclosure is positively associated with the accuracy of analyst earnings forecasts.	Dhaliwal et al. [50]
Q85	Do you think ESG information help mitigate the lack of financial disclosure?	Ceteris paribus, the positive relationship between CSR disclosure and analyst forecast accuracy is stronger among firms with a higher level of financial opacity.	Dhaliwal et al. [49]
Q91	Do you believe that the tone of voice during conference calls can provide insight into a company's future performance?	A process to measure non-verbal cues (in the conference call)	Mayew & Venkatachalam [51]
Q92	Do you think the tone of voice is more influential than the actual words used during conference calls?	A process to measure non-verbal cues (in the conference call)	Mayew & Venkatachalam [51]
Q93	Do you pay attention to facial expressions when watching Earnings Calls?	To better understand the signalling capacity of CEO charismatic rhetoric on one key audience: investors.	Fiset et al. [52]
Q94	Do you consider the frequency of good or bad news during Earnings Calls?	To examine the relationship between conference call negativity changes and proxies for company fundamentals.	Druz et al. [53]
Q95	Do you believe that Artificial Intelligence tools can enhance forecasting accuracy?	We conducted this analysis at the dawn of the era of machine learning and artificial intelligence. In the coming years, almost certainly, much more extensive analyses will be conducted of the hints that managers provide to the investment community.	Druz et al. [53]

3-2- Item Refinement

As illustrated in Figure 2, we revisited key contributions from subsection 3.1. Building on the foundational work of Healy & Palepu (2001) [1] and Graham et al. (2005) [2], we identified seven core dimensions: Voluntary Disclosure, Regulated Disclosure, Management Forecasts, Earnings Management, Information Asymmetry, Analyst Disclosure, and Investor Perception. To capture recent developments in financial communication, the framework was extended by incorporating two emerging dimensions. The ESG dimension is grounded in Dhaliwal et al. (2011) [49], which underscores the growing importance of environmental, social, and governance factors in corporate reporting. Meanwhile, the Artificial Intelligence (AI) dimension draws on Mayew & Venkatachalam (2012), Fiset et al. (2021), and Druz et al. (2020) [51-53], who examine the role of AI and related analytical techniques in shaping investor decision-making and disclosure practices. Together, these nine dimensions form the basis of a multidimensional scale that reflects both traditional and contemporary aspects of earnings-call communication.

Given the emerging role of AI in finance, the items were designed for clarity and accessibility. Although Q91 and Q92 focus on tone rather than AI per se, their inclusion within the AI construct is justified, as tone [51] is a key input to AI-driven analysis of earnings calls. Advances in natural language processing and voice-sentiment analysis enable AI to interpret vocal cues to infer managerial intent and performance. Thus, evaluating perceptions of tone supports the assessment of the relevance of AI tools (explicitly addressed in Q95), reflecting the conceptual link between tone and AI in financial communication.

The scale design followed a structured process to ensure validity and reliability. First, an initial version of the scale was constructed (Figure 2), comprising five items per dimension across nine dimensions (45 items; see Appendix I). Dimensional definitions were derived from the conceptual alignment of literature-grounded items (Tables 1, 2 and 3). A panel of nine experienced financial analysts then reviewed the instrument, providing feedback that refined wording, removed ambiguities, and strengthened content validity.

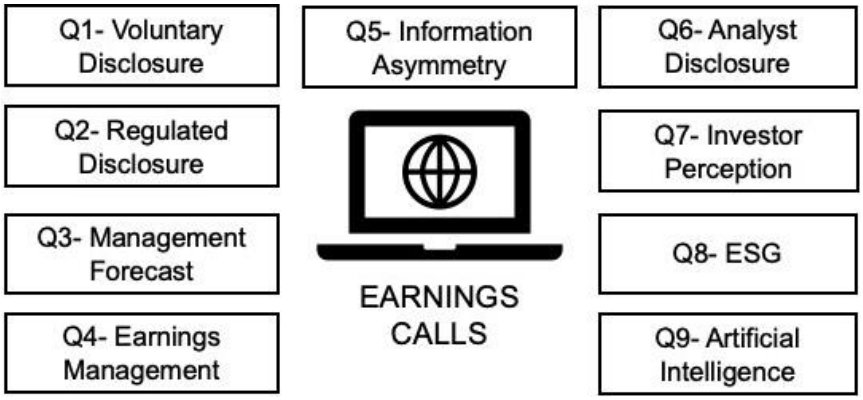

Figure 2. Earnings Calls original scale has nine dimensions

The role of a financial analyst spans a wide range of responsibilities, including evaluating financial data, analysing current events and market developments, reviewing an organisation's financial statements, and constructing financial models to forecast future performance. Financial analysts may monitor broad macroeconomic trends or specialise in specific sectors and industries, depending on their focus. These roles are typically data-intensive and require advanced mathematical and analytical competencies.

Analysts are employed across investment banks, insurance companies, mutual funds, hedge funds, pension funds, securities firms, investment firms, private-equity groups, venture-capital firms, government agencies, and similar organisations. In particular, sell-side analysts specialise in niche sectors and subsectors, producing detailed reports based on companies' financial data. Their responsibilities often include issuing stock recommendations—such as 'buy', 'sell', or 'hold'—based on their analysis. These analysts provide valuable insights to clients and buy-side counterparts, enhancing organisational value, particularly when their forecasts attract new mandates. However, the role also entails significant pressure to be among the first to deliver accurate recommendations. Moreover, client-relationship management can at times exert greater influence on decision-making than the analytical quality of the research itself, highlighting the interplay between technical expertise and relational dynamics within the profession.

These experts, selected for their extensive experience in financial analysis and corporate governance, provided critical feedback on the relevance, clarity, and comprehensiveness of each item in the scale. To assess the consistency of these evaluations, we analysed inter-rater reliability among the nine analysts, focusing on Pearson's correlation and Fleiss' kappa [63] as the primary measures of reliability. Pearson's correlation was used to evaluate the strength and direction of linear relationships between analysts' ratings, thereby indicating the degree of agreement on a continuous scale. In parallel, Fleiss' kappa—appropriate for categorical data with multiple raters—was employed to determine the extent of agreement beyond chance. By integrating these two statistical metrics, we sought a robust, multidimensional assessment of consensus among the analysts, thereby strengthening the overall validity of the expert-review process.

The initial analysis of inter-rater reliability using all nine raters yielded an average Pearson's correlation coefficient of 0.72, indicating a moderate level of consistency in the ratings. When the number of raters was reduced to five, the average correlation increased to 0.86, suggesting a higher degree of reliability (see Table 4). To complement this, Fleiss' kappa was also computed (see Table 5). With nine raters, Fleiss' kappa was 0.10, signifying slight agreement; with a reduced group of five raters, the kappa value improved to 0.28, indicating a fair level of agreement. Accordingly, the decision to reduce the number of experts from nine to five was guided by the kappa analysis, with the aim of enhancing the reliability and consistency of the evaluations.

Table 4. Judges inter-rate reliability with Pearson correlation*

Judge	1	2	3	4
1				
2	0.921			
3	0.870	0.914		
4	0.842	0.851	0.888	
5	0.797	0.778	0.796	0.899

*Average correlation: 0.856.

Table 5. Calculation of Fleiss' kappa for Inter-Rater Reliability

Metric	Description / Calculation
Fleiss' kappa formula	$k = \frac{p_0 - p_e}{1 - p_e} = \frac{0.43 - 0.22}{1 - 0.22}$
Calculation	$k = \frac{0.21}{0.78} \approx 0.28$
Terms	p_o is the observed agreement p_e is the expected agreement by chance

Subsequently, we examined the level of consensus among the raters regarding the removal of items across the nine dimensions of the scale. Based on their evaluations, the panel collectively recommended reducing the total number of items from 45 to 35, systematically eliminating ten questions—highlighted in red in Appendix I. One exception concerned the item "Do you think conference calls generate more market volatility?". Although this question received a relatively lower rating from the panel, it was retained at the survey stage owing to the recognised historical significance of volatility in studies on earnings calls. As a result, the administered questionnaire comprised 36 items.

Understanding volatility dynamics in emerging capital markets is essential for accurately estimating the cost of capital and for guiding strategic decisions on direct investment and optimal asset allocation [64]. Elevated volatility has been shown to constrain real capital investment and may hinder economic growth [65]. Recent studies further underscore the centrality of volatility to market functioning. Ultimately, however, in keeping with the specialists' recommendation and subsequent scale-refinement criteria, this specific item was not retained in the final validated scale.

3-3- Pilot Survey

The refined 36-item scale was initially tested through a pilot survey involving 12 investors. This pilot phase aimed to identify any remaining issues related to question wording, scale structure, or respondent comprehension. Feedback collected during this stage informed minor revisions to the survey instrument.

Specifically, improvements were made to the phrasing of several items, including replacing the abbreviation 'E&C' with the full term 'earnings calls'. In addition, selected questions were reworded to better reflect the perspectives of buy-side analysts and investors.

The pilot survey was administered via Qualtrics to 12 highly specialised buy-side analysts (professional investors) with extensive experience analysing Brazilian firms. Participants were recruited via LinkedIn, using the author's established professional network to ensure a relevant and credible expert sample. To promote candour and reduce response bias, the survey was conducted anonymously, with full confidentiality assured for all participants.

The questionnaire was deliberately designed to be concise and focused, capturing essential insights while minimising respondent fatigue. The average completion time was about five minutes, indicating the effectiveness of the streamlined format. Given that the respondents are professional investors accustomed to processing financial information quickly and efficiently, this rapid completion is consistent with their expertise and ability to provide thoughtful, informed responses. Notably, the survey achieved a 100% response rate, with all participants completing every item—demonstrating both strong engagement and the suitability of the instrument for this expert audience.

3-4- Data Collection

Following optimisation of the pilot phase, we distributed the scale to a broader sample of 53 financial professionals, principally buy-side analysts and investors based in Brazil. Buy-side analysts typically cover multiple sectors on behalf of clients, offering a broader perspective than sell-side analysts. Their responsibilities include synthesising proprietary research with insights from sell-side reports to generate actionable investment strategies and identify potential risks. They also assist clients in distinguishing high-quality research and are often under greater pressure to maintain accuracy in their recommendations than their sell-side counterparts.

The study adopted a two-stage design—expert review and pilot testing—which enabled refinement of the instrument before full deployment and enhanced its reliability and validity. By incorporating respondents from diverse organisational contexts and geographic backgrounds, the process strengthened the scale's robustness and applicability across varied professional environments.

The complete survey was administered via Qualtrics with measures to preserve participant anonymity, thereby encouraging candid and unbiased responses. To prevent duplicate entries, IP addresses were monitored. The target was at least 50 completed surveys over two weeks in late June 2024. Of 60 questionnaires distributed, 56 responses were received; three were incomplete and excluded, resulting in a final sample of 53 valid responses.

Participants rated each item on a 10-point Likert-type scale (1 = strong disagreement; 10 = strong agreement). This approach yielded quantitative evidence on the perceptions of buy-side analysts and investors and contributed materially to the study's empirical findings.

3-5- Descriptive Statistics

To ensure a safe and unbiased environment for survey participation, participants were invited to provide anonymous responses. Invitations were distributed through two prominent Brazilian associations—the Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais do Brasil (Apimec Brasil) and the Associação de Investidores no Mercado de Capitais (Amec)—both well-established platforms for engaging the target audience. Additional invitations were extended via the author's professional LinkedIn network.

According to data from Apimec, which accounted for the majority of responses, the gender distribution was 14% female and 86% male. By age, 39% of participants were over 60 years old, 32% were aged 25–43, and 28% were aged 44–60. All respondents had professional experience in investment analysis within the Americas—especially Brazil—and were familiar with earnings calls, the primary focus of this study. The sample comprised 33% investment analysts, 18% investment advisers, 11% financial advisers, and individuals in other relevant roles. It is common in Brazil for finance professionals to cover a broad range of industries, which enriched the study by incorporating diverse sectoral perspectives. Participant recruitment was facilitated through the author's extensive professional network, cultivated over two decades of experience in investor relations, thereby enabling access to highly experienced and well-connected professionals.

Data collection was conducted using Qualtrics, generating a dataset of 1,908 individual data points (53 respondents × 36 items). This procedure ensured comprehensive coverage of the constructs under investigation. An initial review of the dataset revealed missing values in approximately 2.6% of all responses. Although relatively low, this level of missingness required careful handling to preserve the integrity and robustness of the analysis.

We adopted median imputation because it is less affected by outliers than the mean and preserves the distributional characteristics of the data without introducing material bias. This approach allowed us to retain all valid responses, supporting a comprehensive and representative analysis. The decision to use median imputation is consistent with established guidance for handling low levels of missing data and provides a robust foundation for subsequent statistical analyses, thereby enhancing the reliability of the study's findings.

3-6- Factor Analysis

To assess the suitability of the dataset for factor analysis, Bartlett's test of sphericity [66] was conducted. This test evaluates whether the correlation matrix differs significantly from an identity matrix, indicating correlations among variables appropriate for factor extraction. The results were: Chi-square (χ^2) = 1253.948; Degrees of freedom (df) = 630; p-value: $p < 1.07 \times 10^{-43}$. The test was statistically significant, leading to rejection of the null hypothesis of an identity matrix. This outcome confirms that the data were suitable for factor analysis, thereby supporting the next stage of scale validation.

In the subsequent stage of the scale-development process, SAS Studio was used to refine and optimise the scale (see Appendix III). We began with the complete set of 36 items, aiming to identify opportunities for item reduction and determine the optimal number of latent factors. This approach enabled the exploration of alternative factor structures, isolating the most representative dimensions consistent with the theoretical constructs underpinning the scale. The goal of this refinement was to improve clarity, parsimony, and interpretability while preserving robustness and reliability.

Item–total correlations were examined to identify items that might be removed or revised to strengthen construct validity (see Figure 3). This analysis allowed us to assess the coherence of individual items within their respective constructs, facilitating evidence-based modifications to enhance internal consistency and the overall psychometric quality of the scale.

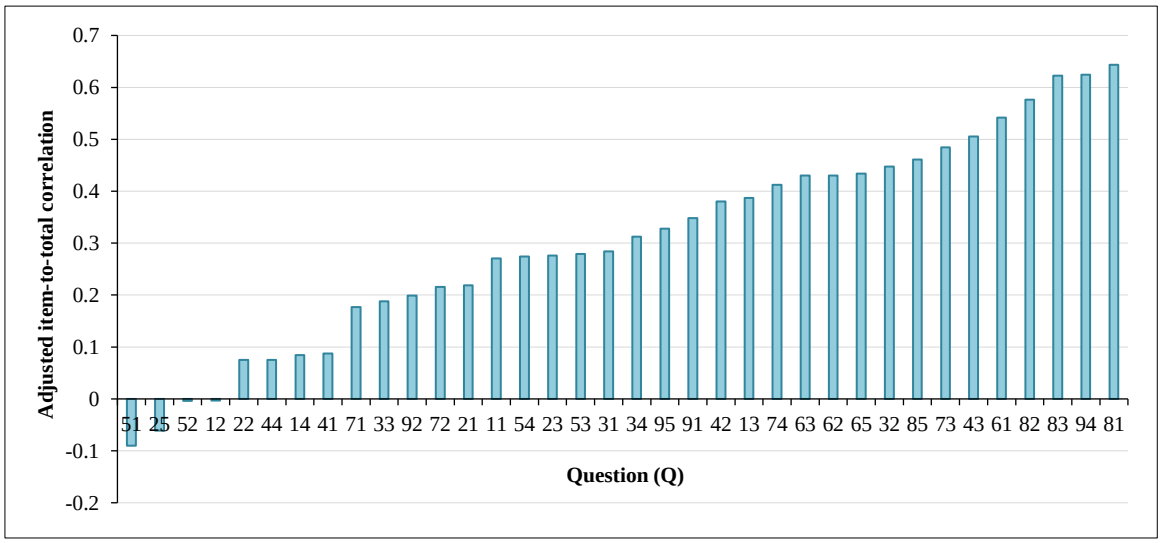

Figure 3. Item to total correlation analysis

An examination of the adjusted item–total correlations revealed that two constructs—Q8 and Q6 (see Appendix I for the complete list)—had all items with correlation values ≥ 0.30, indicating acceptable internal consistency [67, 68]. A third construct, Q9, exhibited three items with correlations above 0.30, suggesting partial internal coherence. For constructs Q3, Q4, and Q7, approximately half of the items met the 0.30 threshold, indicating a mixed pattern of internal reliability. By contrast, constructs Q1, Q2, and Q5 were excluded from further analysis owing to consistently low item–total correlations, with all items below 0.30. These results suggest that these constructs lacked sufficient internal consistency to warrant retention in the scale.

To further evaluate sampling adequacy for factor analysis, we computed the Kaiser–Meyer–Olkin (KMO) measure [69] (Table 6). Constructs Q9, Q8, Q4, Q7, and Q6 displayed higher average KMO values (in descending order), indicating stronger shared variance and greater suitability for factor analysis. Conversely, constructs Q1, Q5, Q3, and Q2 recorded lower average KMO values (also in descending order).

The KMO statistic is defined as the ratio of the sum of squared correlations among variables to the sum of squared partial correlations, providing an index of the proportion of variance that may be common variance. Higher KMO values support the appropriateness of factor modelling, whereas lower values suggest that the variables do not share sufficient common variance for reliable factor extraction.

Table 6. KMO of remaining constructs

Q41	Q42	Q43	Q44	Q61	Q62	Q63	Q65	Q71	Q72	Q73	Q74	Q81	Q82	Q83	Q85	Q91	Q92	Q93	Q95
0.55	0.68	0.69	0.47	0.63	0.71	0.67	0.68	0.56	0.55	0.74	0.63	0.71	0.78	0.71	0.76	0.76	0.68	0.75	0.77

3-6-1- Adequate Configuration

The final retained items were Q61, Q62, Q65, Q81, Q83, Q85, Q91, Q92, and Q95. These items demonstrated strong statistical properties and clear conceptual relevance to their respective constructs. Principal component analysis (PCA) extracted three components, which explained a substantial share of total variance. Specifically, the cumulative variance explained by the three retained components was 98%, indicating high explanatory power (see Table 7). To evaluate shared variance and ensure the appropriateness of the solution, initial communalities were estimated using adjusted squared multiple correlations (SMCs). This procedure allowed us to assess the proportion of variance in each item attributable to common components, thereby supporting the underlying covariance structure of the data.

Methodologically, PCA was employed as an initial extraction technique to summarise variance efficiently and to identify empirically coherent dimensions. PCA provides a robust, parsimonious tool for exploratory dimensionality assessment at the early stage of scale development, offering a practical empirical guide to which variables cluster together even before formally specifying latent constructs. While common factor analysis is aligned with latent-variable theory, our study followed a two-step validation procedure: PCA for preliminary extraction, followed by reliability and validity testing—including exploratory factor analysis, Cronbach's alpha, composite reliability, and average variance extracted—to ensure that the final constructs were theoretically sound and statistically robust [22, 26, 27].

Table 7. Eigenvalues of the Reduced Covariance Matrix: Total = 31.339 Average = 3.482

Nº	Eigenvalue	Difference	Proportion	Cumulative
1	17.811	8.829	0.568	0.568
2	8.982	5.026	0.287	0.855
3	3.956	2.603	0.126	0.981
4	1.353	0.728	0.043	1.024
5	0.626	0.619	0.020	1.044
6	0.007	0.257	0.000	1.045
7	-0.250	0.137	-0.008	1.037
8	-0.388	0.370	-0.012	1.024
9	-0.758	-	-0.024	1.000

The overall Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy (MSA) was 0.71 [69], indicating that the dataset was moderately suitable for factor analysis, as it exceeds the commonly accepted threshold of 0.60. This suggests that the variables share sufficient common variance to justify the application of factor-extraction techniques. Individual

MSA values ranged from 0.64 to 0.79 (see Table 8), with most indicating satisfactory sampling adequacy. Among the items, Q95 exhibited the highest MSA (0.79), whereas Q65 had the lowest (0.64)—yet still within the acceptable range. Collectively, these findings confirm that the dataset is appropriate for factor analysis, with no variables displaying inadequate levels of common variance.

Table 8. Verification of Factor Analysis (KMO Overall MSA=0.711)

Q81	Q83	Q85	Q91	Q92	Q95	Q62	Q61	Q65
0.66	0.65	0.77	0.76	0.66	0.79	0.77	0.72	0.64

As a result of the factor analysis and subsequent rotation, the root-mean-square residual (RMSR) was 0.038 (see Table 9). According to Hair et al. (2010) [67], this value reflects good model fit, supporting the robustness of the factor structure and affirming the adequacy of the analytical approach. However, one item—Q65—exhibited a comparatively higher residual of 0.0545, suggesting potential model misspecification or a less precise representation of the relationships associated with this variable. Although this value is only marginally above the preferred threshold of 0.05, it may warrant further investigation or refinement in future iterations of the scale.

Table 9. Root Mean Square Residual (Overall = 0.038)

Q81	Q83	Q85	Q91	Q92	Q95	Q62	Q61	Q65
0.033	0.039	0.033	0.033	0.039	0.029	0.041	0.033	0.054

Factor analysis revealed three distinct factors with eigenvalues greater than 1, collectively explaining 99% of the total variance in the dataset. Each factor comprised three variables, indicating a balanced distribution of items across dimensions (see Figure 4).

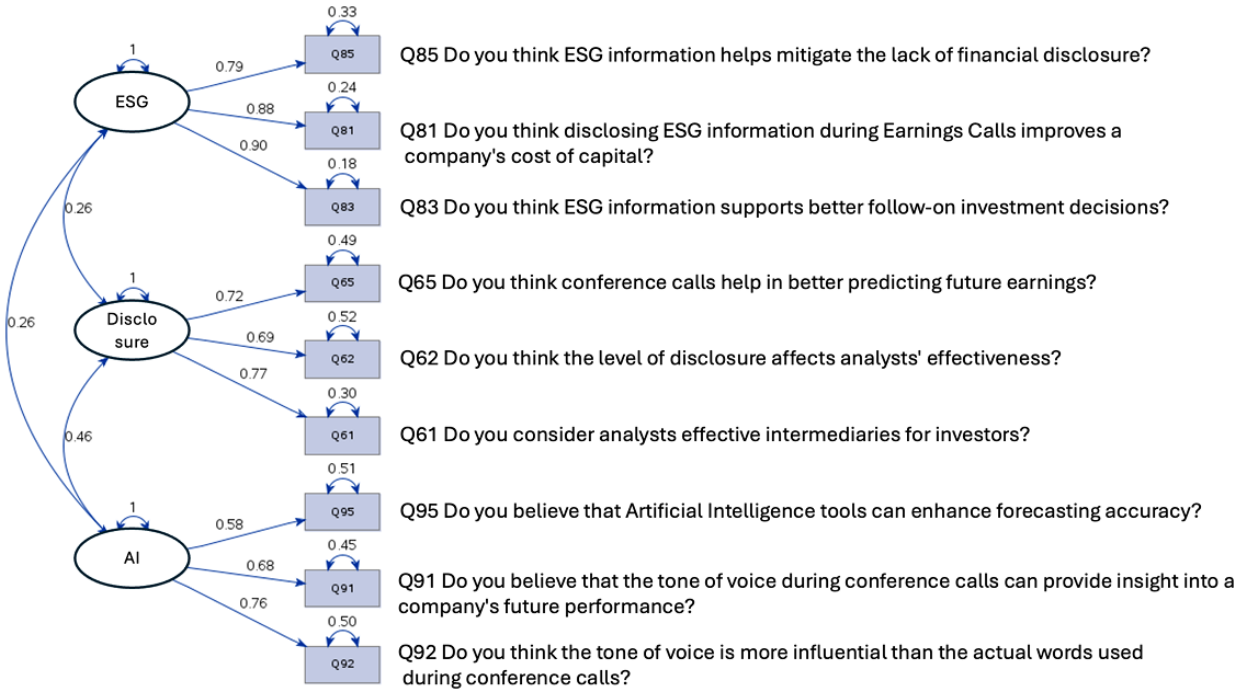

Figure 4. Factor Analysis

3-7- Scale Evaluation - Reliability of Factor Analysis

To evaluate the reliability of the selected items, we computed Cronbach's alpha (α), a widely used index of internal consistency assessing the extent to which items within a scale are interrelated. The analysis yielded α = 0.793 (see Table 10), which, following Nunnally (1994) [68], indicates an acceptable-to-good level of reliability. This result suggests that the items are sufficiently intercorrelated and consistently measure the underlying construct, thereby supporting the coherence and reliability of the scale.

Table 10. Cronbach Coefficient Alpha with Deleted Variable

Cronbach's Alpha	
Variables	**Alpha**
Raw	0.793
Standardized	0.794

Deleted variable	Raw variable Difference		Standardized Variables	
	Correlation with total	Alpha	Correlation with total	Alpha
Q85	0.527	0.767	0.487	0.773
Q81	0.465	0.776	0.440	0.780
Q83	0.547	0.764	0.533	0.767
Q65	0.365	0.787	0.377	0.787
Q62	0.441	0.778	0.455	0.777
Q61	0.612	0.754	0.633	0.753
Q95	0.506	0.769	0.519	0.768
Q91	0.509	0.769	0.521	0.768
Q92	0.370	0.787	0.375	0.788

3-8- Scale Evaluation - Validity of Factor Analysis

Factor loadings were examined for each of the three variables within the three identified factors. With the exception of Q95, which had a loading of 0.58, all variables exhibited loadings greater than 0.60, indicating strong associations with their respective factors (see Figure 4).

To assess discriminant validity, we inspected cross-factor loadings to ensure that each variable's loading on non-associated factors remained below 0.30. This verification confirmed that each item loaded distinctly onto a single factor, supporting the structural independence of the factors and reinforcing the robustness and validity of the overall factor model.

4- Results and Discussion

4-1- Survey Results

Of the nine constructs identified in the survey, three emerged as interrelated in the exploratory factor analysis: Environmental, Social and Governance (ESG) (Q8), Analyst Disclosure (Q6), and Artificial Intelligence (Q9). These themes are increasingly central to earnings calls and are expected to attract greater investor attention in the coming years. Their interconnection is particularly evident within the investor community, where they are frequently subject to heightened scrutiny and detailed analysis.

The reduction from nine initial disclosure dimensions to three is both conceptually and methodologically justified, representing a key contribution of this study. While the nine dimensions captured the full spectrum of disclosure over the fiscal year, earnings conference calls are event-based communications in which investors prioritise information that is immediately material to the firm's performance and strategic outlook. Consequently, only the three dimensions most salient to investor perception and trust remain decision-relevant in this high-stakes context. Methodologically, this refinement follows best practice in scale development, supported by exploratory factor analyses assessing covariance structure, factor loadings and internal consistency [17, 22]. Dimensions lacking convergent or discriminant validity, or contributing minimally to reliability, were excluded. The retained dimensions demonstrated strong loadings and composite reliability, confirming their theoretical and empirical robustness. Rather than a limitation, this selective reduction isolates the facets of disclosure that genuinely function as information signals during earnings calls, reinforcing that disclosure is inherently context-dependent and varies with the immediacy and materiality of the communication event.

Respondents rated their agreement with each statement on a 10-point Likert-type scale ranging from 'strongly disagree' (1) to 'strongly agree' (10). This section focuses specifically on the three dimensions validated through exploratory factor analysis; the corresponding results are presented in Table 11 and followed by a detailed discussion. The remaining six dimensions, which were not retained in the final factor structure, are examined separately in Appendix II.

Table 11. Survey Results (Median Score)

Item	Statistics			Median Score
	Mean	StDev	Var	
ESG				
Q85 - Do you think ESG information helps mitigate the lack of financial disclosure?	3.02	2.22	4.91	2
Q81 - Do you think disclosing ESG information during Earnings Calls improves a company´s cost of capital?	4.20	2.71	7.34	4
Q83 - Do you think ESG information supports better follow-on investment decision?	4.67	2.95	8.71	5
Analyst Disclosure				
Q65 - Do you think conference calls help in better predicting future earnings?	7.82	2.05	4.19	8
Q62 - Do you think the level of disclosure affects analysts' effectiveness?	8.02	1.94	3.78	8
Q61 - Do you consider analysts effective intermediaries for investors?	6.62	2.37	5.60	7
Artificial Intelligence				
Q95 - Do you believe that AI intelligence tools can enhance forecasting accuracy?	6.89	2.36	5.58	7
Q91 - Do you believe the tone of voice during conference calls can provide insight into a company's future performance?	5.88	2.37	5.61	6
Q92 - Do you think the tone of voice is more influential than the actual words used during conference calls?	4.57	2.46	6.03	5

4-1-1- ESG: Environmental, Social and Governance

Within the ESG dimension, we examined whether disclosures could mitigate traditional information gaps (Q85), often associated with 'greenwashing'. This item received the lowest score among the ESG items, suggesting that investors view superficial ESG claims as ineffective unless substantiated by comprehensive and credible practices. The second item assessed the relationship between ESG disclosure and the cost of capital (Q81). The median response of 4 indicates a generally weak perceived link between ESG disclosure and reduced borrowing costs. While some respondents acknowledged a possible connection, it is not widely recognised within the broader investment community. Finally, ESG's impact on capital-raising activities (Q83) was evaluated, particularly in follow-on equity offerings. A median response of 5 reflects a moderate perceived influence of ESG disclosure.

The lower average ESG rating (3.7) should not be interpreted as diminishing the importance of ESG topics in earnings calls; rather, it likely reflects the sensitivity of the items in this dimension, which may have constrained respondents' willingness to endorse them. Despite the lower mean, exploratory factor analysis (EFA) revealed strong interconnections between the ESG dimension and other key dimensions in the scale, reinforcing its conceptual relevance. Moreover, differences in ESG engagement across markets—such as between emerging economies (e.g., Brazil) and developed economies [70]—may also contribute to variation in perception and should be acknowledged when interpreting the results.

Collectively, these findings indicate that, while ESG disclosure exerts some influence on capital-market dynamics, its perceived effectiveness remains limited. To maximise impact, ESG-related communication should be integrated within broader corporate-disclosure strategies, ensuring that such information is credible, consistent, and strategically aligned with investor expectations.

4-1-2- Analyst Disclosure

Disclosure is a fundamental component of the earnings-call process, with particular emphasis on management's interaction with sell-side analysts. The first survey item in this dimension evaluates the role of conference calls in anticipating a company's future performance (Q65) and their influence on share-price movements. This item received a high score of 8, underscoring the view that earnings calls are a critical mechanism for transparency, offering valuable forward-looking insights to the investment community.

The second item assesses the impact of disclosure quality on the effectiveness of sell-side analysts and its influence on company valuation (Q62). This question also achieved a score of 8, reinforcing the importance of detailed, high-quality disclosure in enabling accurate analysis and informed decision-making. Collectively, these results highlight the dual importance of effective communication during earnings calls: enhancing investor trust while simultaneously enabling analysts to fulfil their intermediary role between corporate management and investors.

The third item examines whether sell-side analysts effectively function as intermediaries on behalf of investors (Q61)—specifically, whether their participation in earnings calls and subsequent analyses adds value to the investment process. This item received a score of 7, indicating strong endorsement of analysts' contributions in interpreting and contextualising corporate information. Their role is viewed as instrumental in shaping informed investment strategies, thereby reinforcing confidence in the broader decision-making framework of capital markets.

4-1-3- Artificial Intelligence

To capture investors' perspectives on the role of artificial intelligence (AI) in corporate communication and decision-making, a dedicated set of questions was included in the survey. One key item, Q95, examined whether AI tools can improve the accuracy of corporate forecasts—a domain traditionally prioritised by financial analysts. The item received a mean score of 7, indicating strong investor confidence in AI's potential to enhance forecasting precision. Notably, this score mirrors that of Q61, which assessed whether analysts effectively serve as intermediaries for investors (also median = 7). This parallel suggests that investors do not view AI as a substitute for analysts but rather as a complementary tool that augments the analytical capabilities of human intermediaries [71] and reduces bias [72]. These findings highlight both the enduring value of analysts in interpreting corporate strategy and the emerging significance of AI as a supportive—and potentially transformative—element in financial analysis.

The second item, Q91, tested whether AI can directly influence the tone of voice used by management in earnings calls through advanced technologies. The median score of 6 reflects a moderate level of agreement. While investors recognise AI's potential to shape the communicative style of corporate leadership, the findings suggest that further technological development is required before AI can play a more decisive role in this domain.

The third item, Q92, assessed whether the tone of voice in conference calls exerts a greater influence on investors than the substantive content of the narrative itself. Responses also indicated moderate support, suggesting that, although non-verbal aspects of communication—such as tone—are acknowledged as influential, investors still place considerable value on the substance of disclosures. Nevertheless, this result implies that AI-driven tools capable of analysing vocal tone and sentiment could make incremental contributions towards improving investor engagement and transparency in capital markets.

While communication style captures qualitative and contextual aspects of human expression, AI operationalises these dimensions into measurable acoustic and paralinguistic features such as pitch, intensity and prosody [51]. In financial markets, specialised AI tools analyse executives' vocal tones to infer truthfulness or deception, providing investors with cues for trading decisions, akin to polygraph-style assessments. For example, Hume AI's Markets EQ detects emotional complexities in earnings calls that traditional transcripts overlook [73], while MoodMetrics AI uses Hume's Expression Measurement API to decode emotional undercurrents in central-bank communications and CEO statements, offering insights into market sentiment [74]. By quantifying emotional signals such as anger or happiness, AI transforms subtle managerial cues into data points—although this may conflate communicative intent with algorithmic inference. In this study, 'tone of voice' is treated as a computational proxy for affective cues, enabling systematic detection of patterns in credibility and emotional expression while complementing interpretive insights from communication theory [51].

4-1-4- Survey Findings

In conclusion, the survey findings reaffirm the primacy of analyst disclosure, which received the highest mean rating (7.7). Investors ranked artificial intelligence (AI) as the second most significant factor (mean = 6.0), reflecting its growing importance in financial communication. Environmental, Social and Governance (ESG) considerations were placed third with a comparatively lower mean rating (3.7). These results highlight evolving investor priorities: disclosure practices remain central, even as AI's potential to shape corporate transparency and market dynamics gains recognition.

Findings from the exploratory factor analyses further illuminate relationships among the three key constructs—analyst disclosure, AI and ESG. A moderate correlation between disclosure and AI ($r = 0.46$) suggests a meaningful alignment: while AI tools are increasingly acknowledged for their capacity to enhance transparency, analysts continue to play a critical role in interpreting and articulating corporate strategy.

By contrast, the weaker correlations between ESG and AI ($r = 0.26$) and between ESG and disclosure ($r = 0.26$) highlight persistent challenges in integrating ESG considerations within mainstream financial-communication frameworks. These results suggest that, although AI holds emerging potential in the ESG domain, its role remains limited. Similarly, ESG disclosures appear insufficiently embedded within core governance and communication practices, which may undermine their perceived relevance and credibility.

Overall, this study provides insight into the interconnected yet distinct roles of analyst disclosure, AI and ESG in contemporary financial communication. It also underscores the need for further research on how AI can be leveraged more effectively in ESG reporting and how disclosure practices can be more strategically aligned with sustainability goals. By mapping these evolving relationships, the study deepens understanding of investor priorities and offers practical implications for enhancing corporate transparency and communication strategies in capital markets.

4-2- Results

This study offers significant theoretical and practical insights into the evolving landscape of corporate disclosure through earnings calls. By empirically validating a multidimensional framework that initially encompassed nine constructs and refining it to three core dimensions, the research advances understanding of how information is produced, transmitted and interpreted in capital markets.

The final three-factor structure—Artificial Intelligence (AI), Environmental, Social and Governance (ESG), and Analyst Disclosure—captures the most salient dimensions of earnings-call communication in emerging markets, with Brazil serving as the reference case. These dimensions emerged from exploratory factor analysis (EFA) of nine initial disclosure domains and were selected on the basis of factor loadings, communalities and contextual significance. AI encompasses contemporary analytical modalities, including vocal-tone analysis, sentiment detection and real-time processing of multimedia and textual content, reflecting the sophisticated tools used by companies and investors to interpret managerial communication [51-53]. ESG disclosure reflects the growing prominence of sustainable practices in investor decision-making, particularly within emerging markets characterised by evolving regulatory and reporting frameworks. Analyst Disclosure captures interactive, event-specific questioning during earnings calls that directly informs firm valuation. Collectively, these three dimensions form a comprehensive, empirically validated framework that isolates the core elements of earnings-call communication critical to investor decision-making. Brazil thus serves as a benchmark for generalisation to other emerging-market contexts characterised by advancing technological adoption, maturing ESG practices and heightened investor scrutiny.

4-2-1- Comparison of Scale Development: Present Study versus Existing Frameworks

Table 12 positions the current study within the broader literature on scale development. Cantele & Landi (2024) [39] develop a corporate digital-sustainability scale focused on static reporting; our study extends this by adopting a dynamic, event-specific framework that captures the salient dimensions of earnings-call communication, integrating AI-driven vocal and sentiment analysis, ESG disclosure and analyst interaction. Similarly, Wang et al. (2025) [41] emphasise organisational processes and digital strategy, but their scale offers limited applicability to investor-facing, real-time communication; by contrast, our scale translates multidimensional constructs into actionable insights for financial events. Afşar Doğrusöz & Yazıcı (2025) [40] provide a governance-capacity scale in the healthcare sector; although methodologically robust, it is sector-specific and less generalisable to corporate financial markets.

In contrast, our framework is designed for earnings calls in emerging markets. Hossain et al.'s (2024) [42] Corporate Shared Prosperity scale primarily addresses the social and economic dimensions of ESG, with limited attention to AI and interactive communication cues, while Oh et al. (2024) [43] focused on public perceptions of ESG performance, offering a predictor of stakeholder sentiment but not capturing real-time managerial communication. Collectively, these comparisons underscore that—unlike prior instruments—the current study combines behavioural, technological and ESG dimensions in a single, validated, event-focused scale. This provides corporations with a practical and theoretically grounded tool to enhance investor trust and optimise disclosure strategies during high-stakes earnings calls.

Table 12. Positioning the Present Scale within the Broader Literature on Scale Development

Research	Objective	Method	Comparison	Advantage
Current Study	Measure salient dimensions of earnings call communication	Survey and Scale	-	Multidimensional
Cantele & Landi (2024) [39] Corporate Sustainability	Develop a scale for corporate sustainability implementation	Survey	Static versus Dynamic	Multidimensional
Wang et al. (2025) [41] Digital Sustainability	Develop a scale for digital sustainability practices	Survey and Scale	Limited focus versus Multidimensional	Actionable insights
Afşar & Yazıcı (2025) [40] Organisational Governance	Develop and validate a governance capacity scale	Survey and Scale	Sector-specific versus All sectors	Governance tool
Hossain et al. (2024) [42] Corporate Shared Prosperity	Develop and validate a scale for corporate shared prosperity	Survey and Scale	Focus on ESG versus Multidimensional	Innovative
Oh et al. (2024) [43] Perceived ESG Scale	Develop a scale to measure public perception of ESG performance	Survey and Scale	Focus on ESG versus Multidimensional	Predictive

4-2-2- Theoretical Implications

Theoretically, the results substantiate the integration of stakeholder, signalling and legitimacy theories as a coherent framework for explaining corporate disclosure practices. Stakeholder theory underpins the enduring relevance of analyst disclosure: analysts act as intermediaries between management and diverse investor groups, translating complex financial narratives into actionable intelligence. The high ratings for analyst disclosure confirm that effective two-way communication enhances trust and reduces information asymmetry, consistent with Healy & Palepu's (2001) [1] information-disclosure model.

Signalling and disclosure theories offer complementary explanations for the observed prominence of AI and regulated communication. The moderate but meaningful correlation between Analyst Disclosure and AI ($r = 0.46$) suggests a hybrid mechanism of information processing, whereby firms increasingly rely on technology to enhance the credibility, timeliness and analytical depth of financial signals. This finding aligns with recent work on digital signalling [56], which indicates that AI-based tools such as FinBERT can sharpen the tone of managerial communication—especially in titles and early disclosure segments—while human oversight preserves contextual nuance.

Legitimacy theory further situates the role of ESG within disclosure. The lower ratings for ESG (mean = 3.7) indicate persistent investor caution about the authenticity of sustainability narratives, particularly in markets with weaker institutional monitoring. This pattern supports the view that ESG communication functions as a legitimacy-seeking mechanism, effective only when supported by verifiable data and consistent disclosure structures [12]. In emerging economies such as Brazil, where this study is situated, the uneven diffusion of ESG standards and limited enforcement may reduce the perceived relevance of sustainability-related disclosures in investment decisions. ESG disclosure can operate as a conditional moderator in the relationship between corporate communication and investor trust, contingent on credibility, relevance and strategic alignment. Investors view earnings conference calls as key opportunities to engage with CEOs on financial and strategic matters that shape the firm's trajectory, whereas ESG topics are often treated as longer-term considerations to be addressed when material to future performance. In our study, of nine dimensions of corporate disclosure, only three were retained for the earnings-call analysis; one of these was ESG, underscoring its growing relevance for capital markets as a key dimension of investor communication, even where standardisation and integration are still evolving.

Collectively, these findings extend existing theory by showing that analyst disclosure is best conceptualised as a triadic construct, anchored in human interpretation (analysts), technological augmentation (AI) and ethical framing (ESG). Integrating these dimensions operationalises the intersection between traditional financial governance and contemporary expectations for digital and sustainability transparency.

4-2-3- Managerial Implications

For practitioners, this study underscores the need for a strategically balanced communication approach. Firms should treat earnings calls not merely as compliance exercises but as strategic opportunities to enhance market credibility. The results indicate that, while investors value structured and transparent dialogue with analysts, they also recognise the growing role of AI in facilitating real-time data interpretation and predictive insight.

Management teams are therefore encouraged to adopt AI-assisted disclosure tools—such as sentiment analysis, natural language processing and speech analytics—to complement, rather than replace, human communication. Properly implemented, these tools can improve message consistency, flag potential misinterpretations and strengthen the overall credibility of managerial signals.

At the same time, the weak integration between ESG and financial disclosure suggests that sustainability communication remains siloed. Executives should embed ESG narratives directly within financial storytelling, demonstrating how environmental and social performance align with corporate strategy and long-term value creation. This integrated approach to disclosure may enhance legitimacy and mitigate scepticism about greenwashing, particularly among institutional investors seeking alignment with sustainable-finance principles.

4-2-4- Policy and Market Implications

For regulators and policy-makers, these results support the modernisation of disclosure regimes. As earnings calls increasingly adopt AI-driven and multimedia formats, regulations—often designed for text-based reporting—may require adaptation to ensure that automated or hybrid communications remain verifiable, auditable and ethically compliant. In addition, regulators in emerging markets should consider developing standardised guidelines for ESG communication that balance flexibility with accountability, thereby reducing the prevalence of unverifiable claims.

For financial institutions and investor-education programmes, the findings underscore the need to build AI literacy and ESG expertise among analysts and portfolio managers. As investors navigate increasingly complex, data-intensive disclosures, the capability to interpret both algorithmic outputs and qualitative signals will be essential to sustaining market efficiency.

The lower ratings for ESG disclosure in our sample likely reflect several factors. First, market maturity: emerging markets, including Brazil, are still developing ESG reporting frameworks and corporate practices, limiting investors' ability to interpret ESG information confidently. Second, regulatory variation: ESG standards are less established and enforceable in these contexts than in developed markets such as Europe, reducing consistency and comparability. Third, sample characteristics: participants may prioritise information with immediate financial implications over longer-term ESG initiatives [75-77].

4-2-5- Contribution to Research and Future Directions

This research makes three key contributions to the literature. First, it introduces an empirically validated scale that integrates governance, technological and sustainability dimensions, thereby broadening the conceptual scope of corporate disclosure theory. Second, it demonstrates the applicability of Churchill's (1979) [16] scale-development process in a contemporary setting, integrating traditional psychometric rigour with AI-enhanced interpretation. Third, it provides empirical evidence from Brazil, contributing valuable insights from an emerging-market context often under-represented in corporate-communication research.

Future research should pursue two main directions. The first is to validate this scale in other geographical and institutional settings—testing measurement invariance—to examine whether the three-dimensional structure persists

across diverse market environments. The second is to expand the analytical focus on AI by integrating multimodal data (e.g., voice, sentiment and facial-expression analysis) to capture the non-verbal aspects of corporate signalling. Such approaches will further illuminate how technology reshapes the relational dynamics between firms, investors and society.

4-2-6- Summary

In summary, the results underscore that effective corporate disclosure in the contemporary environment is neither purely regulatory nor purely communicative; it is strategically integrative. Firms that combine human expertise, technological precision and ethical transparency are better positioned to foster investor confidence, sustain legitimacy and enhance market efficiency. By mapping the evolving interplay among analyst disclosure, AI and ESG, this study advances both theoretical understanding and practical guidance for navigating the future of financial communication.

5- Conclusion

Earnings calls are central to corporate disclosure, functioning as critical platforms where investors, analysts and corporate executives engage in real-time dialogue. This study sought to develop and validate a comprehensive scale for assessing the effectiveness of earnings calls, addressing a notable gap in traditional disclosure research. Through a structured scale-development process, three key dimensions emerged: Analyst Disclosure, Artificial Intelligence (AI) and Environmental, Social and Governance (ESG). These dimensions reflect the evolving nature of financial communication, integrating conventional practices with emerging technological innovations and sustainability priorities (see Figure 5).

The first research question investigated the core dimensions that constitute a scale for evaluating financial transparency in earnings calls. The findings reveal that Analyst Disclosure, ESG and AI are essential in shaping effective corporate communication. Traditional disclosure research has primarily focused on static financial statements, often overlooking the interactive, event-based nature of earnings calls. By incorporating these dimensions, the proposed scale offers a more holistic framework that bridges the gap between historical financial reporting and real-time investor engagement.

The second research question examined how these key dimensions operate in evaluations of earnings calls from the perspectives of investors and analysts. The results underscore the growing influence of AI-driven tools in analysing sentiment and narrative structure during calls, as well as the importance of ESG content in shaping investor perceptions. Crucially, the transparency and trustworthiness of Analyst Disclosure play a significant role in fostering market confidence, thereby reinforcing the strategic value of robust corporate-communication practices.

Survey results further reveal support for integrating AI into forecasting and decision-making, as indicated by Q95 (AI improving forecast accuracy) and Q61 (analyst effectiveness as intermediaries), both of which received mean ratings of 7. This parallel suggests complementarity rather than competition between AI and human analysts. Investors continue to value analysts as the primary source (mean 7.7) not only for their technical expertise but also for contextual judgement, transparency and credibility. In this context, AI (mean 6.0) is viewed as a tool to enhance—not replace—the analyst's role. Together, these elements can elevate the quality, depth and accessibility of financial insights, enabling more informed and confident decision-making in increasingly complex capital markets.

This study develops and validates a novel scale that captures transparency, engagement and strategic clarity in earnings calls, transforming qualitative dynamics into measurable indicators. The scale provides researchers with a tool to assess disclosure quality, offers regulators and investor associations benchmarks for monitoring practices, and guides executives in improving investor communication. It can also serve as a first step for applying the survey in other emerging markets and for developing next-stage tools, including those aligned with CFA standards. By linking disclosure practices, technology and governance—and by including questions on AI—the study contributes to building more transparent and efficient financial markets.

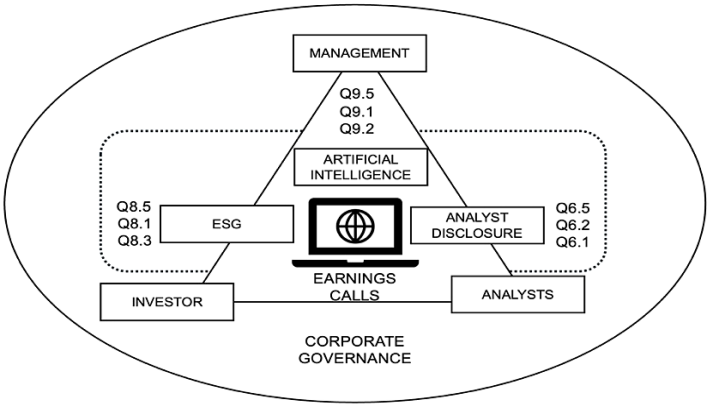

Figure 5. Earnings Calls Strategy with Items

5-1- Limitations and Future Studies

The present study is subject to limitations that should be considered when assessing the validity and generalisability of the proposed scale. Throughout the scale-development process, several methodological decisions were made regarding validity and reliability indicators, rotation methods and analytical techniques. While every effort was made to adopt appropriate approaches, it is acknowledged that alternative methods might also have yielded valid results.

Although a comprehensive literature review was undertaken to identify historically significant themes related to earnings calls, the scale developed here is entirely novel and thus lacks prior validation or reliability testing. The literature generally recommends adapting new instruments from previously validated scales. In the absence of a suitable pre-existing tool for the specific focus of this research, however, it was necessary to develop a bespoke scale tailored to the study's aims.

A further limitation concerns geographical scope, as the research focuses primarily on Brazil. This country was selected because it is the largest economy in Latin America and serves as a benchmark for emerging-market investments, ranking as the tenth-largest economy globally [78]. Brazil combines mature financial infrastructure with typical emerging-market features—rising investor participation, economic volatility [79] and evolving regulatory frameworks—making it a valuable case for analysing investor behaviour in transitional contexts. While the findings may not be fully generalisable to other regions, particularly outside emerging-market financial systems, many respondents had exposure to or professional experience across the broader Americas, including the United States. This knowledge offers additional perspective and relevance beyond Brazil, while cultural specificities of emerging markets remain concentrated on the Brazilian executive side (CEOs and management).

The sample size of 53 participants is relatively small, which may affect the stability of the factor structure and limit generalisability. Nonetheless, it exceeds commonly recommended minimum thresholds for exploratory factor analysis [80], and the final scale exhibits high communalities (all > 0.60), which mitigates the risk of unstable factor solutions and allows meaningful factor extraction even with smaller samples. Given the size of the Brazilian investor community, a sample of approximately 50 participants is reasonable, particularly when compared with the United States (331 publicly listed companies in Brazil versus 4,010 in the United States) [78, 81]. Moreover, the participants represent a substantial portion of the specialised investor and analyst community in Brazil, including those who support retail investors, thereby reducing potential bias related to investor size. Participants were recruited through the author's professional network and specialist organisations, ensuring expertise but potentially over-representing experienced analysts and under-representing junior investors or smaller funds. Finally, although self-reported Likert-type surveys can be susceptible to response biases (e.g., social desirability or cautious reporting), the anonymity of the study was designed to encourage candid responses, even on sensitive topics such as ESG-related disclosures. Future research should aim to replicate these findings with larger samples in emerging markets to strengthen robustness.

In this study, exploratory factor analysis (EFA) was employed to identify the most salient dimensions of corporate disclosure during earnings calls. EFA is well suited to uncovering latent constructs and determining which observed indicators cluster together while accounting for shared variance, allowing us to isolate the three dimensions most relevant to investor decision-making in this event-based context. Given the exploratory nature of the research and the absence of a previously validated scale for earnings calls, EFA was the most appropriate technique at this stage.

Future research could employ confirmatory factor analysis (CFA) to test rigorously the construct validity of these dimensions, assessing whether observed indicators reliably reflect the hypothesised latent constructs and evaluating model fit using indices such as CFI, TLI and RMSEA. Extending this framework, structural equation modelling (SEM) could examine relationships between corporate-communication dimensions, ESG disclosure and investor trust, estimating measurement and structural models simultaneously. These approaches would provide robust statistical validation and theoretical generalisation, and allow formal tests of potential moderators such as ESG disclosure [22, 26, 27].

Overall, EFA in the present study establishes a foundational structure for evaluating earnings-call disclosure, while CFA and SEM naturally extend the process of refining and validating the scale across different markets, investor populations and contexts, ultimately contributing to the development of a widely applicable and theoretically grounded tool for assessing corporate communication in financial settings.

6- Declarations

6-1- Author Contributions

Conceptualization, R.D.R.M.; methodology, R.D.R.M.; software, R.D.R.M.; validation, J.M.B.; formal analysis, J.M.B.; investigation, R.D.R.M.; resources, J.M.B.; data curation, R.D.R.M.; writing—original draft preparation, R.D.R.M.; writing—review and editing, J.M.B.; visualization, J.M.B.; supervision, J.M.B.; project administration, J.M.B.; funding acquisition, J.M.B. All authors have read and agreed to the published version of the manuscript.

6-2- Data Availability Statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available owing to privacy considerations; although the surveys were anonymous, restricting access to individual-level responses affords additional protection to participating investors and analysts.

6-3- Funding

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6-4- Acknowledgments

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6-5- Institutional Review Board Statement

Not applicable.

6-6- Informed Consent Statement

Informed consent was obtained from all subjects involved in the study. Participation was voluntary, and all responses were collected anonymously.

6-7- Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

7- References

[1] Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. Journal of Accounting and Economics, 31(1–3), 405–440. doi:10.1016/S0165-4101(01)00018-0.

[2] Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. Journal of Accounting and Economics, 40(1–3), 3–73. doi:10.1016/j.jacceco.2005.01.002.

[3] Bushee, B. J., Matsumoto, D. A., & Miller, G. S. (2003). Open versus closed conference calls: The determinants and effects of broadening access to disclosure. Journal of Accounting and Economics, 34(1–3), 149-180. doi:10.1016/S0165-4101(02)00073-3.

[4] Brown, S., Hillegeist, S. A., & Lo, K. (2004). Conference calls and information asymmetry. Journal of Accounting and Economics, 37(3), 343–366. doi:10.1016/j.jacceco.2004.02.001.

[5] Huang, X., Teoh, S. H., & Zhang, Y. (2014). Tone management. Accounting Review, 89(3), 1083–1113. doi:10.2308/accr-50684.

[6] Bochkay, K., Hales, J., & Chava, S. (2020). Hyperbole or reality? Investor response to extreme language in earnings conference calls. Accounting Review, 95(2), 31–60. doi:10.2308/accr-52507.

[7] Bushee, B. J., Gow, I. D., & Taylor, D. J. (2018). Linguistic Complexity in Firm Disclosures: Obfuscation or Information? Journal of Accounting Research, 56(1), 85–121. doi:10.1111/1475-679X.12179.

[8] Todd, A., Bowden, J., Cummins, M., & Su, Y. (2025). A multimodal sentiment classifier for financial decision making. International Review of Financial Analysis, 105. doi:10.1016/j.irfa.2025.104322.

[9] Adetunji Paul Adejumo, & Chinonso Peter Ogburie. (2025). Financial statement manipulation: Ethical and regulatory perspectives. GSC Advanced Research and Reviews, 22(3), 252–264. doi:10.30574/gscarr.2025.22.3.0087.

[10] Frankel, R. (2004). Characteristics of a firm's information environment and the information asymmetry between insiders and outsiders*1. Journal of Accounting and Economics, 37(2), 229–259. doi:10.1016/s0165-4101(03)00068-5.

[11] Duchin, R., Gao, J., & Xu, Q. (2025). Sustainability or Greenwashing: Evidence from the Asset Market for Industrial Pollution. Journal of Finance, 80(2), 699–754. doi:10.1111/jofi.13412.

[12] Turker, D. (2009). Measuring corporate social responsibility: A scale development study. Journal of Business Ethics, 85(4), 411–427. doi:10.1007/s10551-008-9780-6.

[13] Latif, K. F. (2018). The Development and Validation of Stakeholder-Based Scale for Measuring University Social Responsibility (USR). Social Indicators Research, 140(2), 511–547. doi:10.1007/s11205-017-1794-y.

[14] Jain, J., Walia, N., Kaur, M., & Singh, S. (2022). Behavioural biases affecting investors' decision-making process: a scale development approach. Management Research Review, 45(8), 1079–1098. doi:10.1108/MRR-02-2021-0139.

[15] Wang, Y. Y., & Chuang, Y. W. (2024). Artificial intelligence self-efficacy: Scale development and validation. Education and Information Technologies, 29(4), 4785–4808. doi:10.1007/s10639-023-12015-w.

[16] Churchill, G. A. (1979). A Paradigm for Developing Better Measures of Marketing Constructs. Journal of Marketing Research, 16(1), 64. doi:10.2307/3150876.

[17] Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991). Assessing Construct Validity in Organizational Research. Administrative Science Quarterly, 36(3), 421. doi:10.2307/2393203.

[18] U.S. Securities and Exchange Commission. (1999). Selective disclosure and insider trading. U.S. Securities and Exchange Commission, Release No. 34-42259. Available online: https://www.sec.gov/rule-release/34-42259 (accessed on December 2025).

[19] Armstrong, C. S., Guay, W. R., & Weber, J. P. (2010). The role of information and financial reporting in corporate governance and debt contracting. Journal of Accounting and Economics, 50(2–3), 179–234. doi:10.1016/j.jacceco.2010.10.001.

[20] Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. Journal of Accounting and Economics, 32(1–3), 237–333. doi:10.1016/S0165-4101(01)00027-1.

[21] Chen, C. J. P., & Jaggi, B. (2000). Association between independent non-executive directors, family control and financial disclosures in Hong Kong. Journal of Accounting and Public Policy, 19(4–5), 285–310. doi:10.1016/S0278-4254(00)00015-6.

[22] DeVellis, R. F., & Thorpe, C. T. (2022). Scale development: Theory and applications. SAGE Publications, London, United Kingdom.

[23] Netemeyer, R., Bearden, W., & Sharma, S. (2003). Scaling procedures: Issues and applications. SAGE Publications, London, United Kingdom.

[24] Fabrigar, L. R., MacCallum, R. C., Wegener, D. T., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. Psychological Methods, 4(3), 272–299. doi:10.1037/1082-989X.4.3.272.

[25] Worthington, R. L., & Whittaker, T. A. (2006). Scale Development Research: A Content Analysis and Recommendations for Best Practices. The Counseling Psychologist, 34(6), 806–838. doi:10.1177/0011000006288127.

[26] Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. Organizational Research Methods, 1(1), 104–121. doi:10.1177/109442819800100106.

[27] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate data analysis. Cengage Learning, Massachusetts, United States.

[28] Hung, A., Parker, A. M., & Yoong, J. (2011). Defining and Measuring Financial Literacy. SSRN Electronic Journal, 1498674. doi:10.2139/ssrn.1498674.

[29] Hoffmann, A. O. I., Post, T., & Pennings, J. M. E. (2012). How (Changes in) Investor Perceptions Drive Actual Trading and Risk-Taking Behavior. SSRN Electronic Journal, 16(1), 94–103. doi:10.2139/ssrn.1968839.

[30] Hossain, A. T., Masum, A. Al, Hasan, M. M., Li, D., & Xu, J. (2024). The disclosure perspective of firm-specific political risk measure from conference calls. Financial Management, 53(4), 749–793. doi:10.1111/fima.12468.

[31] Arian, A., Sands, J., Rahman, H. U., & Khatatbeh, I. N. (2025). Corporate social performance through instrumental stakeholder theory: a sector-specific perspective. Management Decision, 63(5), 1369–1390. doi:10.1108/MD-11-2023-2108.

[32] Ning, J., Zhang, L., Mi, B., Yang, J. H., & Tao, L. (2025). Signalling through managerial tone and analysts' response. Accounting Forum, 49(4), 803–829. doi:10.1080/01559982.2024.2339911.

[33] Ishaq, M. I., Raza, A., Bartikowski, B., Sarwar, H., & Zia-ur-Rehman. (2023). Masstige Marketing: A scale development and validity study. Journal of Business Research, 166. doi:10.1016/j.jbusres.2023.114112.

[34] Beck, T., Demirgüç-Kunt, A., & Levine, R. (2000). A new database on the structure and development of the financial sector. World Bank Economic Review, 14(3), 597–605. doi:10.1093/wber/14.3.597.

[35] Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. Journal of Applied Psychology, 88(5), 879–903. doi:10.1037/0021-9010.88.5.879.

[36] Jungo, J., Madaleno, M., & Botelho, A. (2024). Financial Literacy, Financial Innovation, and Financial Inclusion as Mitigating Factors of the Adverse Effect of Corruption on Banking Stability Indicators. Journal of the Knowledge Economy, 15(2), 8842–8873. doi:10.1007/s13132-023-01442-2.

[37] Grable, J., & Lytton, R. H. (1999). Financial risk tolerance revisited. Financial Services Review, 8(3), 163–181. doi:10.1016/s1057-0810(99)00041-4.

[38] Farrell, L., Fry, T. R. L., & Risse, L. (2016). The significance of financial self-efficacy in explaining women's personal finance behaviour. Journal of Economic Psychology, 54, 85–99. doi:10.1016/j.joep.2015.07.001.

[39] Cantele, S., Landi, S., & Vernizzi, S. (2024). Measuring corporate sustainability in its multidimensionality: A formative approach to integrate ESG and triple bottom line approaches. Business Strategy and the Environment, 33(7), 7383–7408. doi:10.1002/bse.3872.

[40] Afşar Doğrusöz, L., & Yazıcı, S. (2025). Measuring organisational governance capacity in healthcare organisations: a scale development and validation study. BMC Health Services Research, 25(1), 338. doi:10.1186/s12913-025-12442-0.

[41] Wang, Y., Yu, Y., & Khan, A. (2025). Digital sustainability: Dimension exploration and scale development. Acta Psychologica, 256, 105028. doi:10.1016/j.actpsy.2025.105028.

[42] Hossain, M. I., Heng Teh, B., Chong, L. L., Ong, T. S., Tabash, M. I., & Jamadar, Y. (2024). Corporate shared prosperity: scale development and validation. Cogent Business and Management, 11(1), 2369217. doi:10.1080/23311975.2024.2369217.

[43] Oh, H. J., Lee, B., Ma, H. H., Jang, D., & Park, S. (2024). A preliminary study for developing perceived ESG scale to measure public perception toward organizations' ESG performance. Public Relations Review, 50(1), 102398. doi:10.1016/j.pubrev.2023.102398.

[44] Beyer, A., Cohen, D. A., Lys, T. Z., & Walther, B. R. (2010). The financial reporting environment: Review of the recent literature. Journal of Accounting and Economics, 50(2–3), 296–343. doi:10.1016/j.jacceco.2010.10.003.

[45] Watts, R. L. (2005). Conservatism in Accounting - Part I: Explanations and Implications. SSRN Electronic Journal. doi:10.2139/ssrn.414522.

[46] Brown, S., Hillegeist, S. A., & Lo, K. (2004). Conference calls and information asymmetry. Journal of Accounting and Economics, 37(3), 343–366. doi:10.1016/j.jacceco.2004.02.001.

[47] Einhorn, E., & Ziv, A. (2008). Intertemporal dynamics of corporate voluntary disclosures. Journal of Accounting Research, 46(3), 567–589. doi:10.1111/j.1475-679X.2008.00284.x.

[48] Healy, P. M., Hutton, A. P., & Palepu, K. G. (1999). Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosure. Contemporary Accounting Research, 16(3), 485–520. doi:10.1111/j.1911-3846.1999.tb00592.x.

[49] Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. Accounting Review, 86(1), 59–100. doi:10.2308/accr.00000005.

[50] Dhaliwal, D. S., Radhakrishnan, S., Tsang, A., & Yang, Y. G. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. Accounting Review, 87(3), 723–759. doi:10.2308/accr-10218.

[51] Mayew, W. J., & Venkatachalam, M. (2012). The power of voice: Managerial affective states and future firm performance. Journal of Finance, 67(1), 1–43. doi:10.1111/j.1540-6261.2011.01705.x.

[52] Fiset, J., Oldford, E., & Chu, S. (2021). Market signaling capacity of written and visual charismatic leadership tactics. Journal of Behavioral and Experimental Finance, 29, 100465. doi:10.1016/j.jbef.2021.100465.

[53] Druz, M., Petzev, I., Wagner, A. F., & Zeckhauser, R. J. (2020). When Managers Change Their Tone, Analysts and Investors Change Their Tune. Financial Analysts Journal, 76(2), 47–69. doi:10.1080/0015198X.2019.1707592.

[54] Maia, R., & Bravo, J. M. (2024). Twenty-five years (1998-2023) of Earnings Disclosure with Conference Calls: a Bibliometric Review focusing on Artificial Intelligence. 2024 Mediterranean Conference on Information Systems (MCIS), Porto, Portugal.

[55] Kraus, M., & Feuerriegel, S. (2017). Decision support from financial disclosures with deep neural networks and transfer learning. Decision Support Systems, 104, 38–48. doi:10.1016/j.dss.2017.10.001.

[56] Berkovitch, J., Israeli, D., & Kasznik, R. (2025). Sentiment Management: AI-based Evidence from Earnings Guidance. SSRN Electronic Journal, 5051800. doi:10.2139/ssrn.5051800.

[57] Coelho, P. S., Rita, P., & Santos, Z. R. (2018). On the relationship between consumer-brand identification, brand community, and brand loyalty. Journal of Retailing and Consumer Services, 43, 101–110. doi:10.1016/j.jretconser.2018.03.011.

[58] Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. Journal of Advanced Nursing, 62(1), 107–115. doi:10.1111/j.1365-2648.2007.04569.x.

[59] Dye, R. A. (2001). An evaluation of "essays on disclosure" and the disclosure literature in accounting. Journal of Accounting and Economics, 32(1–3), 181–235. doi:10.1016/S0165-4101(01)00024-6.

[60] Kimbrough, M. D. (2005). The effect of conference calls on analyst and market underreaction to earnings announcements. Accounting Review, 80(1), 189–219. doi:10.2308/accr.2005.80.1.189.

[61] Burgstahler, D. C., & Eames, M. J. (2003). Earnings Management to Avoid Losses and Earnings Decreases: Are Analysts Fooled? Contemporary Accounting Research, 20(2), 253–294. doi:10.1506/BXXP-RGTD-H0PM-9XAL.

[62] Bowen, R. M., Davis, A. K., & Matsumoto, D. A. (2002). Do conference calls affect analysts' forecasts? The Accounting Review, SSRN Electronic Journal, 1-47. doi:10.2139/ssrn.216810.

[63] Fleiss, J. L. (1971). Measuring nominal scale agreement among many raters. Psychological Bulletin, 76(5), 378–382. doi:10.1037/h0031619.

[64] Bekaerta, G., & Harvey, C. R. (1997). Emerging equity market volatility. Journal of Financial Economics, 43(1), 29–77. doi:10.1016/S0304-405X(96)00889-6.

[65] Hu, Z. (1995). Stock Market Volatility and Corporate Investment. IMF Working Papers. International Monetary Fund, Washington, D.C., United States. doi:10.5089/9781451852585.001.

[66] Bartlett, M. S. (1950). Tests of Significance in Factor Analysis. British Journal of Statistical Psychology, 3(2), 77–85. doi:10.1111/j.2044-8317.1950.tb00285.x.

[67] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis. Prentice Hall, New Jersey, United States

[68] Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory. McGraw-Hill, Ohio, United States

[69] Kaiser, H. F. (1970). A second generation little jiffy. Psychometrika, 35(4), 401–415. doi:10.1007/BF02291817.

[70] Martins, H. C. (2022). Competition and ESG practices in emerging markets: Evidence from a difference-in-differences model. Finance Research Letters, 46, 102371. doi:10.1016/j.frl.2021.102371.

[71] Gu, S., Kelly, B., & Xiu, D. (2020). Empirical Asset Pricing via Machine Learning. Review of Financial Studies, 33(5), 2223–2273. doi:10.1093/rfs/hhaa009.

[72] Van Binsbergen, J. H., Han, X., & Lopez-Lira, A. (2023). Man versus Machine Learning: The Term Structure of Earnings Expectations and Conditional Biases. Review of Financial Studies, 36(6), 2361–2396. doi:10.1093/rfs/hhac085.

[73] Hume AI. (2025). How Markets EQ transformed financial analysis. Hume AI, New York, United States. Available online: https://www.hume.ai/blog/case-study-hume-markets-eq (accessed on December 2025).

[74] Hume AI. (2025). Emotion AI for market prediction. Hume AI, New York, United States. Available online: https://www.hume.ai/blog/case-study-hume-mood-metrics-ai (accessed on December 2025).

[75] CFA Institute. (2020). ESG and the earnings call. Harvard Law School Forum on Corporate Governance. Massachusetts, United States. Available online: https://corpgov.law.harvard.edu/2020/06/17/esg-and-the-earnings-call/ (accessed on December 2025).

[76] PwC. (2021). ESG Investor Survey: The Economic Realities of ESG. PwC's Global Investor, London, United Kingdom. Available online: https://www.pwc.com/gx/en/services/audit-assurance/corporate-reporting/esg-investor-survey.html (accessed on December 2025).

[77] S&P Global. (2024). To do or not to do ESG on earnings calls? S&P Global Market Intelligence, New York, United States. Available online: https://www.spglobal.com/market-intelligence/en/news-insights/research/to-do-or-not-to-do-esg-on-earnings-calls (accessed on December 2025).

[78] World Bank. (2023). Listed domestic companies, total - Brazil. World Bank Group, Washington, D.C. United States. Available online: https://data.worldbank.org/indicator/CM.MKT.LDOM.NO?locations=BR (accessed on December 2025).

[79] Broedel Lopes, A., & Alencar, R. C. (2011). Disclosure and Cost of Equity Capital in Emerging Markets: The Brazilian Case. SSRN Electronic Journal, 45(4), 443–464. doi:10.2139/ssrn.1099900.

[80] Kline, R. B. (2023). Principles and practice of structural equation modeling. The Guilford Press, New York, United States.

[81] World Bank. (2023). Listed domestic companies, total - United States. World Bank Group, Washington, D.C. United States. Available online: https://data.worldbank.org/indicator/CM.MKT.LDOM.NO?locations=US (accessed on December 2025).

Appendix I: Earnings Calls Original Survey

In the literature review, nine topics were identified, each with five potential questions. Subsequently, experts eliminated the questions highlighted in Italic. The final nine questions, determined through Factor Analysis, are presented in **Bold** on Table A1**.**

Table A1. Earnings Calls Original Survey

No.	Question	No/Status
Q1	Q11 Do you trust the information provided in the Earnings Calls?	
	Q12 Do you think sell-side analysts trust the information presented during the Earnings Calls?	
	Q13 Do you believe that voluntary disclosure during Earnings Calls demonstrates transparency?	
	Q14 Do you think voluntary disclosures provide important information to investors not in financial reports?	
	Q15 Do you think management is consistent with their voluntary disclosures?	*Eliminated*
Q2	Q21 Do you support the regulation of Earnings Calls?	
	Q22 Do you believe earnings indicators should be standardised?	
	Q23 Do you believe current earnings accounting practices are effective?	
	Q24 Do you think the amount of accounting information provided is excessive?	
	Q25 Do you prefer companies to be more conservative in their accounting practices?	*Eliminated*
Q3	Q31 How important is it for a company to meet its earnings forecast?	
	Q32 Is a management's forecast linked to its credibility?	
	Q33 Is a management forecast linked to the company's stock price?	
	Q34 Is a management's forecast linked to stock price volatility?	
	Q35 Is a management's forecast linked to the company's future growth?	*Eliminated*
Q4	Q41 Do you think short-term market pressures influence management's disclosure decisions?	
	Q42 Do you think corporate governance is linked to the quality of earnings disclosures?	
	Q43 Do you think the board of directors can influence the Earnings Calls process?	
	Q44 Do you think management might alter strategic decisions to improve quarterly earnings?	
	Q45 Do you think management might adjust strategic decisions to reduce quarterly earnings?	*Eliminated*
Q5	Q51 Could Earnings Calls help to diminish the asymmetry in earnings forecasts?	
	Q52 Do you think conference calls help to reduce information asymmetry in general?	
	Q53 Do you think conference calls slow down analytical reactions in the earnings disclosure process?	
	Q54 Do you think companies reduce information asymmetry when they have a cash need?	
	Q55 Do you think there are managers who lack sufficient information?	*Eliminated*
Q6	**Q61 Do you consider analysts effective intermediaries for investors?**	**Scale**
	Q62 Do you think the level of disclosure affects analysts' effectiveness?	**Scale**
	Q63 Do you choose investment coverage based on the level of disclosure?	
	Q64 Do you think analyst consensus can influence management's reporting decisions?	*Eliminated*
	Q65 Do you think conference calls help in better predicting future earnings?	**Scale**
Q7	Q71 Do you think investors are influenced by Earnings Calls?	
	Q72 Do you think the quality of Earnings Calls affects investor perception?	
	Q73 Do you think companies can enhance corporate governance through improved disclosure?	
	Q74 Do you think conference calls generate more market volatility?	
	Q75 Do you think investors assess info from calls differently than regulated disclosures?	*Eliminated*
Q8	**Q81 Do you think disclosing ESG info during Earnings Calls improves a company's cost of capital?**	**Scale**
	Q82 Do you believe that disclosing ESG information attracts more investors?	
	Q83 Do you think ESG information supports better follow-on investment decisions?	**Scale**
	Q84 Do you think ESG information supports more accurate analyst forecasts?	*Eliminated*
	Q85 Do you think ESG information helps mitigate the lack of financial disclosure?	**Scale**
Q9	**Q91 Do you believe that the tone of voice during calls gives insight into future performance?**	**Scale**
	Q92 Do you think the tone of voice is more influential than actual words?	**Scale**
	Q93 Do you pay attention to facial expressions when watching Earnings Calls?	*Eliminated*
	Q94 Do you take into account the frequency of good or bad news during Earnings Calls?	
	Q95 Do you believe AI tools can enhance forecasting accuracy?	**Scale**

Appendix II: Survey Results Beyond Scale Development: Insights and Analysis

Although the development of the scale and its items has been discussed throughout the paper, the survey conducted in Brazil warrants a dedicated section to provide a fuller analysis of responses not directly addressed during scale development. This survey (see Figure A1), which gathered insights from leading Brazilian analysts and investors, particularly members of Apimec Brasil (Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais do Brasil) and Amec (Associação de Investidores no Mercado de Capitais)—offers crucial perspectives on financial communication and transparency. Given the relevance of these responses for capturing investor perceptions in the Brazilian context, an appendix has been included to present and analyse the survey results in greater detail.

Table A2. Survey summary statistics

Item	Statistics			Median Score
	Mean	StDev	Var	
Voluntary Disclosure				
Q11-Do you trust the information provided in the Earnings Calls?	7.77	1.78	3.16	8
Q12-Do you think sell-side analysts trust the information presented during the Earnings Calls?	7.98	1.39	1.94	8
Q13-Do you believe that voluntary disclosure during Earnings Calls demonstrates transparency?	8.40	1.71	2.92	9
Q14-Do you think voluntary disclosures provide important information to investors not in financial reports?	8.75	1.36	1.85	9
Regulated Disclosure				
Q21-Do you support the regulation of Earnings Calls?	7.43	2.94	8.65	9
Q22-Do you believe earnings indicators should be standardized?	7.63	2.46	6.04	8
Q23-Do you believe current earnings accounting practices are effective?	6.77	2.18	4.74	7
Q25-Do you prefer companies to be more conservative in their accounting practices?	8.38	2.23	4.95	9
Management forecasts				
Q31-How important is it for a company to meet its earnings forecast?	8.62	1.64	2.68	9
Q32-Is a management's forecast linked to its credibility?	8.56	1.94	3.77	9
Q33-Is a management forecast linked to the company's stock price?	8.70	1.40	1.97	9
Q34-Is a management's forecast linked to stock price volatility?	6.63	2.55	6.52	7
Earnings Management				
Q41-Do you think short-term market pressures influence management's disclosure decisions?	7.78	1.90	3.61	8
Q42-Do you think corporate governance is linked to the quality of earnings disclosures?	7.82	2.09	4.35	8
Q43-Do you think the board of directors can influence the Earnings Calls process?	7.38	2.51	6.32	8
Q44-Do you think management might alter strategic decisions to improve quarterly earnings?	7.20	2.55	6.48	8
Information Asymmetry				
Q51-Could Earnings Calls help to diminish the asymmetry in earnings forecasts?	8.34	1.57	2.46	8
Q52-Do you think conference calls help to reduce information asymmetry in general?	8.33	1.69	2.87	9
Q53-Do you think conference calls slow down analytical reactions in the earnings disclosure process?	6.08	2.56	6.56	7
Q55-Do you think there are managers who lack sufficient information?	7.71	2.18	4.73	8
Investor Perception				
Q71-Do you think investors are influenced by Earnings Calls?	7.36	2.23	4.99	8
Q72-Do you think the quality of Earnings Calls affects investor perception?	7.80	2.12	4.48	8
Q73-Do you think companies can enhance corporate governance through improved disclosure?	8.62	1.77	3.12	9
Q74-Do you think conference calls generate more market volatility?	4.90	2.16	4.65	5

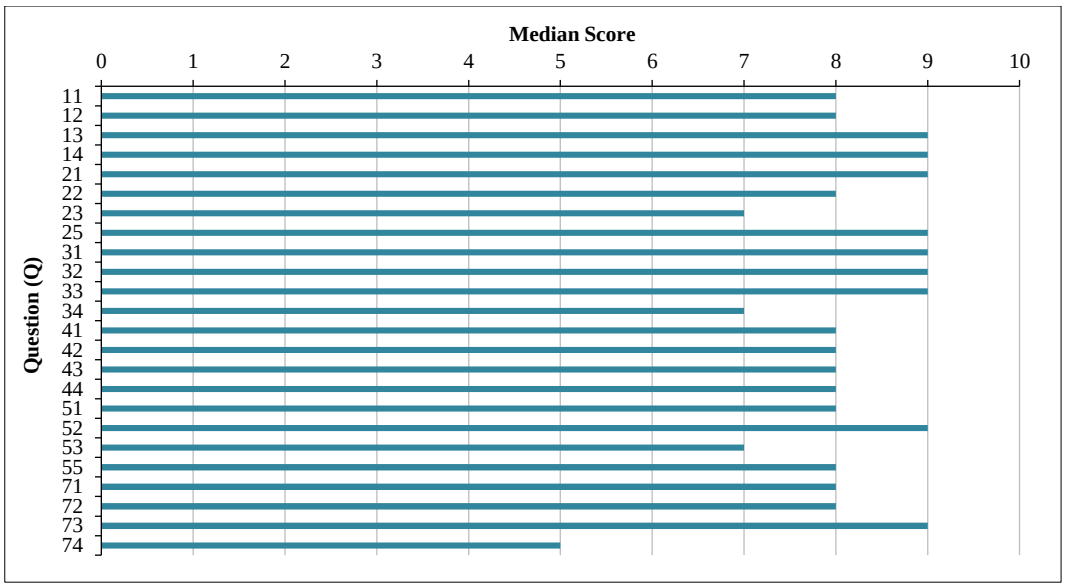

Figure A1. Survey Results outside of the scale (Median Score)

B-1- Survey Comments on Constructs Outside of the Scale

B-1-1- Voluntary Disclosure

Voluntary disclosures during earnings calls—primarily observed in Q&A sessions—reveal distinct dimensions of stakeholder perception. Investor trust in the information provided (Q11) and the belief that sell-side analysts also rely on this information (Q12) both recorded a median score of 8, reflecting strong confidence in the credibility of earnings-call disclosures. The emphasis on transparency is further reinforced in Q13, which received a median of 9, indicating widespread consensus that voluntary disclosures contribute meaningfully to openness and accountability. Similarly, Q14 highlights the perceived value of these disclosures, recording a median of 9 and suggesting that stakeholders consider voluntary information an essential complement to mandatory financial reports. Taken together, these findings underscore the pivotal role of voluntary disclosures in fostering trust and transparency. They also point to an area for improvement: ensuring the consistency of such disclosures over time to maintain credibility and effectiveness.

B-1-2- Regulated Disclosure

Regulated disclosures during earnings calls demonstrate robust investor support. Q21 recorded a high median of 9, indicating broad approval for regulating these communications. Q22, with a median of 8, reflects substantial agreement on the need for standardised earnings indicators, suggesting that stakeholders value consistency and comparability in financial reporting. By contrast, the effectiveness of current accounting practices (Q23) received a lower median of 7, indicating more moderate confidence and signalling scope for improvement in existing frameworks. Finally, Q25, with a high median of 9, reveals a strong preference for more conservative accounting practices, underscoring stakeholders' inclination towards prudent, risk-averse reporting. Collectively, these responses highlight robust support for regulation and standardisation while indicating areas where current practices could evolve to better align with expectations for effectiveness and conservatism.

B-1-3- Management Forecasts

Investor perceptions of management forecasts underscore their pivotal role in corporate communication and financial outcomes. The median for Q31 was 9, reflecting the importance stakeholders place on a company's ability to meet earnings forecasts—often viewed as an indicator of strategic competence and operational performance. Similarly, strong agreement on Q32 (median 9) highlights the perceived link between forecast accuracy and corporate credibility, suggesting that reliable projections materially reinforce trust in company leadership. Q33 further affirms this view (median 9), indicating a widespread belief that management forecasts directly influence valuation via their impact on share prices. Although slightly lower, the median for Q34 (7) still indicates a notable association between management forecasts and share-price volatility, underscoring their influence on market reactions and investor sentiment. Taken together, these findings confirm that management forecasts play an integral role in promoting financial stability, enhancing corporate reputation and building market trust through transparent, forward-looking communication.

B-1-4- Earnings Management

Investors' views on earnings management reflect a nuanced understanding of the interplay between market pressures, corporate governance and strategic decision-making. The median score of 8 for Q41 indicates a strong belief that short-

term market pressures materially influence management's disclosure decisions, highlighting the challenge of balancing immediate expectations with long-term objectives. Likewise, Q42 (median of 8) shows substantial agreement that the quality of earnings disclosures is closely tied to the effectiveness of corporate-governance practices, suggesting that strong governance frameworks are essential for transparency and integrity in financial reporting. Q43 (median of 8) further reflects broad consensus regarding the pivotal role of the board of directors in overseeing the earnings-call process, reinforcing the importance of board-level accountability in maintaining disclosure quality. Finally, Q44 (median of 8) highlights widespread concern that management may adjust strategic decisions to optimise quarterly earnings, indicating persistent apprehension that earnings management could privilege short-term performance over sustainable growth. Collectively, these findings emphasise the influence of external market pressures and internal governance structures on earnings-management practices and underscore the need for vigilance in aligning disclosure strategies with long-term value creation.

B-1-5- Information Asymmetry

Investor responses on information asymmetry highlight both the perceived effectiveness of earnings calls in promoting transparency and acknowledgement of certain limitations. Q51 recorded a median of 8, indicating strong agreement that earnings calls help reduce asymmetry in earnings forecasts, thereby improving the clarity and accessibility of financial expectations. Similarly, Q52, with a higher median of 9, reflects strong investor confidence in the ability of earnings calls to mitigate information asymmetry more broadly, positioning them as essential mechanisms for the fair dissemination of corporate information. By contrast, Q53 (median 7) suggests a more moderate view of the effectiveness of earnings calls in accelerating analytical follow-up, indicating potential inefficiencies in information processing. Finally, Q55 (median 8) highlights investor concerns about potential managerial knowledge gaps, reinforcing the importance of ensuring that management teams are sufficiently informed to support accurate communication and sound decision-making. Taken together, these findings affirm that earnings calls are instrumental in reducing information asymmetry, while revealing residual challenges in timeliness and managerial insight.

B-1-6- Investor Perception

Investor perceptions emphasise the strategic importance of earnings calls in shaping market behaviour and corporate governance. Q71 recorded a median of 8, reflecting strong agreement that investors are materially influenced by earnings calls, underscoring their central role in informing investment decisions. Similarly, Q72 (median 8) indicates that the perceived quality of earnings calls exerts a considerable impact on investor sentiment, highlighting the need for precise, transparent and coherent communication. Q73, with a higher median of 9, reveals a strong belief that enhanced disclosure during earnings calls contributes to improved corporate governance, signalling broader organisational benefits of effective communication in fostering accountability, transparency and performance oversight. By contrast, Q74 (median 5) indicates mixed views regarding the extent to which earnings calls generate market volatility, suggesting that their impact on market stability may be context-dependent—shaped by timing, content or disclosure tone. Collectively, these findings highlight the pivotal role of earnings calls in shaping investor perceptions, reinforce their value as tools for both governance enhancement and market communication, and suggest that their influence on volatility warrants further contextual analysis.

B-1-7- Gaps in the Earnings Disclosure Process in Brazil

The four items that received mid-range agreement highlight key areas of concern regarding the effectiveness of earnings calls and their broader implications.

- Q23. 'Do you think conference calls help to reduce information asymmetry in general?' (median = 7). This indicates moderate efficacy in levelling the informational playing field. While earnings calls are helpful, concerns remain about their ability fully to close information gaps among market participants.
- Q34. 'Do you think there are managers who lack sufficient information?' (median = 7). This reflects ongoing concerns about managerial knowledge gaps. Although investors generally believe management is well informed, there are instances in which insufficient information may affect disclosure quality and decision-making.
- Q53. 'Do you think conference calls slow down the speed of analytical reactions in the earnings disclosure process?' (median = 7). This capture worries about potential lags between disclosure and market response. Although conference calls provide valuable insights, they may introduce delays that hinder timely analysis.
- Q74. 'Do you think conference calls generate more market volatility?' (median = 5). This suggests mixed views about the extent to which earnings calls trigger market fluctuations, pointing to a context-dependent relationship shaped by timing, content and disclosure tone.

Taken together, these results affirm the usefulness of earnings calls while signalling residual challenges concerning timeliness, completeness of managerial information and the conditions under which volatility effects may arise.

B-1-8- Conclusion

In conclusion, analysis of the survey responses offers valuable insight into Brazilian analysts' and investors' perceptions, particularly among members of Apimec and Amec. Overall, the high ratings for items relating to voluntary and regulated disclosures, management forecasts and investor perception underscore the central role of transparency, effective communication and governance in fostering investor trust. By contrast, the mid- to low-range scores for Q23, Q34, Q53 and Q74 indicate areas requiring further attention: reducing information asymmetry, improving the timeliness of analytical follow-up, addressing potential gaps in managerial knowledge and mitigating any volatility effects potentially induced by earnings calls. Taken together, these findings suggest that, although earnings calls are essential tools of corporate financial communication, their execution still merits refinement. Companies should focus on delivering timely, consistent and comprehensive disclosures that align with investor expectations and support market stability, thereby strengthening corporate transparency and accountability.

Appendix III: SAS Code

The input dataset was analysed with the following settings and criteria presented in Figure A2:

```
ods noproctitle; ods graphics / imagemap=on; proc factor data=WORK.IMPORT
method=principal rotate=obvarimax cov nfactors=3
priors=asmc simple corr residuals eigenvectors score msa reorder fuzz=0.3
norm=kaiser plots=(scree); var Q81 Q83 Q85 Q91 Q92 Q95 Q62 Q61 Q65; pathdiagram
fuzz=0.3; run;
```

Figure A2. SAS Factor Analysis Code

The following key options were selected to optimise the factor analysis (see Table A3):

Table A3. Configuration of Factor Analysis Parameters

Option	Description and Justification
Method=Principal	Principal component extraction method is used to identify factors accounting for maximum variance, aiding dimensionality reduction.
Rotate=Obvarimax	Oblique Varimax rotation was applied to allow correlated factors while simplifying the factor structure for interpretability.
Cov	Covariance matrix used instead of the correlation matrix, appropriate when variables are measured on the same scale.
Nfactors=3	The option specifies the extraction of three factors, based on theoretical considerations and exploratory analyses.
Priors=ASMC	The Average Squared Multiple Correlation (ASMC) method is used for initial communalities, enhancing model fit.
Simple	Outputs basic descriptive statistics (means, standard deviations, variances) for context.
Corr	Includes the correlation matrix to assess relationships among variables.
Residuals	The system produces residual correlation matrices to evaluate the fit of the factor model.
Eigenvectors	Calculates eigenvectors to identify directions of maximum variance in the dataset.
Score	Computes factor scores for use in subsequent analyses.
MSA	This tool provides Measures of Sampling Adequacy (MSA) to assess variable suitability for factor analysis.
Reorder	The process reorganises output to group variables with high loadings on the same factor, enhancing interpretability.
Fuzz=0.3	Suppress loadings below 0.3 in the output, focusing on significant relationships between factor variables.
Norm=Kaiser	Applies Kaiser normalisation to stabilise the rotation and improve factor interpretability.