

ESG RATINGS, MARKET VALUATION AND ENVIRONMENTAL PERFORMANCE: EVIDENCE FROM MALAYSIAN LISTED FIRMS

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ABSTRACT

Environmental, Social and Governance (ESG) ratings are increasingly used to guide investment decisions and sustainability disclosure, yet their ability to reflect realised environmental outcomes remains uncertain. This study examines whether ESG ratings capture market valuation and reported environmental performance among Malaysian listed firms. Based on 625 ESG-rated firms from an initial screen of 1,124 Malaysian listed companies, the analysis estimates ordinary least squares regressions with HC3 heteroskedasticity-robust standard errors, controlling for firm size, pretax return on assets and financial leverage. The valuation model uses 551 observations, while the CO₂ emissions model uses 523 observations because of environmental disclosure gaps. The results show that composite ESG scores are positively associated with price-to-book ratios ($B = 0.033$, $p < .001$), suggesting that Malaysian equity investors treat ESG ratings as value-relevant market signals. ESG scores are also strongly associated with environmental sub-scores, indicating internal consistency within the same commercial rating system. However, the relationship between ESG scores and logged CO₂ emissions is economically small and weakly negative after controls ($B = -0.014$, $p = .032$), while firm size remains the dominant predictor of reported emissions. These findings show that ESG ratings in Malaysia capture valuation relevance and disclosure visibility more clearly than realised environmental performance. The study contributes by distinguishing ESG ratings as market signals, internally consistent commercial scores and imperfect proxies for environmental outcomes. It highlights the need for more comparable, transparent and assured climate-related reporting before ESG ratings can be treated as reliable indicators of environmental performance.

INTRODUCTION

Environmental, Social and Governance (ESG) ratings have become important information intermediaries in capital markets, translating corporate sustainability disclosures into comparable scores used by investors, regulators and listed firms. In Malaysia, this shift has moved from voluntary sustainability advocacy towards a more formal reporting architecture. The Sustainable and Responsible Investment Roadmap positioned sustainability within capital-market development, while Bursa Malaysia later strengthened listed-issuer sustainability reporting, including climate-related disclosure expectations (Bursa Malaysia, 2022; Securities Commission Malaysia, 2019). More recently, the National Sustainability Reporting Framework has moved Malaysia towards ISSB-aligned sustainability disclosure through a climate-first and phased implementation approach (Securities Commission Malaysia, 2024).

Greater ESG visibility, however, does not automatically mean that ratings measure realised environmental performance. Commercial ESG scores combine policies, practices, disclosures and performance indicators, but providers differ in scope, measurement and weighting. Berg et al. (2022) describe this problem as aggregate confusion, while Chatterji et al. (2016) show that ratings of the same firms do not always converge. Firm size adds a further complication. Larger firms are more visible, more likely to receive ESG coverage and better equipped to prepare sustainability reports. Drempetic et al. (2020) show that firm size and ESG data availability are closely associated with ESG scores, suggesting that ratings may partly reflect disclosure capacity rather than sustainability performance alone.

This distinction matters because valuation relevance and environmental validity are not the same thing. Prior ESG research generally finds a non-negative relationship between ESG and financial performance, although the strength of the relationship varies across settings and measures (Friede et al., 2015). In a signalling perspective, ESG ratings may be valued because they indicate transparency, governance discipline or lower information risk, while still providing weaker evidence of lower emissions or measurable environmental improvement.

Malaysia provides a useful setting for separating these interpretations. Its listed market offers variation in ESG coverage, valuation and environmental disclosure, while still displaying disclosure gaps typical of emerging-market equity systems. This study uses latest-available cross-sectional data from the LSEG Workspace

Screeners, provided by the London Stock Exchange Group (LSEG, 2026), for Malaysian listed firms. The initial screen covers 1,124 listed companies, of which 625 have non-missing LSEG ESG scores. The analysis examines whether ESG ratings are associated with market valuation and whether they correspond to reported environmental outcomes, measured mainly through logged CO₂ emissions.

PROBLEM STATEMENT

Commercial ESG ratings are widely used as indicators of corporate sustainability, yet their interpretation remains uncertain when disclosure capacity varies sharply across firms. In the Malaysian listed market, higher ESG scores may reflect reporting infrastructure, institutional visibility and data-provider coverage rather than lower environmental impact. This creates a signal-versus-substance problem: ESG ratings may carry valuation relevance while offering weaker evidence about realised environmental outcomes. Since only 625 of the 1,124 screened Malaysian listed firms have non-missing LSEG ESG scores, ESG-based analysis captures a more visible and disclosure-active segment of the market. Firm size may therefore confound comparisons between ESG ratings and reported CO₂ emissions.

RESEARCH OBJECTIVE

This study examines whether LSEG ESG ratings reflect market valuation and reported environmental performance among Malaysian listed firms. The analysis addresses three research questions:

RQ1: Are LSEG ESG ratings and environmental sub-scores associated with market valuation, measured by the price-to-book ratio?

RQ2: Are ESG ratings associated with logged CO₂ emissions after controlling for firm size, profitability and financial leverage?

RQ3: Do ESG ratings mainly reflect realised environmental performance, or do they also capture disclosure visibility, rating coverage and firm scale?

LITERATURE REVIEW

ESG Rating Validity and Disclosure Capacity

ESG ratings convert dispersed sustainability disclosures into comparable firm-level signals, but their convenience does not make them neutral measures of corporate sustainability. Rating providers differ in the attributes they include, the indicators they use and the weights they assign, which produces substantial divergence across ESG

scores for the same firms (Berg et al., 2022; Chatterji et al., 2016). Greater disclosure does not necessarily resolve this problem. Christensen et al. (2022) show that more ESG disclosure can increase rating disagreement, suggesting that disclosed information may create additional interpretation rather than a single clearer signal.

This measurement issue is closely linked to disclosure capacity. Larger firms are more visible, more likely to receive ESG coverage and better equipped to prepare sustainability reports, respond to data-provider questionnaires and maintain investor-relations functions. Drempetic et al. (2020) show that firm size, ESG data availability and ESG scores are closely related. In emerging markets such as Malaysia, where reporting capacity remains uneven, firm size may therefore confound the relationship between ESG coverage, ESG scores and reported environmental outcomes.

ESG Ratings, Firm Value and Market Signals

The market relevance of ESG ratings is better established than their environmental validity. ESG scores can influence valuation because investors may interpret them as signals of transparency, governance quality, lower information risk or reputational strength. The broader literature generally reports a non-negative relationship between ESG and corporate financial performance, although the strength of this relationship varies across settings and measures (Friede et al., 2015). Investor behaviour evidence also supports the signalling role of sustainability information: Hartzmark and Sussman (2019) show that sustainability classifications affect fund flows.

This literature implies that a positive ESG–valuation relationship should not be interpreted as evidence of environmental performance. A firm may receive a valuation premium because it is more transparent, better governed or more visible to investors, without necessarily reporting lower emissions. The present study therefore separates valuation relevance from environmental validity by examining both market valuation and reported environmental outcomes.

Environmental Outcomes and Carbon Disclosure

Environmental sub-scores and reported CO₂ emissions capture related but distinct constructs. Commercial environmental ratings often include policies, targets, management systems and disclosure practices, whereas reported CO₂ emissions represent a more specific environmental outcome. Carbon-finance research shows that emissions data themselves contain market-relevant information. Bolton and

Kacperczyk (2021) document a carbon premium associated with corporate emissions, while Aswani et al. (2024) show that conclusions can vary depending on whether emissions are firm-disclosed or vendor-estimated. ESG ratings and emissions measures should therefore not be treated as interchangeable.

Recent Asian evidence has begun to connect ESG performance with carbon outcomes. Xie et al. (2024) find that ESG performance is associated with carbon emission intensity among Chinese listed firms, but Malaysia remains less examined from this perspective. Local ESG research has focused more heavily on disclosure, firm value and financial performance than on whether commercial ESG scores correspond to reported environmental outcomes. This study addresses that gap by examining LSEG ESG scores, price-to-book ratios, environmental sub-scores and logged CO₂ emissions within the same Malaysian listed-firm sample.

METHODOLOGY

Data Source and Sample

This study uses a 2026 cross-sectional dataset extracted from LSEG Workspace Screener, a financial data platform provided by the London Stock Exchange Group, for Malaysian listed firms (LSEG, 2026). The initial screen covered 1,124 listed companies. After restricting the sample to firms with non-missing LSEG ESG scores, 625 firms remained in the ESG-rated sample. The final estimation samples vary by model because of missing financial and environmental variables, with 551 observations in the valuation models and 523 observations in the CO₂ emissions model. The smaller CO₂ sample reflects corporate disclosure gaps in environmental reporting.

The cross-sectional design does not establish temporal ordering or causal effects. It is used to examine what ESG scores appear to reflect at one point in the Malaysian listed-firm market. This framing is consistent with the view that observable scores may function as market signals under information asymmetry while also reflecting discretionary disclosure capacity (Spence, 1973; Verrecchia, 1983). The coefficients are therefore interpreted as conditional associations rather than causal estimates.

Variables and Measurement

Table 1 presents the operational definitions and data sources for all variables. The main explanatory variable is the LSEG ESG Score, measured on a 0–100 scale. Environmental Pillar Score and Emissions Score are used to assess whether valuation effects are concentrated in the

environmental component of the rating. Since these sub-scores are generated within the same LSEG rating system, their association with the aggregate ESG Score is treated as internal rating consistency rather than independent environmental validation.

Table 1. Variable Definitions

Variable	Definition and Source
ESG Score	LSEG overall ESG score, measured on a 0–100 scale.
Environmental Pillar Score	LSEG environmental pillar score, measured on a 0–100 scale.
Emissions Score	LSEG emissions sub-score, measured on a 0–100 scale.
Resource Use Score	LSEG resource use sub-score, measured on a 0–100 scale.
Log CO ₂ Emissions	Natural logarithm of estimated total CO ₂ equivalent emissions.
Price-to-Book	Market valuation measured as price-to-book ratio.
Total Return	One-year total stock return.
Firm Size	Natural logarithm of total assets.
Profitability	Pretax return on assets.
Financial Leverage	LSEG debt-to-equity based leverage indicator.

The main market outcome is the price-to-book ratio. The main environmental outcome is logged CO₂ emissions, measured as the natural logarithm of estimated total CO₂ equivalent emissions. Emissions Score and Resource Use Score are also examined as environmental rating outcomes, but they are conceptually distinct from reported CO₂ emissions because they incorporate disclosure, policies and management practices. This distinction follows disclosure research showing that environmental disclosure and environmental performance are related but separate constructs (Clarkson et al., 2008).

Firm size is measured as the natural logarithm of total assets. This control is central because larger firms are more likely to obtain ESG coverage and possess the reporting resources associated with higher ESG ratings (Drempetic et al., 2020). Profitability is measured by pretax return on assets. Financial leverage is measured using LSEG's debt-to-equity based leverage indicator. Continuous variables are winsorised at the 1st and 99th percentiles to reduce the influence of extreme observations.

Empirical Specification

The baseline model is estimated using ordinary least squares:

$$Y_i = \alpha + \beta \text{ESG}_i + \gamma \text{Controls}_i + \varepsilon_i \quad (1)$$

where Y_i denotes either a market valuation outcome or an environmental outcome for firm i . In the valuation models, the dependent variable is the price-to-book ratio, while the ESG-related

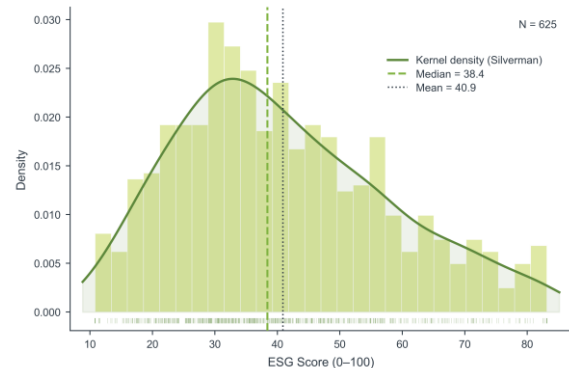
predictor alternates between ESG Score, Environmental Pillar Score and Emissions Score. In the environmental models, the dependent variables are Emissions Score, Resource Use Score and logged CO₂ emissions, with ESG Score as the main predictor.

All models include firm size, pretax ROA and financial leverage. Heteroskedasticity-robust standard errors are estimated using the HC3 correction following MacKinnon and White (1985), given the cross-sectional structure and large variation in firm scale. Industry fixed effects are not included because the LSEG screener export did not provide a consistent industry classification variable. The CO₂ models should therefore be read with caution, as sectoral differences in emissions intensity cannot be fully separated from firm-level ESG effects. The empirical strategy compares valuation relevance with environmental validity, allowing ESG ratings to be assessed as market signals and as possible proxies for reported environmental outcomes.

FINDINGS

Descriptive Evidence

Figure 1. Distribution of ESG Scores among Malaysian Listed Firms



Note. The histogram shows the density distribution of LSEG ESG Scores. The solid line represents the kernel density estimate. The dashed and dotted vertical lines indicate the median and mean ESG scores, respectively.

The ESG profile of Malaysian listed firms is uneven and concentrated in the lower half of the LSEG rating scale. The descriptive statistics in Table 2 and the distribution in Figure 1 show a mean ESG Score of 40.90 and a median of 38.41. The environmental component is weaker, with the Environmental Pillar Score averaging 30.63 and the Emissions Score averaging 35.96. The right-skewed pattern indicates that higher ESG scores are concentrated among a relatively small group of more visible firms rather than distributed evenly across the listed-firm sample.

Environmental data availability is also uneven. Although ESG scores are available for 625 firms, logged CO₂ emissions are observed for a smaller sub-sample. This pattern reflects more than a loss of observations. Malaysia's National Sustainability Reporting Framework adopts a phased approach to ISSB-aligned disclosure, recognising differences in corporate readiness across firms (Securities Commission Malaysia, 2024). The missing environmental variables therefore point to a disclosure-capacity gap within the listed-firm universe.

Table 2. Descriptive Statistics

Variable	N	Mean	SD	Median
ESG Score	625	40.90	16.91	38.41
Environmental Pillar Score	625	30.63	21.48	25.38
Emissions Score	625	35.96	26.67	30.21
Resource Use Score	625	37.10	23.00	33.22
Log CO ₂ Emissions	586	8.44	2.89	8.42
Price-to-Book	1,073	1.48	2.03	0.79
Firm Size	1,020	18.60	1.74	18.41
Profitability	993	0.05	0.11	0.04
Financial Leverage	1,004	0.43	0.57	0.23

Note. Continuous variables are winsorised at the 1st and 99th percentiles. Log Energy Use and Total Return are omitted from the compact descriptive table but retained in the dataset and robustness analysis where relevant.

Empirical Specification

Table 3. Key Correlations

Variable Pair	Correlation
ESG Score – Environmental Pillar Score	0.825
ESG Score – Emissions Score	0.771
ESG Score – Resource Use Score	0.732
ESG Score – Log CO ₂ Emissions	0.356
ESG Score – Price-to-Book	0.163
ESG Score – Firm Size	0.634
Firm Size – Log CO ₂ Emissions	0.654
Profitability – Price-to-Book	0.410
Financial Leverage – Firm Size	0.292

Note. Pearson correlations are reported. The compact table reports correlations most directly related to rating consistency, valuation relevance and firm-size confounding.

Table 3 reports selected correlations related to rating consistency, valuation relevance and firm-size confounding. ESG Score is highly correlated with Environmental Pillar Score ($r = 0.825$) and Emissions Score ($r = 0.771$). These coefficients indicate rating consistency, but they do not independently validate ESG scores against realised environmental outcomes. This distinction is consistent with wider regulatory concern that ESG ratings and data products require careful interpretation because provider methodologies and data processes may differ across products and users (International Organization of Securities Commissions [IOSCO], 2021).

Firm size is the key cross-cutting pattern. ESG Score is strongly correlated with firm size ($r =$

0.634), suggesting that larger firms are more likely to be rated, visible and disclosure-active. ESG Score is also positively correlated with logged CO₂ emissions in the raw data. This raw association is best understood as a scale effect: larger firms tend to have both higher ESG scores and higher absolute reported emissions. Figure S1, reported as supplementary material, visualises this uncontrolled ESG–CO₂ relationship.

Regression Evidence

The regression results in Table 4 distinguish ESG ratings as valuation signals from ESG ratings as proxies for reported environmental outcomes. In the valuation models, ESG-related ratings are positively associated with the price-to-book ratio. ESG Score is positive and significant in Model 1 ($\beta = 0.033$, $p < .001$), while Environmental Pillar Score and Emissions Score are also positively associated with valuation in Models 2 and 3. These results suggest that Malaysian equity investors treat ESG-related information as value-relevant market signals. However, valuation relevance should not be read as evidence that ESG ratings directly measure realised environmental performance. Figure 2 summarises these coefficient patterns across valuation and environmental outcome models.

Table 4. Regression Results

Variable	P/B	P/B	P/B	Emissions Score	Resource Use Score	Log CO ₂
ESG Score	0.033* ** (0.007)			1.063** * (0.050)	0.896* ** (0.047)	–0.014 ** (0.007)
Environmental Pillar Score		0.016* ** (0.006)				
Emissions Score			0.015* ** (0.005)			
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	551	551	551	553	553	523
Adjusted R ²	0.190	0.163	0.171	0.610	0.542	0.417

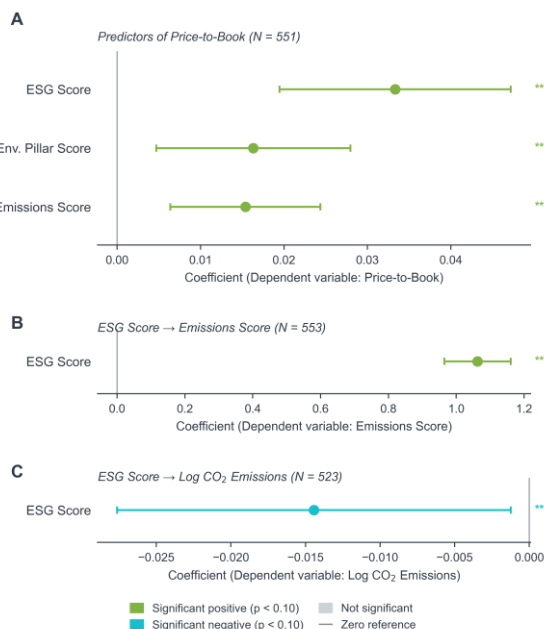
Robustness checks. Replacing ESG Score with ESG Combined Score produces a similar positive valuation result ($\beta = 0.033$, $p < .01$). ESG Score is not significantly associated with one-year total return. Replacing Emissions Score with Resource Use Score yields a consistent positive environmental-rating result.

Note. P/B = price-to-book ratio. HC3 robust standard errors are in parentheses. All models control for firm size, profitability and financial leverage. *** $p < .01$, ** $p < .05$, * $p < .10$.

The environmental rating models show a related but narrower result. ESG Score is strongly associated with LSEG's Emissions Score ($\beta = 1.063$, $p < .001$) and Resource Use Score ($\beta = 0.896$, $p < .001$). Since these variables are produced within the same rating architecture, the result is best interpreted as internal consistency rather than external environmental validation. This distinction matters because ESG ratings and sub-scores can combine disclosure practices, policies, targets and provider-specific measurement choices, rather than only observed environmental outcomes (Berg et al., 2022; IOSCO, 2021).

Model 6 provides the main test using reported emissions. After controlling for firm size, pretax ROA and financial leverage, ESG Score is weakly and negatively associated with logged CO₂ emissions ($\beta = -0.014$, $p = .032$). The effect is statistically detectable but small: a ten-point increase in ESG Score corresponds to an approximate 0.14 log-point decrease in reported CO₂ emissions, conditional on controls. Firm size remains the dominant predictor of logged CO₂ emissions ($\beta = 1.106$, $p < .001$). This explains why the raw ESG–CO₂ association in Figure S1 is positive, while the controlled coefficient in Table 4 is negative. The sign change reflects firm-size confounding rather than a contradiction in the evidence.

Figure 2. Key ESG Associations across Valuation and Environmental Outcomes



The CO₂ result should be interpreted within the limits of the data. The model is estimated on a smaller disclosure-active sub-sample, and emissions evidence may vary depending on whether the data are firm-disclosed, vendor-estimated or adjusted for scale (Aswani et al., 2024). The evidence therefore supports only a modest conditional association between higher

ESG scores and lower reported emissions. It does not show that ESG scores cause emissions reductions. This cautious interpretation is consistent with IFRS S2's emphasis on decision-useful climate-related disclosure, including metrics and targets, rather than reliance on broad sustainability labels alone (IFRS Foundation, 2023).

Robustness Evidence

The robustness panel in Table 4 supports the same interpretation. The valuation result remains positive when ESG Combined Score replaces ESG Score, indicating that the finding is not driven by a single ESG definition. ESG Score is not significantly associated with one-year total return, suggesting that ESG ratings are more closely related to valuation multiples than to short-term returns. Replacing Emissions Score with Resource Use Score produces a consistent positive relationship within the LSEG environmental rating system. Overall, the evidence indicates that LSEG ESG ratings are valuation-relevant and internally consistent, but their connection with reported CO₂ emissions is weaker and strongly shaped by firm size.

CONCLUSION

In the Malaysian listed-firm market, LSEG ESG scores appear to carry stronger valuation and disclosure-signalling content than direct environmental-performance content. Using 2026 cross-sectional data from LSEG Workspace Screener, this study finds that ESG scores are positively associated with price-to-book ratios and strongly aligned with LSEG's environmental sub-scores, but only weakly associated with lower reported CO₂ emissions after controlling for firm size, profitability and financial leverage.

These findings separate valuation relevance from environmental validity. The positive ESG–valuation relationship suggests that Malaysian equity investors use ESG ratings as market signals under information asymmetry (Spence, 1973). Yet the strong association between ESG Score, Emissions Score and Resource Use Score mainly reflects internal consistency within the same commercial rating system. The CO₂ result is more limited: the coefficient is small, and firm size remains the dominant predictor of reported emissions. ESG ratings therefore appear to capture disclosure visibility and corporate scale more clearly than realised environmental outcomes.

Malaysia's sustainability-reporting transition reinforces this interpretation. Bursa Malaysia's enhanced sustainability reporting requirements introduced stronger climate-related disclosure expectations for listed issuers, while the National

Sustainability Reporting Framework positions IFRS S1 and IFRS S2 as baseline standards through a phased implementation approach (Bursa Malaysia, 2022; Securities Commission Malaysia, 2024). IFRS S2 further emphasises decision-useful climate-related information, including metrics and targets (IFRS Foundation, 2023). The evidence supports this direction: ESG scores can inform markets, but more comparable and assured emissions disclosures are needed before they can be treated as reliable indicators of environmental performance.

The study contributes to Malaysian ESG research by showing that market valuation does not necessarily imply environmental validity. Investors should combine ESG ratings with direct emissions indicators when assessing climate exposure, while firms and regulators should place greater emphasis on reporting boundaries, comparable environmental metrics and assurance practices. The study remains limited by its cross-sectional design, smaller disclosure-active CO₂ sample and lack of consistent industry classification. Future research could use panel data, industry-adjusted emissions intensity, verified Scope 1–3 data and alternative ESG providers to assess whether ESG ratings become more closely aligned with environmental outcomes as Malaysia's disclosure regime matures.

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