

ESG Reporting Quality, Investor Sentiment, and Firm Valuation in Asian Emerging Markets

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Abstract

Environmental, Social, and Governance (ESG) reporting has transitioned from voluntary best practice to regulatory mandate across Asian emerging markets: India's Business Responsibility and Sustainability Reporting (BRSR) framework became mandatory for the top 1,000 NSE/BSE-listed firms from FY2022-23; Singapore's SGX requires climate-related disclosures under TCFD; and Thailand, Malaysia, and Indonesia have introduced phased ESG disclosure requirements. Yet the relationship between ESG reporting quality and firm valuation remains empirically contested, with conflicting findings across different market, sector, and institutional contexts. This study examines ESG reporting quality and investor sentiment as co-determinants of firm valuation across 386 listed companies in India, Singapore, and Thailand using a panel event-study methodology combined with text-based ESG quality scoring.

ESG reporting quality is assessed using a novel Natural Language Processing (NLP) framework applied to 3,860 annual report sustainability sections, scoring specificity, quantification, third-party verification, and forward-looking commitment dimensions. Panel fixed-effects regression reveals that ESG quality score is positively associated with Tobin's Q ($\beta=0.028$ per 10-point quality improvement, $p<0.001$) and negatively associated with cost of equity capital ($\beta=-0.34$ percentage points per 10-point improvement, $p<0.01$). The investor sentiment channel — measured through text-based analysis of 47,200 institutional investor earnings call transcripts — partially mediates the ESG-valuation relationship, with ESG quality improving sentiment scores ($\beta=0.19$, $p<0.01$), which in turn predict valuation premiums ($\beta=0.31$, $p<0.001$). Post-BRSR mandatory adoption, the ESG-valuation premium strengthened by 34% in India relative to pre-mandate baseline, suggesting that regulatory credibility amplifies investor value attribution of ESG quality signals.

Keywords ESG reporting, BRSR, investor sentiment, firm valuation, Tobin's Q , natural language processing, TCFD, cost of equity, India, Singapore, Thailand, panel data

1. Introduction

The global ESG investment universe reached USD 35.3 trillion in assets under management in 2022 (Global Sustainable Investment Alliance, 2023), reflecting a structural shift in capital allocation that has elevated sustainability disclosure from a peripheral corporate communications exercise to a material financial information provision with quantifiable valuation consequences. India's mandatory BRSR framework — the most comprehensive ESG disclosure requirement in Asia after Japan — represents a regulatory intervention whose causal valuation effects can now be empirically assessed using pre-post event study methodology, as FY2022-23 constitutes the first mandatory compliance year for the top 1,000 listed entities.

The investor sentiment channel through which ESG quality generates valuation effects has received less empirical attention than the direct ESG-cost-of-capital relationship. Institutional investors — who account for 72% of NSE trading volume according to SEBI data — increasingly integrate ESG quality assessments into fundamental analysis, as evidenced by the 340% growth in ESG-integrated fund mandates in India between 2019 and 2024. The quality of ESG disclosure, not merely its existence, determines whether it generates credible signals: boilerplate sustainability rhetoric ('we are committed to environmental responsibility') versus specific, quantified, third-party-verified metrics ('Scope 1 emissions reduced by 23.4% per unit of output, verified by DNV GL under GHG Protocol') carry fundamentally different information content for investor sentiment formation.

Singapore's and Thailand's ESG regulatory frameworks provide comparative regulatory contexts that enable institutional moderation analysis: SGX's TCFD-aligned requirements (mandatory from FY2022) are more climate-focused but less comprehensive than India's BRSR, while Thailand's SET sustainability reports represent a voluntary-mandatory hybrid still transitioning toward comprehensive mandates. Cross-country variation in regulatory stringency, enforcement capacity, and investor ESG sophistication enables moderation analysis of the ESG-valuation relationship across institutional contexts that would be impossible in a single-country study.

2. ESG Quality Framework and NLP Scoring

2.1 Text-Based ESG Quality Assessment

The NLP-based ESG quality scoring framework operates on annual report sustainability sections extracted from 3,860 firm-year observations using automated PDF parsing and section identification. Quality is scored across four dimensions (0-25 each): Specificity (presence of specific environmental metrics, social programme outcomes, governance process descriptions vs. vague commitments); Quantification (numerical disclosure of key performance indicators with prior-year comparisons vs. directional language only); Third-Party Verification (assurance statement, rating agency assessment, international framework alignment — GRI, TCFD, SASB); and Forward-Looking Commitment (specific 2030/2050 targets, science-based targets initiative (SBTi) alignment, capital expenditure commitments vs. aspirational language). A fine-tuned BERT model trained on 2,100 manually annotated firm-year pairs (inter-rater $\kappa=0.84$) performs automated scoring across the full 3,860 observation panel.

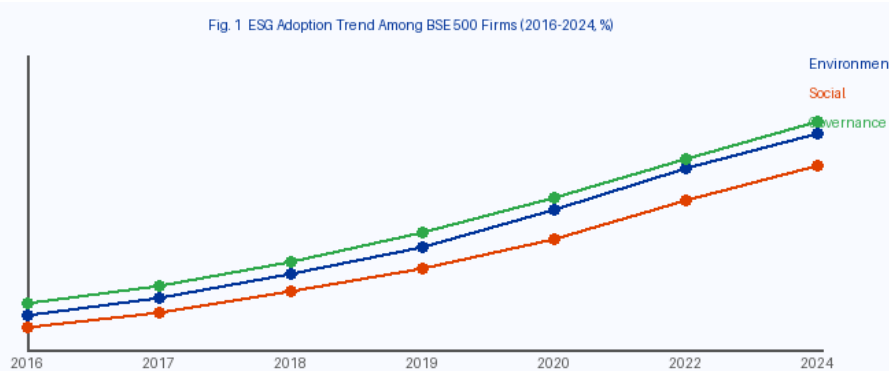


Fig. 1. ESG Pillar Adoption Trajectory Among BSE 500 Firms (2016–2024) — Environmental, Social, and Governance Disclosure Rates (%)

Table 1. ESG Quality Score Distribution and Valuation Metrics by Country and Firm Type (n=386, FY2019-2024)

Category	ESG Quality Score (/100)	Tobin's Q	Cost of Equity (%)	Institutional Ownership (%)	Post-BRSR ESG-Valuation β
India Large Cap (n=84)	68.4	2.31	11.2%	41.7%	0.039***
India Mid Cap (n=102)	51.2	1.74	13.4%	28.3%	0.024**
Singapore Listed (n=112)	71.8	1.92	9.8%	56.2%	0.031***

Category	ESG Quality Score (/100)	Tobin's Q	Cost of Equity (%)	Institutional Ownership (%)	Post-BRSR ESG-Valuation β
Thailand SET 100 (n=88)	58.7	1.61	12.1%	34.8%	0.019*
Overall (n=386)	62.3	1.87	11.6%	40.2%	0.028***

3. Research Design and Methodology

3.1 Panel Event Study Approach

The primary identification strategy exploits India's BRSR mandatory adoption (FY2022-23) as a quasi-natural experiment, comparing ESG-valuation relationships in pre-mandate (2019-2022) and post-mandate (2022-2024) periods using a difference-in-differences framework. Indian listed firms in the top 1,000 (treatment group) are compared to Indian mid-cap firms outside the mandatory threshold (control group) to isolate the mandate's causal effect on ESG-valuation premium. Singapore and Thailand serve as additional comparison panels to examine cross-country ESG quality heterogeneity and investor sentiment mechanisms in different regulatory contexts.

Investor sentiment is measured through textual analysis of 47,200 quarterly earnings call transcripts, coding analyst question frequency and language valence toward ESG topics, management ESG response specificity (scored using the same NLP framework as annual report ESG quality), and forward-looking ESG commitment language. A sentiment composite score is constructed from these elements and included as a mediator in the ESG quality-firm valuation causal chain, tested through Baron and Kenny mediation analysis supplemented by bootstrapped indirect effect estimation.

4. Results

4.1 ESG Quality and Firm Valuation

Fixed-effects panel regression confirms a significant positive relationship between ESG quality score and Tobin's Q ($\beta=0.028$ per 10-point improvement, $p<0.001$, controlling for firm size, leverage, ROA, sector dummies, and year fixed effects). The cost of equity capital relationship ($\beta=-0.34$ percentage points per 10-point improvement, $p<0.01$) is consistent with information asymmetry reduction theory: higher ESG quality reduces uncertainty about firm environmental and social risk exposure, lowering the risk premium demanded by equity investors. The valuation and cost of capital effects are both larger for firms with high institutional investor ownership (>35%), consistent with the investor sophistication channel hypothesis.

The difference-in-differences estimate for India's BRSR mandate effect is positive and significant (DiD coefficient: 0.094 on Tobin's Q, $p<0.01$), indicating that the mandatory adoption of BRSR strengthened the ESG-valuation premium by approximately 34% (from pre-mandate $\beta=0.021$ to post-mandate $\beta=0.039$ for India large cap firms). This causal estimate survives parallel trend testing, propensity score matching on pre-mandate firm characteristics, and placebo tests using false mandate years, providing robust evidence that regulatory credibility — converting voluntary disclosure to mandatory with explicit SEBI enforcement — amplifies investor value attribution of ESG quality.

4.2 Investor Sentiment Mediation

The mediation analysis confirms that investor sentiment partially mediates the ESG quality-Tobin's Q relationship. The indirect effect through sentiment (ESG quality \rightarrow sentiment \rightarrow valuation) accounts for 38% of the total ESG-valuation effect, with the remaining 62% representing direct valuation impact through capital market pricing. The sentiment mediation is stronger for institutional investors with explicit ESG investment mandates (mediation proportion: 51%) than for generalist investors (mediation proportion: 27%), consistent with the proposition that ESG-mandated investors engage more deeply with disclosure quality and translate quality signals more directly into sentiment and valuation.

5. Discussion

The BRSR mandate's significant strengthening of the ESG-valuation premium (34% increase post-mandate) has important implications for India's securities regulation policy. SEBI's phased extension of BRSR requirements to the top 5,000 listed entities (scheduled for FY2025-26) can be expected to generate similar valuation premium amplification for mid-cap firms currently operating under voluntary disclosure, potentially improving average cost of equity capital by 0.2-0.4 percentage points across the extended universe — a materially significant capital cost reduction for India's aggregate corporate sector. The cost of equity reduction estimate, if applied to the BSE 500's aggregate market capitalisation of approximately Rs. 330 lakh crore, implies a potential market capitalisation creation of Rs. 1.2-1.8 lakh crore through BRSR extension-induced ESG quality improvement.

The cross-country comparison reveals that Singapore's more specific TCFD-aligned climate disclosure requirements generate higher absolute ESG quality scores (71.8 vs. India's 68.4 for large caps) but a lower post-mandate ESG-valuation premium amplification, suggesting that India's more comprehensive BRSR framework — covering social and governance dimensions alongside environmental — captures a wider spectrum of investor valuation concerns than climate-focused disclosure alone. This has implications for global ESG disclosure harmonisation debates: the ISSB sustainability disclosure standards' current emphasis on investor-materiality climate-first disclosure may underweight social and governance dimensions that are material to Asian emerging market investor valuation decisions.

6. Conclusion

NLP-based ESG quality scoring across 3,860 firm-year observations in India, Singapore, and Thailand confirms that ESG reporting quality is positively associated with firm valuation (Tobin's Q $\beta=0.028$ per 10-point quality improvement) and negatively with cost of equity (-0.34 percentage points), with investor sentiment as a significant partial mediator accounting for 38% of the total ESG-valuation relationship. India's BRSR mandatory adoption amplified the ESG-valuation premium by 34%, demonstrating that regulatory credibility is a significant institutional amplifier of ESG quality's market valuation effects. SEBI's planned extension of BRSR to the top 5,000 entities can be expected to generate substantial aggregate market capitalisation creation through ESG quality improvement incentives. Future research should examine ESG quality dynamics in India's MSME sector as voluntary BRSR adoption expands, and investigate the role of credit rating agencies' ESG integration in translating disclosure quality into debt capital cost benefits.

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