



RESEARCH ARTICLE

Beyond Compliance: ESG Disclosure Quality, Greenwashing Risk, Sustainability Assurance and Firm Value in Malaysia Under National Sustainability Reporting Framework

Prof Dr Syed Zahiruddin bin Syed Musa

Universiti Islam Malaysia

ABSTRACT

Environmental, social and governance (ESG) reporting in Malaysia is entering a new phase in which sustainability information is increasingly expected to be comparable, connected, governed and reliable. This paper critically reviews the relationship between ESG disclosure quality, greenwashing risk, sustainability assurance and firm value in Malaysia, with particular attention to the National Sustainability Reporting Framework (NSRF), the International Sustainability Standards Board (ISSB) standards, Bursa Malaysia's sustainability requirements and the broader Malaysian climate-transition architecture. Using a critical literature-review and conceptual-analysis approach, the paper draws on Malaysian regulatory documents, international sustainability standards and empirical studies of Malaysian listed companies. The reviewed empirical evidence is mixed rather than uniformly positive. Earlier Malaysian studies reported insignificant relationships between aggregate ESG measures and firm performance, while later studies found positive associations for ESG disclosure, certification or selected sustainability practices under particular conditions. More recent evidence also shows that firm size, leverage, free cash flow, external recognition, Shariah status, board characteristics and controversy exposure may condition observed relationships. These findings support closer attention to disclosure quality and credibility rather than disclosure volume alone. Regulatory evidence further shows that Malaysia is moving toward ISSB-aligned reporting while facing implementation challenges involving data systems, Scope 3 emissions, supply-chain readiness, internal controls, skills and assurance capacity. The September 2026 decision to defer mandatory reasonable assurance over Scope 1 and Scope 2 greenhouse-gas disclosures reinforces the importance of reporting maturity and control readiness. Building on the reviewed evidence and theory, rather than claiming to test causal relationships, this paper develops a conceptual framework in which ESG disclosure quality is linked to firm value through information asymmetry, stakeholder trust and risk perception, with sustainability assurance, governance quality and greenwashing risk proposed as moderating influences. These propositions are intended for future empirical testing. The paper contributes a Malaysia-specific synthesis for research during the country's transition to ISSB-aligned reporting.

Keywords: *ESG; sustainability reporting; Malaysia; National Sustainability Reporting Framework; ISSB; IFRS S1; IFRS S2; greenwashing; sustainability assurance; firm value; Bursa Malaysia; climate disclosure*

1. Introduction

Environmental, social and governance considerations have moved rapidly from the margins of corporate social responsibility into mainstream questions of corporate strategy, capital allocation, risk management and reporting. The change is especially visible in jurisdictions that are replacing fragmented voluntary sustainability narratives with standardised sustainability-related financial disclosure. Malaysia provides an important setting for examining this transition because it combines an emerging-market capital market, a substantial Islamic finance ecosystem, globally integrated manufacturing and commodity supply chains, a large micro, small and medium enterprise sector, and an increasingly formal sustainability-reporting architecture. The country's National Sustainability Reporting Framework (NSRF), launched in September 2024, establishes the IFRS Sustainability Disclosure Standards issued by the International Sustainability Standards Board (ISSB) as the baseline for sustainability disclosure in Malaysia (Securities Commission Malaysia [SC], 2024a). The resulting transition changes the core question from whether companies should talk about sustainability to how consistently, comparably and credibly they can explain sustainability-related risks and opportunities that affect enterprise prospects.

The transition is occurring against a mixed empirical backdrop. Internationally, Friede, Busch and Bassen (2015) synthesised more than 2,000 empirical studies and reported that the large majority found a non-negative relationship between ESG and corporate financial performance. Eccles, Ioannou and Serafeim (2014) similarly found that firms with long-established sustainability policies developed distinctive governance and management processes and outperformed matched low-sustainability firms over the long term. Khan, Serafeim and Yoon (2016), however, demonstrated that materiality matters: investments in financially material sustainability issues were associated with stronger performance, whereas strong ratings on immaterial issues did not produce the same effect. Gillan, Koch and Starks (2021) concluded from a broad corporate-finance literature that ESG is associated with firm characteristics, risk and value, but that conflicting theories and findings remain unresolved. These studies caution against a simplistic conclusion that all ESG expenditure or all ESG disclosure automatically generates financial value.

Malaysia-specific evidence is equally nuanced. Atan et al. (2018), examining 54 Malaysian public listed companies using Bloomberg ESG information from 2010 to 2013, did not find a significant relationship between the individual or combined ESG factors and return on equity or Tobin's Q. In contrast, Wan Mohammad and Wasiuzzaman (2021) analysed 3,966 firm-year observations from 661 Bursa Malaysia companies and found that ESG disclosure was positively associated with firm performance, including after controlling for competitive advantage. Wong et al. (2021) found that Malaysian firms receiving ESG certification experienced a lower cost of capital and higher Tobin's Q, suggesting that external recognition may influence investor confidence. Yip and Lau (2024) reported a positive ESG-performance relationship among FTSE4Good Bursa Malaysia companies but found that the effect depended on firm-level conditions such as market capitalisation, liabilities and free cash flow. Most recently, Tareq, Ong and Abdul Halim (2026), using 338 Malaysian firms and 747 firm-year observations from 2018 to 2023, reported that ESG performance alone did not significantly improve firm outcomes and was negatively associated with market valuation in their specification, while FTSE4Good recognition strengthened the ESG-market performance relationship. The Malaysian literature therefore points to contingencies rather than a universal ESG premium.

This lack of uniformity increases the relevance of disclosure quality. A company can disclose extensively without disclosing decision-useful information. It can also demonstrate strong sustainability performance but fail to explain that performance in a way that investors can connect to future cash flows, risk and strategic resilience. Fatemi, Glaum and Kaiser (2018) found internationally that ESG strengths enhance value and weaknesses reduce it, but that disclosure modifies the valuation

consequences of both strengths and weaknesses. Khan et al. (2016) further suggest that materiality is critical. These insights support a distinction among ESG activity, ESG performance, ESG disclosure volume, disclosure quality and external credibility. Treating these concepts as interchangeable can obscure the mechanisms through which sustainability affects firm value.

Sustainability assurance is one mechanism for addressing credibility concerns. Assurance can increase confidence that reported metrics, processes and claims are supported by appropriate evidence and controls. Yet sustainability assurance is itself an evolving professional field. Yan et al. (2022) conceptualise assurance as a process involving provider selection, identification, screening, validation and evaluation, highlighting that assurance quality depends on far more than the existence of an assurance statement. Boiral et al. (2024) show that market participants can remain sceptical about assurance when verification practices are vague, expertise is limited, costs are high or underlying ESG data remain unreliable. This is particularly relevant in Malaysia because the assurance timetable is being phased with the NSRF. On 17 September 2026, the Advisory Committee on Sustainability Reporting announced that mandatory reasonable assurance over Scope 1 and Scope 2 greenhouse-gas disclosures for Group 1 entities would commence for reporting periods beginning on or after 1 January 2028 rather than 2027, with Group 2 and Group 3 also shifted by one year (SC, 2026). The announcement followed a review of the first cohort of 91 Group 1 issuers reporting under ISSB-aligned requirements, which identified the need for further improvement in disclosure quality. The decision is significant: it recognises that assurance quality ultimately depends on reporting maturity, evidence, systems and controls.

This paper addresses four related questions. First, how has Malaysia's ESG reporting architecture evolved from broad sustainability disclosure toward ISSB-aligned sustainability-related financial reporting? Second, what does Malaysian empirical evidence suggest about the relationship between ESG and firm value or financial performance? Third, how do greenwashing risk, board governance and sustainability assurance affect the credibility of that relationship? Fourth, what conceptual and empirical research agenda is most relevant during the NSRF implementation period? To answer these questions, the paper uses a critical review of academic literature and Malaysian regulatory sources and develops a conceptual framework integrating stakeholder theory, signalling theory, agency theory, and resource-based and dynamic capability perspectives.

The paper makes three contributions. First, it updates the Malaysian ESG discussion to reflect the NSRF and the September 2026 assurance decision. Second, it distinguishes ESG performance from ESG disclosure quality, helping to explain why empirical findings differ across samples, measures and periods. Third, it develops a Malaysia-specific conceptual framework that integrates board governance, assurance, greenwashing risk and MSME supply-chain implications. The empirical literature reviewed in this paper does not establish that ESG inevitably creates value; rather, it identifies mixed and conditional associations. The proposed relationships in Section 7 are therefore conceptual propositions for future empirical testing.

2. ESG in the Malaysian Corporate and Economic Context

Malaysia's ESG landscape must be interpreted within the structure of its economy and capital market. The country is deeply integrated into regional and global supply chains, especially in electrical and electronics manufacturing, commodities, energy, financial services and increasingly digital industries. Such integration creates exposure to external sustainability expectations, including emissions reporting, labour standards, supply-chain due diligence, responsible sourcing and investor screening. For an export-oriented economy, ESG capability is therefore linked not only to domestic regulation but also to continued access to international customers, financing and investment.

Bursa Malaysia has developed sustainability requirements progressively. The exchange's Sustainability Reporting Guide explains the business case for embedding sustainability and provides guidance for listed corporations preparing their Sustainability Statements in accordance with the Listing Requirements (Bursa Malaysia, 2022). The enhanced framework introduced common material sustainability matters such as anti-corruption, community and society, diversity and inclusion, energy management, health and safety, labour practices and standards, supply-chain management, data privacy and security, water, waste and emissions management. It also emphasised indicators, targets and multi-year data. This represented a move away from purely narrative disclosure toward comparable performance information.

Corporate governance is another central component of Malaysia's ESG system. The Malaysian Code on Corporate Governance 2021 strengthened expectations regarding board and senior-management responsibility for sustainability risks and opportunities (SC, 2021a). It also recommends that boards comprise at least 30 per cent women directors and expects boards below that level to explain concrete actions and timeframes. These provisions connect the 'G' in ESG directly to the quality of environmental and social oversight. ESG reporting is not merely a communication function; it depends on governance structures capable of challenging assumptions, defining risk appetite, allocating capital and monitoring performance.

Malaysia's financial-sector climate architecture further expands ESG expectations. Bank Negara Malaysia's Climate Change and Principle-based Taxonomy (CCPT) provides a framework for financial institutions to assess and classify economic activities in relation to climate mitigation, adaptation and transition (BNM, 2021). The Climate Risk Management and Scenario Analysis policy document sets principles and requirements for financial institutions to strengthen resilience against climate-related risks and facilitate an orderly transition (BNM, 2022b; revised 2025). Through financing decisions, credit assessment and engagement, financial institutions can transmit sustainability expectations to borrowers that are not themselves publicly listed.

Recent events underline that climate disclosure is becoming more operational. In September 2026, the Securities Commission indicated that it intended to seek information from major listed companies on their preparedness for El Nino conditions, reflecting concern about drought and heat exposure, including in the palm-oil sector (Reuters, 2026). The example is useful because it demonstrates what investor-useful climate reporting should accomplish. A generic statement that climate change is a risk is of limited decision value. Investors need to understand exposure, sensitivity, adaptation measures, financial effects, scenario assumptions and the resilience of strategy. IFRS S2's governance, strategy, risk management, metrics and targets architecture is designed to push disclosures in this direction.

This broad institutional ecosystem means that ESG in Malaysia should not be viewed as a single regulation. It is an interlocking system involving capital-market disclosure, board governance, banking supervision, taxonomies, climate-risk management, index recognition, carbon markets, national energy transition, supply chains and SME capability building. The NSRF sits at the centre of the reporting layer, but the quality of its implementation will depend on how these components interact.

Table 1. Key Malaysian ESG reporting and governance milestones

Year	Milestone	Why it matters for this paper
2021	Malaysian Code on Corporate Governance (MCCG) updated to strengthen board leadership and oversight of sustainability.	Provides the governance foundation linking board accountability with ESG oversight and disclosure quality.

2022	Bursa Malaysia issued the 3rd edition of the Sustainability Reporting Guide and enhanced climate-related reporting expectations.	Signals the transition from broad narrative sustainability reporting toward more structured metrics and climate information.
2024	National Sustainability Reporting Framework (NSRF) launched, using IFRS S1 and IFRS S2 as the baseline sustainability disclosure standards in Malaysia.	Creates the core institutional setting for analysing disclosure quality, greenwashing risk and firm-value implications.
2025	ACSR/SC issued board-transition guidance and a practical approach to non-compliance during the reporting transition.	Shows that implementation depends on capability-building, governance maturity and regulatory supervision.
2026	Mandatory reasonable assurance for Scope 1 and Scope 2 GHG disclosures was deferred, with Group 1 taking effect in 2028.	Highlights that data quality and reporting-system readiness remain central concerns under Malaysia's ESG regime.

Source: Compiled by the author from Securities Commission Malaysia (2021a, 2021b, 2024a, 2025a, 2025b, 2026) and Bursa Malaysia (2022).

Table 1 summarises the main milestones that shape the Malaysian ESG environment discussed in this paper. Together, these milestones show that Malaysia's ESG architecture has evolved incrementally rather than through a single rule change.

3. From Sustainability Narratives to the National Sustainability Reporting Framework

The launch of the NSRF on 24 September 2024 marked a major change in Malaysia's sustainability-reporting architecture. The framework uses IFRS S1 and IFRS S2 as the baseline for sustainability-related financial disclosures and was designed to improve consistency, comparability and reliability for investors and other stakeholders (SC, 2024a). Malaysia thereby aligned itself with a growing global movement toward ISSB-based reporting. The IFRS Foundation reports that jurisdictions across major regions are adopting or otherwise using the ISSB Standards, with Malaysia included among jurisdictions for which a formal profile has been published (IFRS Foundation, 2026a).

The distinction between conventional sustainability reporting and sustainability-related financial disclosure is important. Broad sustainability reporting can address an organisation's impacts on people, society and the environment from multiple stakeholder perspectives. IFRS S1 and IFRS S2 focus specifically on information material to users of general-purpose financial reports when they decide whether to provide resources to an entity. Under IFRS S1, material sustainability-related risks and opportunities are those that could reasonably be expected to affect cash flows, access to finance or cost of capital over time (IFRS Foundation, 2023a). IFRS S2 applies this logic to climate-related risks and opportunities and builds on the governance, strategy, risk-management, metrics-and-targets structure associated with the Task Force on Climate-related Financial Disclosures (IFRS Foundation, 2023b).

The NSRF adopts a phased approach. Large Main Market listed issuers with market capitalisation of RM2 billion and above began using the ISSB Standards from 2025 as Group 1. Other Main Market issuers follow as Group 2 from 2026, while ACE Market issuers and large non-listed companies with annual revenue of RM2 billion and above enter as Group 3 from 2027 (SC, 2024a, 2025a). The phase-in acknowledges that readiness varies substantially across the corporate sector. Group 1 companies generally have more sophisticated governance, investor-relations functions, data systems and access to

professional support than smaller issuers, although even large firms face significant challenges in producing connected and assured sustainability-related information.

The climate-first approach is particularly significant. Malaysia chose to begin with climate disclosures before expanding to the full range of sustainability-related topics. This reflects both investor demand and the relative maturity of climate reporting under existing Bursa Malaysia and BNM requirements. It also recognises that climate is an unusually cross-functional risk. Emissions data may be managed by sustainability teams, energy data by operations, capital expenditure by finance, physical-risk data by risk management, insurance exposure by treasury and supply-chain emissions by procurement. IFRS S2 requires these data streams to support a coherent explanation of climate-related risks and opportunities and their effects on strategy and financial prospects.

The framework also changes the expected role of boards. The SC's 2025 guidance for boards emphasises governance, sustainability data boundaries, financial impact assessments and integration with enterprise risk management (SC, 2025a). This is consistent with the MCCG's earlier emphasis on board responsibility for sustainability (SC, 2021a). The progression is important: boards are expected not simply to approve a sustainability report but to understand the systems that produce sustainability information and the strategic assumptions behind it. Questions about emissions boundaries, scenario analysis, materiality, transition plans and targets can affect investment decisions, financing and risk appetite. Therefore, ESG oversight increasingly resembles oversight of other financially relevant corporate information.

The evolution toward standardised metrics can improve comparability but also exposes data-quality weaknesses. Bursa Malaysia's Sustainability Reporting Guide already requires listed corporations to manage and report material sustainability matters, use indicators and provide multi-year performance data as requirements phase in (Bursa Malaysia, 2022). The ISSB framework increases expectations around connectivity to financial reporting. A climate target, for example, should not exist in isolation from capital expenditure, asset lives, impairment assumptions, procurement strategy or financing plans if those financial elements are affected by the target. The discipline of connectivity can reveal inconsistencies between public sustainability commitments and internal resource allocation.

This shift has implications for the concept of materiality. In ESG debates, companies sometimes disclose what is easiest to measure or most favourable to communicate. IFRS S1 instead asks whether information could reasonably be expected to influence decisions of users of general-purpose financial reports. Khan et al. (2016) provide important empirical support for the economic relevance of financially material sustainability topics. Their study found stronger performance associations for material sustainability issues than for immaterial ones. In Malaysia, a disciplined materiality process can therefore help firms avoid both under-disclosure of financially important risks and overproduction of low-value narrative information.

A critical issue is Scope 3 emissions. Scope 1 emissions arise from sources owned or controlled by the company, while Scope 2 relates to purchased energy; Scope 3 covers other value-chain emissions. For many businesses, Scope 3 is the largest category but also the most difficult to measure because it depends on suppliers, customers, transport, product use, waste and other external data. Malaysia's decision to phase Scope 3 requirements reflects the complexity of obtaining reliable data. The challenge is especially acute for companies with large supplier networks of MSMEs. As a result, ESG capability-building must extend beyond the reporting entity. Programmes such as BNM's Greening Value Chain initiative and SME Corp's ESG tools can be viewed as enabling infrastructure for future corporate reporting rather than isolated SME programmes (BNM, 2022a, 2023; SME Corporation Malaysia, 2024).

Sustainability assurance adds another layer of discipline. Assurance is intended to increase confidence in reported information, but the value of assurance depends on the maturity of data, methodologies and

controls. Malaysia's September 2026 assurance decision is therefore instructive. The ACSR deferred mandatory reasonable assurance over Scope 1 and Scope 2 greenhouse-gas disclosures for Group 1 entities to reporting periods beginning on or after 1 January 2028; Group 2 and Group 3 requirements move to 2029 and 2030 respectively (SC, 2026). The decision followed a review of the first 91 Group 1 listed issuers applying the ISSB Standards and recognised that disclosure quality requires further improvement. The deferral should not be interpreted as a retreat from assurance. Rather, it highlights that credible assurance cannot compensate for weak data architecture or immature reporting processes.

The NSRF thus creates both opportunity and pressure. The opportunity lies in reducing fragmentation and allowing Malaysian companies to communicate sustainability-related financial risks and opportunities in a globally recognisable format. This can support investor comparison, access to capital and strategic discipline. The pressure arises because high-quality ISSB reporting is resource-intensive and exposes weaknesses in data, governance and enterprise integration. The next sections examine why these implementation differences matter for firm value, greenwashing risk and the credibility of ESG claims.

Table 2. NSRF phased implementation and sustainability assurance schedule

Reporting cohort	First mandatory ISSB/NSRF reporting year	Scope 3 transition relief	First mandatory reasonable assurance year for Scope 1 & 2 GHG disclosures
Group 1: Main Market listed issuers with market capitalisation of RM2 billion and above	2025	Deferred beyond the initial climate-first phase under NSRF transition reliefs	2028
Group 2: Other Main Market listed issuers	2026	Deferred beyond the initial climate-first phase under NSRF transition reliefs	2029
Group 3: ACE Market listed issuers and large non-listed companies (annual revenue of RM2 billion and above)	2027	Deferred beyond the initial climate-first phase under NSRF transition reliefs	2030

Source: Securities Commission Malaysia (2024b, 2026).

The phased schedule in Table 2 clarifies that Malaysia is combining an early move to ISSB-based reporting with a more gradual transition to mandatory reasonable assurance. This sequencing is central to the paper's argument that disclosure quality depends on both regulatory ambition and organisational readiness.

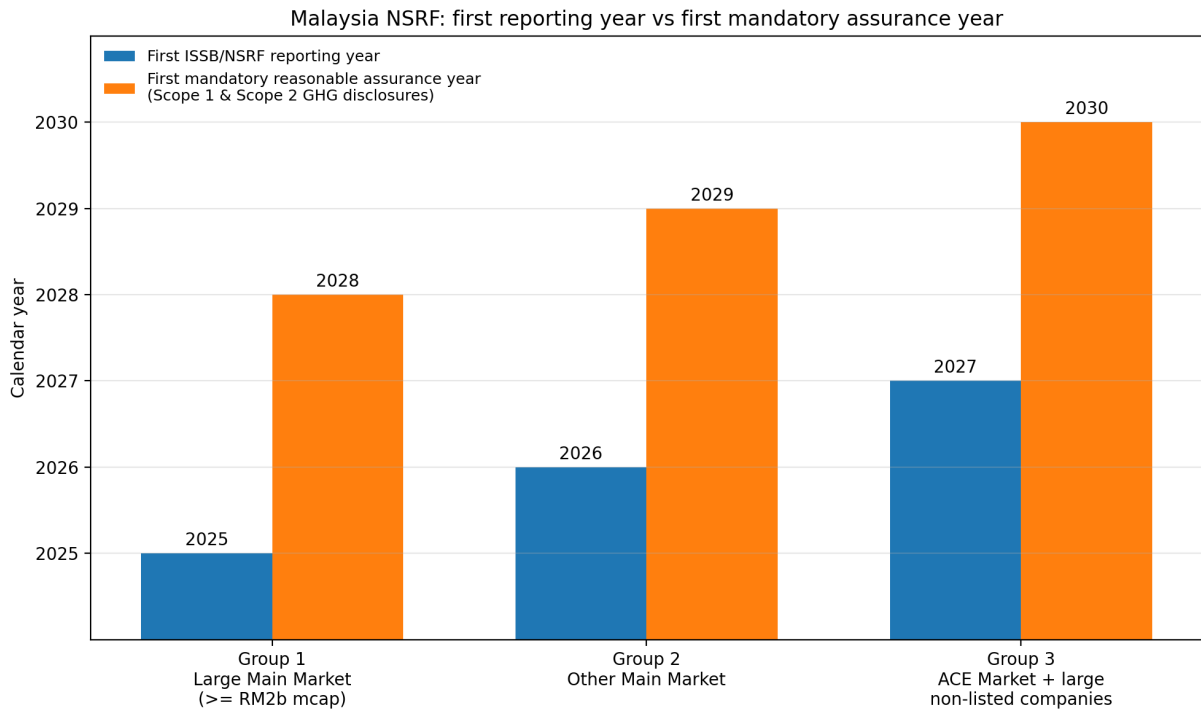


Figure 1. Malaysia NSRF: reporting and assurance schedule by reporting cohort

Source: Author-generated chart based on Securities Commission Malaysia (2024b, 2026).

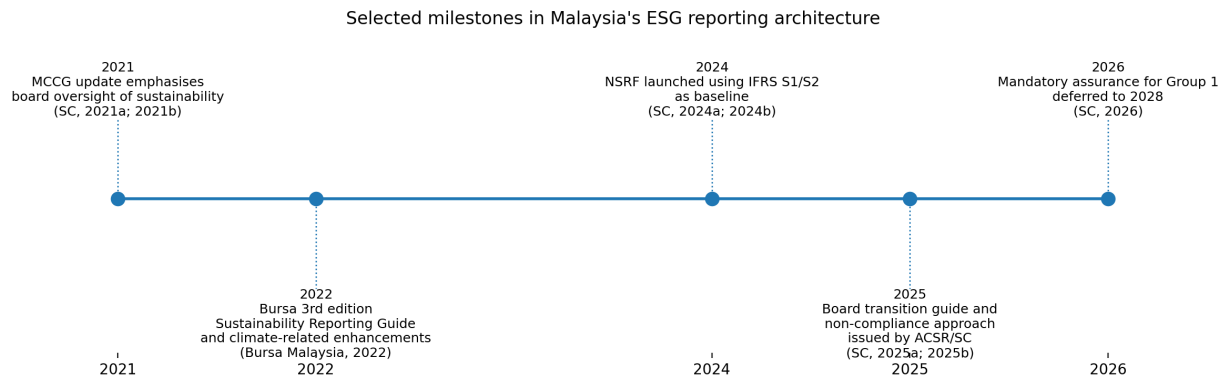


Figure 2. Selected milestones in Malaysia's ESG reporting architecture

Source: Author-generated timeline based on Securities Commission Malaysia (2021a, 2021b, 2024a, 2025a, 2025b, 2026) and Bursa Malaysia (2022).

4. Theoretical Foundations for Understanding ESG Disclosure Quality and Firm Value

The relationship between ESG disclosure and firm value is theoretically complex because sustainability reporting can serve several functions at the same time. It can reduce information asymmetry, respond to stakeholder demands, signal superior management quality, protect organisational legitimacy, satisfy institutional pressure or, in less favourable cases, provide symbolic communication without equivalent operational change. No single theory fully explains these possibilities. A multi-theoretical perspective is therefore more appropriate for the Malaysian setting.

4.1 Stakeholder theory

Stakeholder theory begins from the idea that firms depend on relationships with multiple constituencies rather than shareholders alone. Employees, customers, suppliers, regulators, communities, lenders and

investors can all affect the firm's ability to create and preserve value. ESG issues are particularly compatible with this perspective because environmental and social externalities can alter the quality of stakeholder relationships and ultimately affect reputation, operating continuity and access to resources. In Malaysia, stakeholder pressure can come from domestic regulators, international customers, institutional investors, Islamic capital-market participants, banks and multinational supply chains.

From a stakeholder perspective, high-quality ESG disclosure can strengthen relationships by reducing uncertainty about how the company manages material sustainability matters. For employees, social disclosures may reveal health and safety performance, labour practices or diversity. For lenders, climate and transition information can affect risk assessment. For customers, responsible sourcing or emissions data may influence supplier selection. For regulators, data quality affects confidence that sustainability rules are being implemented meaningfully. The value of disclosure therefore depends not only on quantity but on whether it addresses stakeholder information needs in a credible way.

4.2 Signalling theory

Signalling theory is especially useful for understanding ESG disclosure in capital markets. Managers possess information about organisational quality, risk management and future prospects that outside investors cannot observe directly. Disclosure can reduce this information gap, but only if the signal is sufficiently costly or credible to distinguish stronger firms from weaker ones. ESG disclosure that consists of generic statements may be a weak signal because almost any firm can produce such language. Quantified targets, consistent time-series data, external ratings and assurance can make signals more credible.

This logic is consistent with Malaysian evidence. Wong et al. (2021) found that ESG certification was associated with lower cost of capital and higher Tobin's Q among Malaysian firms, suggesting that external recognition may provide information beyond voluntary self-reporting. Tareq et al. (2026) similarly found that F4GBM inclusion strengthened the ESG-market performance relationship. Under signalling theory, external recognition can reduce uncertainty because investors do not have to rely solely on corporate claims. Assurance can perform a similar role when it verifies metrics or reporting processes.

However, signalling theory also explains why greenwashing is damaging. If sustainability claims are later shown to be exaggerated or inconsistent with performance, the signal loses credibility. Market participants may then discount not only the disputed statement but also future ESG disclosures from the firm. Zhou (2024) found that environmental disclosure greenwashing can reduce the valuation premium associated with environmental information through diminished market trust. In this sense, greenwashing is not merely an ethical concern; it can undermine the economic function of disclosure.

4.3 Agency theory

Agency theory focuses on conflicts between managers and providers of capital and the role of monitoring and disclosure in reducing agency costs (Jensen & Meckling, 1976). ESG creates several possible agency problems. Managers may underinvest in long-term sustainability because benefits occur beyond their performance horizon. Alternatively, managers may overinvest in visible ESG initiatives that improve personal reputation but do not create shareholder value. They may also selectively disclose favourable outcomes and hide adverse information. Effective governance is therefore necessary to ensure that sustainability strategy and reporting are aligned with long-term organisational interests.

Board independence and expertise are central in this framework. Kamaludin et al. (2022) found that board independence and board diversity were positively associated with ESG disclosure among Malaysian companies. The MCG 2021 also strengthens the board's role in sustainability oversight (SC,

2021a). A board capable of questioning management assumptions can improve the quality of ESG targets, challenge unsupported claims and ensure that sustainability investments are connected to strategy and risk.

4.4 Resource-based and dynamic capability perspectives

The resource-based view and dynamic capabilities perspective offer a strategic interpretation. ESG capability can be treated as an organisational competence involving data systems, board oversight, cross-functional coordination, stakeholder engagement and the ability to adapt strategy as sustainability risks evolve. Eccles et al. (2014) found that high-sustainability companies developed distinctive organisational processes such as board oversight, stakeholder engagement and long-term orientation. These capabilities can be difficult to imitate because they depend on routines, culture and coordination rather than a single policy.

Together, these theories provide complementary conceptual mechanisms through which ESG disclosure may be related to firm value. Disclosure may reduce information asymmetry and signal management quality, stakeholder trust may protect important operating relationships, governance and assurance may constrain opportunistic disclosure, and organisational capabilities may influence whether sustainability commitments are translated into operational action. These mechanisms organise the literature review and motivate the propositions developed later; they are not empirical findings established by this paper.

5. Review of Empirical Evidence in Malaysia

5.1 ESG disclosure and corporate financial performance

The Malaysian empirical literature does not support a single unconditional relationship between ESG and financial performance. Atan et al. (2018) found no significant association between individual or aggregate ESG factors and profitability or firm value for 54 Malaysian public listed companies over 2010-2013. Their findings are important because they challenge the assumption that ESG automatically improves accounting returns or market valuation. The period studied also preceded many of Malaysia's more recent sustainability-reporting reforms, which means ESG information and investor awareness were less mature than today.

Wan Mohammad and Wasiuzzaman (2021) reached a more positive conclusion using a much larger sample of 3,966 firm-year observations from 661 Bursa Malaysia companies for 2012-2017. They found that ESG disclosure improved firm performance even after controlling for competitive advantage and reported a positive relationship between environmental disclosure and firm performance. Their study supports the view that transparency and sustainability engagement can contribute to value creation in an emerging market. However, the authors also highlight the importance of context and financing incentives, suggesting that policy design can influence the economic consequences of ESG adoption.

Wong et al. (2021) examined third-party ESG certification and found that Malaysian firms experienced a reduction in cost of capital and an increase in Tobin's Q after receiving ESG ratings. The study is particularly relevant to disclosure credibility because certification introduces an external evaluative layer. It suggests that investors may value not just corporate sustainability activity but also the reduction in information uncertainty provided by external recognition.

Yip and Lau (2024) add important nuance. Using 72 F4GBM companies from 2014 to 2022, they found a positive and significant relationship between ESG practice and firm performance, but the benefits were conditional. The positive effect was stronger among firms with high market capitalisation and high free cash flow, while higher liabilities reduced the positive impact. This suggests that ESG strategies may

require financial slack and organisational capacity. Firms under financial pressure may find it harder to convert sustainability initiatives into observable market benefits.

The most recent evidence reinforces the importance of contingencies. Tareq et al. (2026) analysed 338 Bursa Malaysia firms from 2018 to 2023 and found that ESG performance by itself did not significantly improve financial outcomes and was negatively associated with market valuation in their model. They found that F4GBM index recognition positively moderated the ESG-Tobin's Q relationship, while Shariah compliance did not significantly moderate it. Their findings are useful because they demonstrate that the Malaysian ESG-value relationship remains dynamic even after sustainability reporting became more prominent.

Taken together, the literature suggests at least five reasons for mixed results. First, studies use different ESG measures, including Bloomberg scores, disclosure indexes, composite ratings and index membership. Second, performance measures differ, with studies using ROA, ROE, Tobin's Q, cost of capital or market returns. Third, sample periods span major regulatory changes, making older and newer observations institutionally different. Fourth, firm characteristics such as size, leverage and cash flow affect the ability to implement ESG. Fifth, disclosure credibility and external recognition can change how investors interpret ESG information. These factors support a research focus on disclosure quality rather than only aggregate ESG scores.

5.2 Board governance and ESG outcomes

Governance is both one pillar of ESG and a mechanism through which environmental and social performance is managed. Malaysia's regulatory architecture places substantial responsibility on boards, particularly after the MCGG 2021 strengthened sustainability oversight expectations (SC, 2021a). Empirical studies generally support a connection between board characteristics and ESG disclosure, although individual proxies do not produce consistent findings.

Kamaludin et al. (2022) studied Malaysian listed companies over 2006-2020 and found that board independence and gender diversity significantly enhanced ESG disclosure, while greater board meeting frequency was negatively related to disclosure. Their sectoral and time analyses indicated that board effects became more pronounced after sustainability regulation strengthened. The finding on meeting frequency demonstrates why observable governance structures can be imperfect proxies: more meetings may indicate stronger oversight, but they may also reflect inefficiency or crisis response.

Latif et al. (2020) examined board diversity and environmental reporting in Malaysia and found that some dimensions of board composition and firm characteristics influenced environmental disclosure, while disclosure itself did not necessarily predict future performance. The study demonstrates that governance affects ESG reporting through multiple channels and that stronger disclosure does not guarantee immediate financial consequences.

The practical implication is that governance quality should be measured in substantive terms. Relevant variables may include whether sustainability responsibility is explicitly assigned to the board; the existence and composition of a sustainability committee; director climate or ESG expertise; integration of sustainability into enterprise risk management; executive remuneration linked to material ESG targets; and the quality of board challenge over targets and assumptions. These measures may explain disclosure quality better than board size or meeting counts alone.

5.3 Climate disclosure and investor response

Climate-related reporting has become one of the most financially significant elements of ESG in Malaysia. Pandey, Al-ahdal, Moussa and Hashim (2025) studied the stock-market reaction to Bursa Malaysia's announcement of mandatory climate-related disclosure using 412 listed firms. They

documented an initial negative market reaction and evolving cumulative effects across the event window. The study does not identify a single cause for the reaction; the observed market response may reflect expectations about compliance costs, transition risk, information revelation or future strategic adjustments.

5.4 Greenwashing and disclosure credibility

Kishan and Azhar (2025) provide one of the most relevant Malaysia-specific studies. They examined two forms of greenwashing, readability and tone, in 292 firm-year sustainability reports from Malaysian companies that remained among the top 100 by market capitalisation from 2019 to 2022. Their findings did not support the proposition that inferior sustainability performers systematically produced more readable or misleadingly positive reports. This evidence is valuable because it tempers generalised accusations of greenwashing in Malaysian corporate reporting.

At the same time, their study explicitly focuses on two forms of greenwashing, leaving other forms for future research. For example, firms may disclose emissions intensity while absolute emissions rise, highlight renewable-energy purchases without explaining total energy demand, or announce long-term net-zero targets without interim capital-allocation plans. They may also change reporting boundaries or measurement methods in ways that complicate year-to-year comparison. Under ISSB-aligned reporting, these issues become material because investors need consistent information connected to enterprise prospects.

5.5 Sustainability assurance and ESG data quality

Malaysia has experience with voluntary sustainability assurance, but the NSRF introduces a more structured path toward mandatory assurance. Earlier Malaysian research by Janggu et al. (2013) examined assurance statements and found variability in reporting practices, although assurance providers performed several validation activities. That early evidence foreshadowed the present challenge: the existence of an assurance statement does not by itself guarantee comparability or high assurance quality.

SC (2026) reported that its review of the first 91 Group 1 reporters identified areas where disclosure quality required further improvement and that mandatory reasonable assurance would be deferred. This regulatory evidence is established. The interpretation offered in this paper is that the deferral signals the importance of reporting maturity, evidence, systems and controls before reasonable assurance becomes mandatory. Accordingly, the recommendation that companies strengthen controls before the assurance deadline is a practical implication of the review rather than an empirically tested effect.

5.6 ESG, Shariah compliance and Islamic finance

Malaysia's Islamic capital market creates a distinctive research setting because Shariah-compliant status and ESG can interact without being equivalent. Both frameworks value ethical behaviour and social responsibility, but ESG includes topics that are not fully captured by Shariah screening. A company may be Shariah-compliant while still having weak emissions management, board diversity, cybersecurity, labour practices or climate-risk governance. Conversely, a strong ESG company may not qualify as Shariah-compliant because of its business activities or financial ratios.

Nik Asni et al. (2024) found a positive relationship between ESG disclosure and firm performance and reported that Shariah-compliant status strengthened this relationship in their Malaysian sample. Lee (2024) similarly found that Shariah screening positively moderated the corporate sustainability practice-financial performance relationship, although corporate controversies weakened the relationship. Ma'in et al. (2025), examining Malaysian Shariah-listed companies over 2010-2021,

reported that ESG did not significantly affect market performance measured by Tobin's Q, while environmental performance was more relevant to ROA. Tareq et al. (2026) did not find a significant moderating role for Shariah compliance.

5.7 ESG and Malaysian MSMEs

The policy challenge is proportionality. Large-company reporting requirements cannot simply be imposed on micro and small firms without considering capacity and cost. At the same time, excluding MSMEs entirely would weaken value-chain data and could reduce their competitiveness in export markets. A tiered approach is therefore necessary: simplified metrics, common templates, digital tools and transition finance can help suppliers respond to customer requests without creating excessive administrative burden. BNM's Greening Value Chain programme is an example of this enabling approach because it combines technical guidance, emissions measurement and financing support (BNM, 2022a, 2023).

Table 3. Selected findings from Malaysian ESG studies reviewed in this paper

Study	Sample / context	Main finding	Implication for this paper
Atan et al. (2018)	54 Malaysian PLCs	No significant relationship was found between individual or aggregate ESG factors and ROE or Tobin's Q.	Challenges the assumption of a universal positive ESG-performance relationship.
Wan Mohammad & Wasiuzzaman (2021)	3,966 firm-year observations in Malaysia	ESG disclosure, competitive advantage and firm performance were positively associated.	Indicates that disclosure and strategic positioning may be associated with firm performance.
Wong et al. (2021)	Malaysian firms with ESG certification	ESG certification was associated with a lower cost of capital and higher Tobin's Q.	Highlights the potential signalling and credibility role of external ESG recognition.
Yip & Lau (2024)	72 FTSE4Good Bursa Malaysia companies, 2014-2022	ESG practice was positively associated with firm performance, with effects conditioned by market capitalisation, liabilities and free cash flow.	Shows that observed ESG-performance associations vary with firm-level conditions.
Kishan & Azhar (2025)	Malaysia sustainability-reporting context	The study did not find that inferior sustainability performers systematically produced more readable or misleadingly positive reports; it examined readability and tone as two forms of greenwashing risk.	Tempers generalised greenwashing claims and supports cautious, multi-indicator measurement of greenwashing risk.

Tareq et al. (2026)	338 Bursa Malaysia firms	ESG performance alone did not significantly improve financial outcomes and was negatively associated with market valuation in the study's specification; F4GBM recognition strengthened the ESG-Tobin's Q relationship, while Shariah compliance did not significantly moderate it.	Reinforces that ESG-value relationships are conditional and depend on the measure and institutional context.
------------------------	-----------------------------	---	--

Source: Compiled by the author from the studies cited in the paper.

Table 3 reports selected published empirical findings reviewed in Section 5. It does not establish a single causal relationship between ESG and firm value. The evidence is mixed: some studies report positive associations, while others report insignificant or conditional relationships. This mixed pattern provides the empirical basis for developing, but not confirming, the conceptual propositions in Section 7.

6. Critical Discussion: Opportunities and Challenges under the NSRF

6.1 Improving decision usefulness rather than increasing report volume

This section presents an interpretive synthesis of the reviewed literature and regulatory material; it does not report new empirical tests. The central opportunity created by the NSRF is greater decision usefulness rather than simply more ESG disclosure. Under IFRS S1 and IFRS S2, sustainability information is expected to be connected to enterprise prospects and useful to investors, lenders and other providers of capital (IFRS Foundation, 2023a, 2023b). This supports reporting that explains how material sustainability matters relate to strategy, risk, financing and financial planning.

Decision-useful disclosure should be specific. Where material, companies should identify the relevant physical or transition risk, time horizon, affected assets or operations, management response, key assumptions and expected financial effects. Likewise, workforce disclosures are more informative when supported by trend data on matters such as safety, turnover, training and critical skills rather than generic statements.

Preparing connected ISSB-aligned disclosure also requires coordination across finance, sustainability, risk, operations, legal, procurement, investor relations, human resources and internal audit. In this conceptual synthesis, such integration may improve internal consistency and decision-making when sustainability information is embedded in existing planning and risk processes.

6.2 Data architecture and internal controls

Data quality is a practical challenge because ESG information often originates from different systems, business units and third parties. Energy, emissions, workforce and supplier data may be produced using different sources and methods; without common definitions, ownership and controls, consolidation can become inconsistent.

A sustainability data architecture should therefore define material metrics, data owners, source systems, frequency, calculation methods, units, reporting boundaries, approvals and evidence requirements. Methodology changes should be documented, estimates distinguished from measured data, and reconciliations used where sustainability metrics connect with financial or operational information.

The 2026 assurance deferral provides additional preparation time. The reviewed regulatory material indicates that disclosure quality still requires improvement, so companies can use the transition period to strengthen evidence, controls and documentation before mandatory reasonable assurance over Scope 1 and Scope 2 emissions takes effect.

6.3 Scope 3 and supply-chain readiness

A potential competitiveness implication concerns value-chain data. Suppliers that can provide credible carbon and ESG information may be better positioned to respond to customers facing sustainability requirements. For Malaysian MSMEs, this suggests that practical support should connect sustainability reporting with procurement, energy management, financing and export requirements rather than treating it as stand-alone compliance.

6.4 The cost-benefit challenge

ESG implementation requires resources for activities such as systems, assurance, energy efficiency, governance and supply-chain assessment, while potential benefits may arise through risk management, operational savings, market access, reputation or financing. Because these costs and benefits vary by firm and issue, the literature does not support assuming an immediate or uniform financial return from all ESG investment.

Tareq et al. (2026) reported that ESG performance was associated with weaker market valuation in some specifications, while Yip and Lau (2024) found that market capitalisation, liabilities and free cash flow conditioned ESG-performance relationships. These findings support a materiality-based approach that prioritises sustainability issues most closely connected to business resilience, stakeholder expectations and financial outcomes.

This interpretation is consistent with Khan et al. (2016), who found stronger performance associations for financially material sustainability issues. The specific material issues will differ by industry; for example, a plantation company and a bank would not be expected to prioritise identical ESG topics.

6.5 Greenwashing, legal risk and communication discipline

From a communication perspective, stronger reporting expectations create a need for evidence-based claims. Environmental statements should specify boundaries, baselines, methodology and limitations, while targets should distinguish aspirations from committed plans. Carbon-neutrality claims should also explain the role of actual emissions reductions and offsets.

Malaysia's Bursa Carbon Exchange provides infrastructure for voluntary carbon credits and renewable energy certificates, including a Shariah-compliant market design (Bursa Carbon Exchange, 2025). In this paper's policy interpretation, companies using offsets should explain their quantity, quality, standard, vintage and role within the wider transition plan so that users can distinguish internal reductions from offset use.

Kishan and Azhar (2025) did not find that inferior sustainability performers systematically used more readable or misleadingly positive reporting in the sample they studied. Their findings therefore should not be used as evidence of widespread greenwashing in Malaysia. At the same time, the study focused on readability and tone, leaving other forms of disclosure-performance inconsistency open for future research.

6.6 Assurance capacity and professional judgement

The transition toward sustainability assurance also raises a capability issue. Greenhouse-gas accounting, climate scenarios, biodiversity, human capital and supply-chain metrics involve different

technical disciplines, so assurance engagements may require multidisciplinary expertise in addition to assurance methodology.

SC (2026) linked the assurance deferral to the need for further improvement in disclosure quality. This supports the practical interpretation that assurance readiness depends on consistent criteria, transparent assumptions, documented methodologies and sufficiently mature reporting systems.

Boards and audit committees should therefore understand what information is assured, the assurance level, the applicable standard and any exclusions. Limited assurance is not equivalent to reasonable assurance, and assurance over selected indicators is not assurance over an entire sustainability report.

6.7 Integration with financial reporting

The NSRF and ISSB emphasis on connectivity requires sustainability-related financial information to be considered alongside financial reporting. Climate transition plans may affect asset lives, impairment, provisions, capital expenditure and financing, while physical and social risks may have operational and financial consequences.

Where a company describes a material sustainability risk but related financial assumptions appear inconsistent, users may question the coherence of reporting. Finance functions therefore have an important role in connecting sustainability information with planning, risk management and financial reporting.

6.8 Malaysia's opportunity as an emerging-market reporting leader

Future evaluation of Malaysia's NSRF implementation should therefore look beyond the number of compliant reports. Relevant indicators could include the comparability of disclosures, explanation of financial effects, board oversight, emissions-data reliability, internal controls, assurance readiness and the ability of MSMEs to provide value-chain information.

7. Proposed Conceptual Framework and Research Propositions

Based on the theoretical and empirical review, this paper proposes a conceptual framework in which ESG disclosure quality is linked to firm value through information asymmetry, stakeholder trust and perceived risk management. Sustainability assurance and governance quality are proposed as positive moderators, while greenwashing risk is proposed as a negative moderator. Firm characteristics and institutional conditions may also influence these relationships. These relationships are derived from theory and the reviewed evidence; they are not empirically tested in this paper.

7.1 ESG disclosure quality and firm value

Disclosure quality is defined here as the extent to which ESG information is material, specific, comparable, consistent, balanced, connected to strategy and financial effects, and supported by reliable data. Conceptually, high-quality disclosure may reduce information asymmetry by helping investors assess risks and opportunities more accurately. Signalling theory suggests that detailed and verifiable disclosure may provide a more credible signal than generic ESG communication, while stakeholder theory suggests that transparency may strengthen relationships with providers of capital and other stakeholders.

The reviewed Malaysian evidence is consistent with a positive relationship under some conditions but does not establish it universally. Wan Mohammad and Wasiuzzaman (2021), Wong et al. (2021), Raja Ahmad et al. (2023) and Yip and Lau (2024) report findings consistent with value benefits, whereas Atan et al. (2018) and Tareq et al. (2026) show insignificant, negative or conditional results depending

on the measure and specification. This mixed evidence motivates Proposition 1 rather than confirming it.

Proposition 1: Higher ESG disclosure quality is positively associated with firm value among Malaysian listed companies, after controlling for firm characteristics and underlying ESG performance.

7.2 Sustainability assurance as a credibility moderator

Theoretically, assurance may strengthen the value relevance of ESG disclosure by reducing uncertainty about data reliability. From a signalling perspective, credible assurance may increase the cost of unsupported claims; from an agency perspective, it may strengthen monitoring. However, the literature also indicates that assurance quality depends on scope, level, provider competence and underlying systems (Yan et al., 2022; Boiral et al., 2024).

Malaysia's staged assurance requirement creates a natural setting for future research. Researchers can compare pre-assurance, voluntary-assurance and mandatory-assurance periods, or compare firms that adopt assurance early with firms that wait until required. The 2026 deferral creates an additional institutional event that may affect preparation strategies.

Proposition 2: Sustainability assurance positively moderates the relationship between ESG disclosure quality and firm value, such that high-quality disclosure has a stronger valuation effect when it is subject to credible external assurance.

7.3 Greenwashing risk as a negative moderator

Conceptually, greenwashing risk may weaken the signalling value of ESG disclosure if users perceive sustainability communication as selective or exaggerated. The Malaysian evidence of Kishan and Azhar (2025) does not indicate systematic greenwashing through readability and tone in their sample, so it does not establish Proposition 3. International evidence from Zhou (2024) is consistent with the proposed mechanism that greenwashing can erode market trust.

Greenwashing risk can be operationalised through gaps between disclosure and performance, controversy indicators, abnormal positive tone, target-performance inconsistency, or changes in reporting boundaries. Under ISSB reporting, researchers could also examine whether stated climate commitments are consistent with capital expenditure and transition-plan disclosures.

Proposition 3: Greenwashing risk negatively moderates the relationship between ESG disclosure quality and firm value.

7.4 Board governance as an enabling mechanism

Board governance is proposed as an enabling mechanism because board oversight may influence whether ESG reporting is embedded in strategy and controls or treated mainly as communication. Malaysian evidence links board independence and diversity to ESG disclosure (Kamaludin et al., 2022), while the MCCG strengthens sustainability oversight expectations (SC, 2021a). These observations motivate, but do not empirically confirm, Proposition 4.

Proposition 4: Stronger board sustainability governance is positively associated with ESG disclosure quality and strengthens the relationship between ESG disclosure quality and firm value.

The conceptual model can therefore be summarised as follows: ESG disclosure quality is the central explanatory construct and firm value is the principal outcome; information asymmetry, stakeholder trust and risk perception are proposed mediating mechanisms; sustainability assurance and board governance are proposed positive moderators; greenwashing risk is a proposed negative moderator;

and firm characteristics, Shariah status, F4GBM recognition, industry and NSRF implementation phase are contextual moderators or controls. All proposed paths require empirical testing.

8. Recommended Methodology for an Empirical Malaysian Study

A future empirical study based on this framework could use Bursa Malaysia Main Market companies over a period covering both pre-NSRF and early NSRF implementation, for example 2022-2028 once sufficient post-adoption observations become available. If the research is undertaken earlier, a shorter period such as 2022-2026 could be used for exploratory analysis, with limitations clearly stated. Financial firms may be analysed separately because they are subject to additional BNM climate requirements and have distinctive balance-sheet structures.

8.1 Sample and data sources

The sample could include all non-financial Main Market firms with available annual reports, sustainability reports and financial data. ESG disclosure data could be collected manually through content analysis or sourced from a commercial database such as LSEG/Refinitiv where available. Financial variables can be obtained from annual reports, Bloomberg, LSEG, Capital IQ or Bursa Malaysia data services. F4GBM membership can be obtained from Bursa Malaysia and FTSE Russell materials. Shariah status can be collected from the Securities Commission's Shariah-compliant securities lists.

A hand-collected disclosure-quality index would offer greater research contribution than relying only on a third-party ESG score. The index could be aligned with IFRS S1 and IFRS S2 and include dimensions such as governance, strategy, risk management, metrics and targets, financial effects, scenario analysis, emissions, data comparability, target specificity, balance and connectivity with financial statements. Each criterion could be scored using a defined rubric. Inter-coder reliability should be tested if more than one researcher performs content analysis.

8.2 Variables

Firm value can be measured using Tobin's Q because it captures market expectations relative to asset value and is common in Malaysian ESG research (Atan et al., 2018; Yip & Lau, 2024; Tareq et al., 2026). Accounting performance measures such as ROA or ROE can be used for robustness testing. Cost of capital is another important outcome because IFRS S1 explicitly links sustainability risks and opportunities to access to finance and cost of capital.

The key independent variable would be ESG disclosure quality. Separate E, S and G quality indexes can also be constructed. Sustainability assurance can be coded by whether assurance exists, assurance level, provider type and scope. Greenwashing risk could be measured through divergence between ESG disclosure scores and performance indicators, controversy data, linguistic analysis or target-performance gaps. Board governance could include independence, gender diversity, ESG expertise, sustainability committee presence and meeting characteristics.

Control variables should include firm size, leverage, profitability, growth, industry, firm age and year effects. Free cash flow can be included because Yip and Lau (2024) show that financial slack affects ESG benefits. F4GBM inclusion should be included given the moderating result reported by Tareq et al. (2026). Shariah status can be tested separately rather than assumed to be uniformly beneficial.

8.3 Econometric approach

A baseline panel regression can estimate the association between disclosure quality and firm value while controlling for unobserved firm effects and year effects. Fixed-effects estimation is likely appropriate when time-invariant firm characteristics are correlated with ESG practices, although model

selection should be supported by diagnostic tests. Standard errors should be clustered at the firm level to address serial correlation and heteroskedasticity.

Endogeneity is a major concern because high-value firms may have more resources to invest in ESG reporting, creating reverse causality. Several strategies can be used. Lagged ESG variables can reduce simultaneity. Propensity-score matching can compare similar firms with different disclosure quality. Instrumental variables may be used if a defensible instrument exists. Most importantly, the phased NSRF timetable provides an opportunity for difference-in-differences analysis. Group 1 firms can be compared with not-yet-treated firms around the 2025 implementation period, followed by Group 2 and Group 3 as the framework expands.

The difference-in-differences approach should test the parallel-trends assumption before treatment. Event-time coefficients can show whether effects emerge gradually. Researchers should also recognise that Group 1 firms differ systematically from smaller firms because classification is based partly on market capitalisation. Matching or weighting may be needed to improve comparability.

8.4 Measuring assurance effects

The staggered assurance timetable creates a second institutional opportunity. Voluntary early adopters can be compared with non-adopters, but selection bias must be considered because firms choosing assurance may already have stronger ESG systems. Once mandatory assurance begins, researchers can examine whether disclosure-quality improvements occur before the formal effective date, which would indicate anticipatory effects.

Assurance quality should not be measured as a simple binary variable if data permit. A richer measure can distinguish limited from reasonable assurance, Big Four audit firms from other providers, coverage of the entire report versus selected metrics, and whether GHG emissions are specifically included. This would align better with the literature that emphasises assurance scope and provider characteristics.

8.5 Measuring greenwashing risk

Greenwashing measurement is challenging because it attempts to identify divergence between communication and underlying reality. A robust Malaysian study could combine several indicators. First, linguistic analysis can measure positive tone, readability and specificity, building on Kishan and Azhar (2025). Second, an ESG disclosure-performance gap can compare disclosure quality with objective environmental or social outcomes. Third, controversy databases can identify adverse events inconsistent with corporate claims. Fourth, target credibility can be assessed by examining whether firms publish interim milestones and evidence of progress.

No single indicator should be treated as definitive proof of greenwashing. A composite risk score is more defensible if each component is transparently defined. Researchers should use cautious language such as 'greenwashing risk' or 'disclosure-performance inconsistency' unless intentional deception can be demonstrated.

9. Managerial and Policy Implications

The following recommendations are implications derived from the literature review and conceptual synthesis rather than estimated causal effects. For Malaysian boards, ESG can be governed as enterprise information rather than only as a public-relations product. Boards should understand which sustainability issues are financially material, how they relate to strategy and risk, and whether the underlying data are sufficiently reliable for external reporting. Board dashboards can therefore include both performance indicators and information-quality indicators, such as data completeness, estimation levels, unresolved control issues and progress toward assurance readiness.

Chief financial officers have an increasingly important role. IFRS S1 and S2 are sustainability disclosure standards, but their focus on financial effects means finance functions cannot remain peripheral. CFOs should help align sustainability metrics with planning, budgeting, capital expenditure and financial statements. They should also support controls over ESG data and ensure that assumptions used in climate or transition disclosures are consistent with relevant financial assumptions where appropriate.

For investors, the Malaysian literature suggests caution in interpreting aggregate ESG scores. The relationship between ESG and value depends on firm characteristics, financial capacity, external recognition and the nature of the ESG measure (Atan et al., 2018; Yip & Lau, 2024; Tareq et al., 2026). Investors should examine materiality, data quality, controversies, target credibility and assurance rather than assuming that a higher score automatically implies superior financial prospects.

For regulators, the phased NSRF approach should continue to balance ambition with capability. The September 2026 assurance deferral demonstrates responsive implementation (SC, 2026). Capacity-building programmes should focus on practical areas that determine reporting quality: GHG accounting, climate-scenario analysis, financial-effects assessment, data controls, Scope 3 estimation and board oversight. Guidance should also reduce unnecessary duplication between reporting frameworks.

Finally, Malaysian companies should treat ESG credibility as a strategic asset. Transparent disclosure of challenges may sometimes be more credible than consistently positive messaging. Investors understand that transition involves uncertainty, estimation and trade-offs. A report that clearly explains limitations, methodology and progress can build more trust than a highly polished report that avoids difficult information.

10. Conclusion

Malaysia is moving from broad sustainability reporting toward an ISSB-aligned system in which sustainability-related information is expected to be financially material, comparable, governed and increasingly assured. The NSRF is central to this transition and raises expectations for board oversight, risk management, data systems, financial connectivity, supply chains and assurance readiness.

The empirical literature reviewed in this paper does not show a universal positive relationship between ESG and firm value. Instead, Malaysian studies report positive, insignificant, negative and conditional associations depending on the ESG measure, performance measure, firm characteristics and institutional context. This mixed evidence supports closer attention to disclosure quality and credibility, but it does not by itself prove that better disclosure causes higher firm value.

The regulatory review also shows that sustainability assurance is being phased alongside reporting maturity. The September 2026 decision to defer mandatory reasonable assurance over Scope 1 and Scope 2 emissions reflects the need for further improvement in disclosure quality (SC, 2026). A practical implication is that companies can use the additional time to strengthen data architecture, controls and documentation rather than treating assurance as a substitute for sound reporting systems.

Building on the reviewed evidence and theory, this paper proposes that future Malaysian research test the relationships among ESG disclosure quality, assurance, governance, greenwashing risk and firm value. The phased NSRF implementation and staggered assurance timetable provide opportunities for empirical designs that compare reporting cohorts and periods, subject to appropriate controls and diagnostic testing.

Overall, ESG should not be treated as a guarantee of superior financial performance or as a stand-alone compliance label. The conceptual argument advanced in this paper is that economic relevance is more likely when sustainability-related risks and opportunities are integrated with strategy, governance,

operations and capital allocation. Whether the proposed relationships hold in Malaysia remains an empirical question for future research.

References

- Atan, R., Alam, M. M., Said, J., & Zamri, M. (2018). The impacts of environmental, social, and governance factors on firm performance: Panel study of Malaysian companies. *Management of Environmental Quality: An International Journal*, 29(2), 182-194. <https://doi.org/10.1108/MEQ-03-2017-0033>
- Bank Negara Malaysia. (2021). *Climate Change and Principle-based Taxonomy*. Bank Negara Malaysia.
- Bank Negara Malaysia. (2022a). *Supporting decarbonisation efforts of SMEs through the Greening Value Chain Programme*. Bank Negara Malaysia.
- Bank Negara Malaysia. (2022b). *Policy document on Climate Risk Management and Scenario Analysis*. Bank Negara Malaysia. Revised 17 March 2025.
- Bank Negara Malaysia. (2023). *JC3 announces initiatives to support an inclusive transition to a greener economy*. Bank Negara Malaysia.
- Boiral, O., Heras-Saizarbitoria, I., Brotherton, M.-C., & Bernard, J. (2024). What you see is what you get? Building confidence in ESG disclosures for sustainable finance through external assurance. *Business Ethics, the Environment & Responsibility*. <https://doi.org/10.1111/beer.12630>
- Bursa Carbon Exchange. (2025). *Voluntary Carbon Market Handbook and Bursa Carbon Exchange resources*. Bursa Malaysia.
- Bursa Malaysia. (2022). *Sustainability Reporting Guide* (3rd ed.). Bursa Malaysia Berhad.
- Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, 60(11), 2835-2857. <https://doi.org/10.1287/mnsc.2014.1984>
- Fatemi, A., Glaum, M., & Kaiser, S. (2018). ESG performance and firm value: The moderating role of disclosure. *Global Finance Journal*, 38, 45-64. <https://doi.org/10.1016/j.gfj.2017.03.001>
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210-233. <https://doi.org/10.1080/20430795.2015.1118917>
- Gillan, S. L., Koch, A., & Starks, L. T. (2021). Firms and social responsibility: A review of ESG and CSR research in corporate finance. *Journal of Corporate Finance*, 66, 101889. <https://doi.org/10.1016/j.jcorpfin.2021.101889>
- IFRS Foundation. (2023a). *IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information*. IFRS Foundation.
- IFRS Foundation. (2023b). *IFRS S2 Climate-related Disclosures*. IFRS Foundation.
- IFRS Foundation. (2026a). *Use of IFRS Sustainability Disclosure Standards by jurisdiction*. Updated 10 September 2026. IFRS Foundation.
- Janggu, T., Darusi, F., Sawani, Y., & Mohamed Zain, M. (2013). Assurance of CSR and sustainability reports: Empirical evidence from an emerging economy. *Journal of Energy Technologies and Policy*, 3(11).
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Kamaludin, K., Ibrahim, I., Sundarasan, S., & Faizal, O. V. A. (2022). ESG in the boardroom: Evidence from the Malaysian market. *International Journal of Corporate Social Responsibility*, 7, 4. <https://doi.org/10.1186/s40991-022-00072-2>
- Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate sustainability: First evidence on materiality. *The Accounting Review*, 91(6), 1697-1724. <https://doi.org/10.2308/accr-51383>

- Kishan, K., & Azhar, Z. (2025). Greenwashing in sustainability reporting: Evidence from Malaysia. *Journal of Financial Reporting and Accounting*. <https://doi.org/10.1108/JFRA-01-2025-0060>
- Latif, R. A., Yahya, N. H., Taufil Mohd, K. N., Kamardin, H., & Ariff, A. H. M. (2020). The influence of board diversity on environmental disclosures and sustainability performance in Malaysia. *International Journal of Energy Economics and Policy*, 10(5), 287-296. <https://doi.org/10.32479/ijeep.9508>
- Lee, S. P. (2024). Corporate sustainability practices and financial performance: The moderating role of corporate controversies and Shariah screening. *Corporate Social Responsibility and Environmental Management*. <https://doi.org/10.1002/csr.2763>
- Ma'in, M., Nazaiful Affendi, N. S. N., Md Razak, M. I., & Susanto, A. A. (2025). How does the Environment, Social, and Governance (ESG) influence Shariah-compliant companies' performance? *Environment-Behaviour Proceedings Journal*, 10(31), 29-35. <https://doi.org/10.21834/e-bpj.v10i31.6583>
- Nik Asni, N. N. F., Azmi, N. A., & Raja Ahmad, R. A. (2024). The effect of environmental, social, and governance (ESG) disclosure and Shariah-compliance on firm performance among listed firms in Malaysia. *INSIGHT Journal*, 11(2), 10-24. <https://doi.org/10.24191/ij.v11i2.2412>
- Pandey, D. K., Al-ahdal, W. M., Moussa, F., & Hashim, H. A. (2025). Stock market reaction to mandatory climate change reporting: Case of Bursa Malaysia. *Review of Accounting and Finance*, 24(2), 218-237. <https://doi.org/10.1108/RAF-01-2024-0015>
- Raja Ahmad, R. A., Samsuddin, M. E., Azmi, N. A., & Abdullah, N. (2023). Is environmental, social and governance (ESG) disclosure value enhancing? Evidence from top 100 companies. *Asia-Pacific Management Accounting Journal*, 18(2), 143-163. <https://doi.org/10.24191/APMAJ.V18i2-06>
- Reuters. (2026, September 18). Malaysian regulator to ask publicly-traded firms for El Nino plans, eyes deeper Middle East ties. *Reuters*.
- Securities Commission Malaysia. (2021a). *Malaysian Code on Corporate Governance*. Securities Commission Malaysia.
- Securities Commission Malaysia. (2021b). *SC updates the Malaysian Code on Corporate Governance to promote board leadership and oversight of sustainability*. Securities Commission Malaysia.
- Securities Commission Malaysia. (2024a). *National Sustainability Reporting Framework to enhance sustainability disclosures*. Securities Commission Malaysia.
- Securities Commission Malaysia. (2024b). *National Sustainability Reporting Framework*. Securities Commission Malaysia.
- Securities Commission Malaysia. (2025a). *Navigating the Transition: A Guide for Boards*. Securities Commission Malaysia.
- Securities Commission Malaysia. (2025b). *ACSR sets out approach for non-compliance to sustainability reporting requirements*. Securities Commission Malaysia.
- Securities Commission Malaysia. (2026). *ACSR's mandatory sustainability assurance requirement to take effect in 2028*. Securities Commission Malaysia, 17 September 2026.
- SME Corporation Malaysia. (2024). *ESG Quick Guide for MSMEs and PKSlestari Programme*. SME Corporation Malaysia.
- Tareq, M. A., Ong, C. H., & Abdul Halim, A. (2026). The link between ESG, firm's financial and market performance in Malaysia: The moderating role of firm size, index recognition, and Shariah compliance. *International Journal of Banking and Finance*, 21(2). <https://doi.org/10.32890/ijbf2026.21.2.2>
- Wan Mohammad, W. M., & Wasiuzzaman, S. (2021). Environmental, Social and Governance (ESG) disclosure, competitive advantage and performance of firms in Malaysia. *Cleaner Environmental Systems*, 2, 100015. <https://doi.org/10.1016/j.cesys.2021.100015>
- Wong, W. C., Batten, J. A., Ahmad, A. H., Mohamed-Arshad, S. B., Nordin, S., & Abdul Adzis, A. (2021). Does ESG certification add firm value? *Finance Research Letters*, 39, 101593. <https://doi.org/10.1016/j.frl.2020.101593>

Yan, M., Jia, F., Chen, L., & Yan, F. (2022). Assurance process for sustainability reporting: Towards a conceptual framework. *Journal of Cleaner Production*, 377, 134156. <https://doi.org/10.1016/j.jclepro.2022.134156>

Yip, T.-M., & Lau, W.-Y. (2024). Nexus between ESG practice and firm performance: Are there any stylised facts? *Malaysian Journal of Economic Studies*, 61(2). <https://doi.org/10.22452/MJES.vol61no2.1>

Zhou, Y. (2024). Environmental disclosure greenwashing and corporate value: The premium effect and premium devalue of environmental information. *Corporate Social Responsibility and Environmental Management*. <https://doi.org/10.1002/csr.2698>