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From Human to Machine: Evidence that Brazilian Investors Attribute Equal Importance to Analysts and Artificial Intelligence

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INTRODUCTION

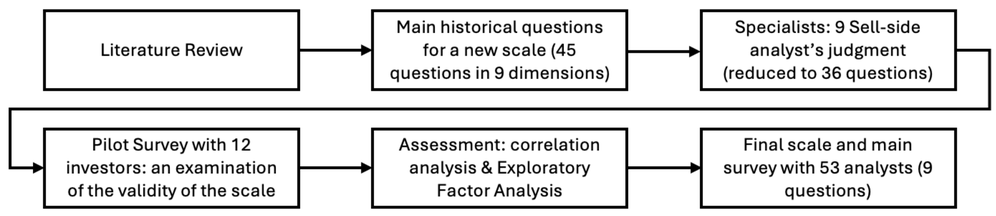
In capital markets, **earnings calls** are central to investment decisions, providing stakeholders with insights into firms' performance and strategic direction. Held quarterly, earnings calls combine mandatory and voluntary disclosures, reducing information asymmetry, supporting stock price stability, and strengthening investor confidence. Despite their importance, current evaluation approaches often examine isolated elements such as tone or textual content, without capturing the **multidimensional nature** of these events. The increasing prevalence of videocasts offers new opportunities to analyse verbal and non-verbal cues, such as vocal tone and facial expressions, providing richer evidence of managerial sentiment.

This study addresses a key gap by proposing a robust scale for evaluating earnings calls. Integrating dimensions of regulated disclosures, voluntary communication, management forecasts, and AI-driven analytical tools, the research identifies core components of corporate disclosure grounded in financial communication literature. **Scale development** followed a rigorous process: initial item generation, expert review, pilot testing with financial professionals, and survey data collection from investors and analysts. Exploratory factor analysis refined the structure and validated the instrument.

The resulting scale aims to offer a reliable tool to **assess earnings call effectiveness and advance research in corporate disclosure**, investor relations, and managerial communication.

METHODS AND MATERIALS

The scale was developed following a standardised scale construction process, as outlined by Bagozzi et al. (1991) and Turker (2009). The initial step involved domain identification and conceptualisation to establish a comprehensive conceptual framework (Coelho et al., 2018). A refined 36-item scale was first piloted with 12 analysts to assess clarity, structure, and comprehension. The survey was delivered anonymously via Qualtrics to specialised buy-side analysts in Brazil. Following optimisation, the full survey was distributed to 60 financial professionals, targeting a minimum of 50 valid responses. After excluding three incomplete cases, 53 responses were retained. **Participants rated each item using a 10-point Likert scale (1 = strong disagreement, 10 = strong agreement).** IP tracking prevented duplicate submissions, and anonymity promoted unbiased responses. Data were collected via Qualtrics, producing 1,908 observations. Missing values (2.6%) were imputed using the median method. Construct validation was employed in SAS Studio. Bartlett's test confirmed suitability for factor analysis, and PCA was used to explore dimensionality. Nine items were retained, forming three factors that explained 98% of the variance. **Sampling adequacy (MSA = 0.71), RMSR (0.038), and Cronbach's alpha (0.793) indicated strong reliability and model fit** (Hair et al., 2014; Nunnally, 1978).



Nº	Eigenvalue	Difference	Proportion	Cumulative
1	17.811	8.829	0.568	0.568
2	8.982	5.026	0.287	0.854
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	

Cronbach 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

Metric	Description / Calculation
Fleiss' kappa formula	$k = \frac{p_o - p_e}{1 - p_e} = \frac{0.43 - 0.22}{1 - 0.22}$
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

Figure 1 – Methodological steps

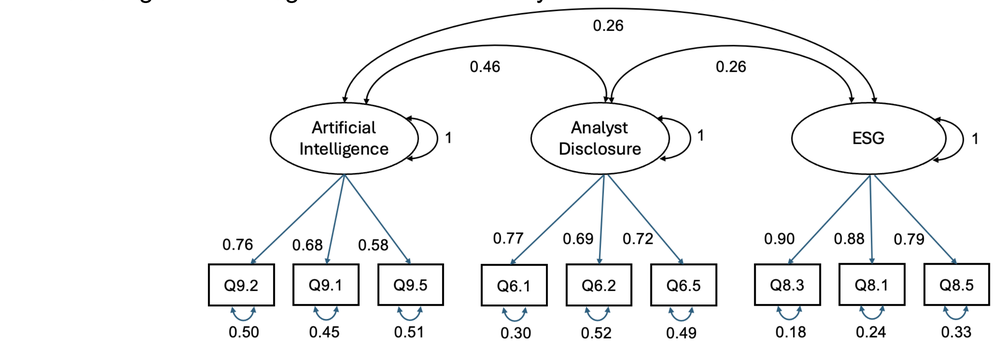
RESULTS & DISCUSSION

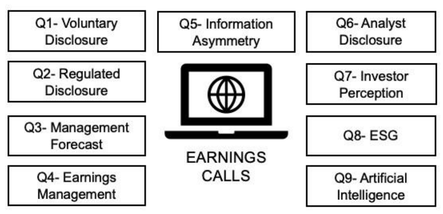
Exploratory Factor Analysis reduced the original nine disclosure dimensions to three statistically and conceptually coherent factors: **Analyst Disclosure, Artificial Intelligence (AI), and ESG.** This refinement reflects the event-based nature of earnings calls, where investors prioritise information with immediate decision relevance. **Analyst Disclosure** received the highest ratings (7.7), confirming that transparent dialogue and high-quality information are effective in predicting performance and enhancing analyst effectiveness. Investors also affirmed the role of analysts as intermediaries, reinforcing their value in the interpretation of managerial communication.

Artificial Intelligence ranked second (6.0). Respondents viewed AI as a complementary tool capable of improving forecasting and supporting interpretation of tone and sentiment, rather than replacing analysts. These findings suggest hybrid disclosure practices where human judgment and technological insights are combined.

ESG received the lowest ratings (3.7). While investors recognise its relevance, ESG disclosures are perceived as effective only when credible, material, and integrated with financial narratives. Lower ratings likely reflect market maturity and sensitivity to greenwashing.

Correlation patterns further clarify construct relationships: Analyst Disclosure and AI showed a moderate association (r = 0.46), whereas ESG exhibited weaker links to both (r = 0.26), indicating limited integration of sustainability into core financial communication.





Item	Statistics Mean	StDev	Var	Median Score
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 call 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 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

Figure 2 – Exploratory Factor Analysis Results

CONCLUSION

Earnings calls are pivotal to corporate disclosure and investor engagement, serving as direct communication channels between management, analysts, and investors. This study develops a scale to assess earnings call effectiveness, addressing limitations in traditional approaches that centre on static financial statements. Through a rigorous development process, three core dimensions emerged: **Analyst Disclosure, Artificial Intelligence (AI), and Environmental, Social, and Governance (ESG).** These dimensions reflect the evolving nature of financial communication, integrating transparency, technological innovation, and sustainability.

The **first research question** explores the fundamental components of a reliable assessment of financial transparency. Findings highlight the interplay between Analyst Disclosure, AI and ESG considerations as key drivers of effective corporate communication. Unlike conventional disclosure research, the scale captures real-time interaction and investor engagement, offering a more holistic view of earnings call performance.

The **second research question** examines the role of AI. Results indicate that investors perceive AI's predictive accuracy as **comparable to that of human analysts**, positioning it as a credible analytical complement. However, analysts remain the preferred intermediary, valued for judgment, contextual interpretation, and credible communication. Overall, the proposed scale offers a novel tool for aligning corporate disclosure with investor expectations, thereby strengthening transparency and enhancing financial communication.

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