Unearthing the Nexus between ESG and Financial Performance: Does Company Size and Age Matter?

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Abstract: Regardless of how embracing eco-friendly practices provides firms with a competitive edge, the associated financial strain remains a prominent concern. This research aims to explore the effect of ESG scores on the financial performance of small and medium enterprises (SMEs). To unravel these relationships, the research investigates whether the firm size and age act as moderating factors in this context. Despite a burgeoning body of literature, the relationship between environmental, societal, and governance (ESG) disclosures and firm-level financial performance remains a subject of ongoing debate, marked by conflicting findings and contradictory outcomes. To address this gap, this study examines how the moderating factors of company age and size influence this relationship, particularly within the unique context of emerging economies. Drawing on a sample of 110 manufacturing SMEs from the Federation of Malaysian Manufacturers database, a moderation analysis is performed to assess the influence of firm size and age on the nexus between ESG disclosures and financial performance. For the empirical assessment of the hypothetical model Partial Least Square Structural Equation Modelling (PLS-SEM) is employed to assess the construct's reliability and validity, discriminant validity-heterotrait-monotrait ratio (HTMT), and collinearity statistics (VIF). Moreover, an initial analysis has been undertaken to examine the descriptive statistics and construct a correlation matrix. The study unveils a discernible moderating effect, indicating that the presence of smaller enterprises diminishes the nexus between ESG practices and financial performance. The outcome conforms to the prevalent conjecture that ESG endeavors with less developed or small firms may exhibit ineffectiveness due to constraints, including limited financial resources, restricted experience, and evolving reputation. By delving into the role of these internal dimensions and their moderating influence, this study illuminates a crucial yet often neglected perspective in the discourse surrounding ESG and financial performance. This study contributes substantially to the existing body of knowledge by unraveling the intricate interplay between ESG practices and financial performance. In transcending the traditional focus on larger enterprises, this study offers a lens to analyze internal determinants and their contextual dynamics. The findings not only enrich scholarly deliberations but also bear practical implications for business managers and policymakers. In sum, this study paves the way for future explorations in this domain and extends an invaluable resource for scholars, practitioners, and decision-makers alike.

Keywords: ESG, Financial Performance, Company Size, Company Age, Small and Medium Enterprises, Manufacturing SMEs

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1 Introduction

SMEs constitute a substantial segment of the global business landscape, employing over 60% of the global labor force [1-2]. Their role in fostering employment growth while requiring relatively modest investments, thus conferring competitive advantages through adaptability and flexibility, underscores their significance in national development efforts [3-4]. SMEs perform a key role in a country's development and expansion, actively shaping its trajectory [5-6]. Their substantial impact on global economic growth and stability is widely acknowledged [7]. Given their significance in economic and regulatory contexts, policymakers emphasize SMEs considerably [8].

On the other hand, as per the statistics from the World Bank, SMEs constitute more than half of the global workforce and nearly 90% of the total businesses globally [9]. In the context of Malaysia, classified as a developing nation, the SME sector serves as the cornerstone of its economy [10]. SMEs are acknowledged as drivers of innovation, entrepreneurship, poverty reduction, increased production, and exports contributing significantly to economic growth, social cohesion, employment generation, and regional progress [11]. In the Malaysian context, SMEs constitute a substantial segment, representing 98.5% of all establishments [12]. Despite being vital for community well-being and a functioning economy, they can inadvertently contribute to local pollution and carbon emissions [8]. Therefore, escalating environmental concerns have transformed sustainability from an aspirational concept into an urgent business imperative [13].

While SMEs significantly propel economic growth, it is imperative to acknowledge their potential environmental footprint. Achieving an equilibrium between augmenting financial performance and upholding robust ESG commitments becomes essential for their enduring economic viability and progression. Nonetheless, regulatory authorities, particularly in developing nations, grapple with the formidable task of overseeing a vast and geographically dispersed SME sector characterized by limited resources, expertise, and susceptibility to economic fluctuations [8]. Conducting rigorous research into the impact of environmental policies on SMEs can provide valuable insights for more effective regulatory enforcement to ensure environmental adherence [8].

In the current landscape, where stakeholders such as investors, customers, employees, and the broader public possess a keen awareness of the ecological repercussions of business activities, the economic sustainability and growth of SMEs hinge on their capacity to enhance financial performance while upholding robust ESG standards. The imperative of economic survival underscores SMEs' crucial capacity to improve financial outcomes, gain competitive advantages, and adeptly manage ESG concerns [14]. SMEs, facing constraints in accessing public listings, are often excluded from sustainable financial frameworks that mandate ESG disclosure for listed corporations. As noted by [8], the absence of thorough research on the relationship between SMEs' ESG practices and financial performance may hinder their valuable contribution to sustainability endeavors.

Given their considerable collective economic importance notable though dis-

persed environmental impact, SMEs merit an in-depth examination. This research aims to bridge a scholarly void by examining the impact of ESG practices on financial performance in the context of an emerging economy. Findings from the investigation not only affirm a positive association between environmental investments and financial performance but also elucidate the influence of firm size and age. As highlighted by [15], the presence of sustainability standards can significantly influence a firm's financial position. This is exemplified by the role of financial resource allocation for environmentally friendly machinery, and its alignment with environmental regulations to improve efficiency leading to improved financial performance [16]. Besides, despite the initial substantial costs incurred by a firm, such sustainable investments can yield long-term advantages by creating a basis for sustained viability and potentially improving financial decision-making [17].

Scholars have diligently endeavored to offer insights beneficial to managers and executives, with a specific emphasis on the repercussions of sustainability initiatives on firm value and performance [18]. Nonetheless, scholarly inquiries have yet to produce a universally consistent and definitive consensus on whether the implementation of sustainability initiatives, notably ESG practices, exerts a significantly positive, negative, or inconsequential impact on firm financial performance and value [19]. Therefore, additional empirical scrutiny is warranted to explore the economic ramifications of sustainability through various methodologies [18].

The discourse on sustainability typically encompasses three facets: environmental, social, and governance, encapsulated under the acronym ESG [20]. This study's principal contribution resides in the growing body of literature suggesting a significant influence of ESG disclosure on the financial performance within the manufacturing sector. While any industry's operations can be acknowledged as a crucial factor in playing an important role in sustainability initiatives [21], a limited body of research explicitly examines the role of the manufacturing industry in the emerging economies context. In this context of unexplored inequality, the contribution of this study involves empirical analysis, vital for elucidating the relationship between ESG and financial performance among manufacturing SMEs. While examining the direct association between ESG disclosures and financial metrics, numerous company characteristics hold the potential to serve as critical moderating factors in this comprehensive investigation.

In this context, [22] investigated the relevance of both company size and age as potential determinants affecting a firm's involvement in sustainability endeavors, thus contributing to a better understanding of the sustainability endeavors affected by firm attributes. [23] have recently validated the significant influence of these factors on Western European firms, limited research exists concerning the manufacturing sector within emerging economies. A noteworthy contribution of this study resides in its pioneering investigation of the moderating effects of size and age within the manufacturing context, an aspect that has received relatively less attention in emerging economies. This study is especially pertinent for manufacturers, given the critical role of advancing sustainability and fostering effective partnerships with governmental bodies, industries, and a wide client base in advancing their objectives. It's worth noting that the manufacturing sector, characterized by intricate operations, is uniquely vulnerable to environmental degrada-

tion compared to other sectors [24].

This study, consequently, has a dual objective. Firstly, it aims to assess the impact of ESG initiatives on financial performance within the manufacturing sector. Secondly, it investigates how company size and age moderate the relationship between sustainability efforts (such as ESG practices) and financial performance. In pursuit of these goals, this investigation contributes to the existing empirical body of knowledge regarding the impact of sustainability projects, notably ESG, on financial performance in the manufacturing sector domain. It introduces size and age as novel moderating variables, previously unexplored, in similar studies, in the context of emerging economies. Given the aforementioned significance, this research carries crucial implications for manufacturers whose investment opportunities are intricately linked to advance in sustainability and collaborative approaches of management. Consequently, it provides potential guidance for executives seeking to optimize resource allocation for sustainable endeavors through the adoption of more effective and resilient strategies.

2 Literature Review

2.1 ESG and Firm's Financial Performance

In recent times, businesses have more frequently adopted sustainability initiatives due to diverse factors such as resource dependence on stakeholders, strategic goals compatibility, and ethical responsibilities [25-26]. [27] assert that the context of sustainable development goals (SDGs) and establishment of sustainable business models within diverse organizations involves a comprehensive examination of corporate goals, economic outcomes, social aspects, environmental efforts, and operational complexities in sustainable business endeavors. Organizations have integrated these measurement systems into their strategies, signifying their dedication to sustainability [28]. There is a rising managerial attention in strategies to enhance organizational sustainability, including the identification, monitoring, and quantification of factors that bolster sustainability performance, often empowering associated frameworks [29-30].

Organizations are required to establish a consistent framework for assessing externalities related to the environment and stakeholders [31]. Currently, ESG criteria are pivotal for ensuring corporate accountability and evaluating sustainability [32]. Although sustainability concepts have existed for decades [33], there remains a reluctance among business professionals to implement environmentally friendly practices within their firms, despite potential advantages [34]. Given the primary objective of profit generation, increasing research delves into how ESG factors are mirrored in a company's financial performance [35]. From the 1960s, as exemplified by [33], through the 1970s, substantial research [36] proliferated, often underpinned by diverse theoretical frameworks [37].

Stakeholder theory, as proposed by [38], accentuates the interplay between a firm and the various entities within its economic milieu. Numerous studies [39-40] corroborate the theory's premise that a firm's consideration of stakeholder interests is closely linked to its sustainability performance. [41] maintained that this

theory emerged in response to the growing imperative of aligning sustainability efforts with a firm's engagement with its stakeholders. Accordingly, ESG reporting has evolved into a metric assessing the extent to which sustainability issues are integrated into a firm's operational framework [42-43].

With the inclusion of ESG reporting in a business policy, investors assume a pivotal role, and ESG becomes a fundamental gauge of corporate social responsibility. The stakeholder theory, as posited by [44], offers significant insights into a firm's financial advantages. [45] suggested that ESG standards have the potential to enhance value through two distinct mechanisms: firstly, by boosting shareholder value through factors such as an improved reputation driving product sales and enhanced employee expertise increasing productivity, and secondly, by optimizing investor value stemming from ownership in a sustainable enterprise.

Empirical research within the literature has yielded diverse findings concerning the association between ESG factors and financial [45]. Initially, numerous studies, as asserted by [46-47], indicated a positive association between ESG factors and financial performance. These investigations suggest that sustainable initiatives can enhance a firm's ability to effectively address stakeholder concerns, as posited by [48]. In contrast, subsequent empirical studies [49-50] present evidence of an adverse relationship between ESG factors and financial performance. According to [15], this unfavorable trend is likely attributable to unaccounted costs associated with ESG implementation, poorly executed procedures, or insufficient institutional support, all of which impede accurate representation in financial performance and forthcoming stakeholder endorsement.

Ultimately, researchers argue that the association between ESG and financial performance might lack clarity because the costs linked to these initiatives could potentially be counterbalanced by the profits they yield [51]. Studies in this domain refrain from asserting a definitive relationship and instead emphasize the importance of scrutinizing potential research design limitations, notably industry-specific peculiarities [48]. The contradictory findings concerning the link between ESG, and firm financial performance underscore the necessity for more comprehensive investigations. Future research should aim to address measurement biases and empirical methodological shortcomings [15].

Particularly, industry, product, and organizational attributes can impact engagement in sustainability projects, leading to diverse practical outcomes [48]. [52] specifically highlighted certain characteristics, such as industry classification, company size, and establishment age, as pivotal influencers of a firm's participation in sustainability initiatives. Scrutinizing these aspects can enhance our insight of the association between ESG considerations and financial performance [15].

2.2 Environmental Sustainability in the Manufacturing Industry

Encompassing innovation, social interaction, product presentation, cultural exchange, business stability, and significant contributions to a nation's socioeconomic development, the manufacturing sector holds a contemporary position [53-54]. It is evident that this sector exerts significant economic influence through its diverse operations and substantial environmental footprint, as well as its interconnectedness with other industries [55]. Spanning across various sectors, from mate-

rials and technology to consumer goods, it encompasses a wide spectrum, ranging from basic industrial processes to intricate manufactured products.

The manufacturing sector, known for its intricate nature and diverse subsectors such as electronics, textiles, food processing, and automobiles, each presents distinct challenges and opportunities [56-57]. This study strives to capture the subtleties and unique dynamics specific to each subsector within the manufacturing dominion. This emphasis ensures a comprehensive understanding of how ESG factors may impact the financial performance of diverse manufacturing SMEs. Manufacturing, recognized by [58] and [59], is one of the sectors grappling with significant environmental and sustainability challenges. Its heightened carbon emissions and ecological concerns subject it to various environmental assessments, as highlighted by [60].

The compatibility of environmental and financial sustainability remains uncertain within the manufacturing sector, often regarded as the most challenging arena for incorporating sustainability measures [61]. The stark juxtaposition between sustainability and economic objectives, especially prevalent in material, technology, and consumer goods manufacturing, offers a valuable context for exploring how manufacturers can align societal concerns with their business strategies [62-64]. Manufacturers, a prominent sector in numerous emerging economies, can attain financial sustainability [65-66]. However, ensuring environmental sustainability raises cost concerns for both individual firms and the sector as a whole. This implies that effective policies should achieve environmental sustainability without compromising other objectives or maximizing ecological improvements while maintaining acceptable financial and economic performance standards [67].

When exploring the connection between ESG and financial performance, research has also delved into the categorization of manufacturing enterprises [61]; [68]). This is a significant area of inquiry as manufacturing operations impact sustainability performance. Environmental considerations intersect with the strategic diversity within the manufacturing sector, encompassing both cost leadership and quality focus [69]. This necessitates well-executed strategies for manufacturing firms to gain a competitive advantage. Research on environmentally responsible manufacturing strongly emphasize on assessing the environmental impacts of processes and products. Manufacturers with a focus on quality, often referred to as lean manufacturers, demonstrate a greater environmental consciousness aligned with sustainability objectives [70]. On the other hand, cost-centered strategies may have constraints, as operational efficiency might not entirely compensate for sustainability expenses [71].

Quality-oriented manufacturing has left a substantial imprint on both the environment and society [72]. Accordingly, stakeholders increasingly reward manufacturers for prioritizing quality, despite its higher costs, underscoring the convergence of economic and environmental objectives. These dynamic forces underscore the necessity for comprehensive strategies in achieving sustainability within the manufacturing sector. Nevertheless, the disparity in outcomes between ESG and financial performance, coupled with the significant variability in ESG engagement among manufacturers, necessitates further investigation within the industry.

2.3 Theoretical Framework

The study establishes its theoretical foundation and outlines the core components that delineate the influence of ESG reporting on the financial performance of SMEs. Specifically, within the Malaysian context, the research delves into two primary areas: the direct impact of ESG reporting on financial performance, and the moderating role of firm age and size in this association. Each of these theories is discussed in terms of their relevance to the broader sustainability literature.

Stakeholder theory

Stakeholder theory plays a central role in the academic discourse on ESG by examining the intricate interactions between an organization and its stakeholders. As articulated by [73], stakeholders in the context of business sustainability encompass individuals and groups who possess the capacity to exert influence on or be impacted by business activities. An essential mechanism for conveying organizational performance while addressing various stakeholder concerns is through sustainability disclosure, often referred to as ESG reporting.

Stakeholders can be classified into various categories, including internal and external shareholders, strategic and ethical stakeholders, employees, customers, and the broader society, following Freeman's stakeholder typology. From a stakeholder viewpoint, a company must adhere to specific stakeholder expectations, commonly referred to as sustainable performance in contemporary finance. According to [74], various factors such as an organization's culture, corporate governance, institutional ownership, shareholder advocacy, public visibility, and media portrayal influence its sustainability performance. Previous research has indicated that ESG ratings serve as a measurable indicator for assessing stakeholder satisfaction and gaining a competitive advantage. This, in turn, reduces risks [75], lowers capital costs [76-77], and enhances financial and market performance by ensuring the integrity of business operations and increasing stock liquidity [78-79].

Institutional Theory

Institutional theory ranks as the second most widely employed theoretical framework. This theory delves into organizational structures and elucidates the underlying reasons for a standardized corporate structure shared by businesses operating within the same sector or industry. Institutional theory posits that organizations operate within predefined values, norms, and assumptions that influence rational economic conduct within specific contexts. This theory establishes a link between corporate actions and prevailing societal paradigms, as it contends that firms are inherently embedded in their social environment [80]. In the realm of sustainability, this theory finds extensive use among scholars. It aids in elucidating the determinants of ESG performance [81] and guides comprehensive research on performance disclosure [82-83]. Moreover, it contributes to understanding the interplay between socially responsible behaviors and evolving institutional norms regarding social responsibility [84].

Legitimacy Theory

Legitimacy theory is a valuable framework for understanding sustainability reporting, focusing on how well a company aligns with prevailing social norms and values. It underscores the presence of a social contract and moral responsibility that binds an organization to its community. This social contract governs the organization's interactions with its surroundings and its adherence to societal expectations. The terms of this contract can be explicit, encompassing legal and constitutional requirements, or implicit, encompassing societal norms, including ecological and social considerations.

Sustainable finance research draws heavily on legitimacy theory. For instance, [85] examined the impact of cross-listing on ESG disclosure. Their argument posited that companies intending to cross-list should enhance ESG disclosure to substantiate their operations and mitigate international liabilities. Societal and governmental pressures compel businesses to disclose non-financial information, reinforcing their commitment to a social contract [86]. Legitimacy theory extends beyond mere financial gain, emphasizing value creation. This perspective consciously regards social interactions as a means to demonstrate corporate conduct's legitimacy and alignment with ethical social standards [87].

The proposed research framework for this study is illustrated in Figure 1.

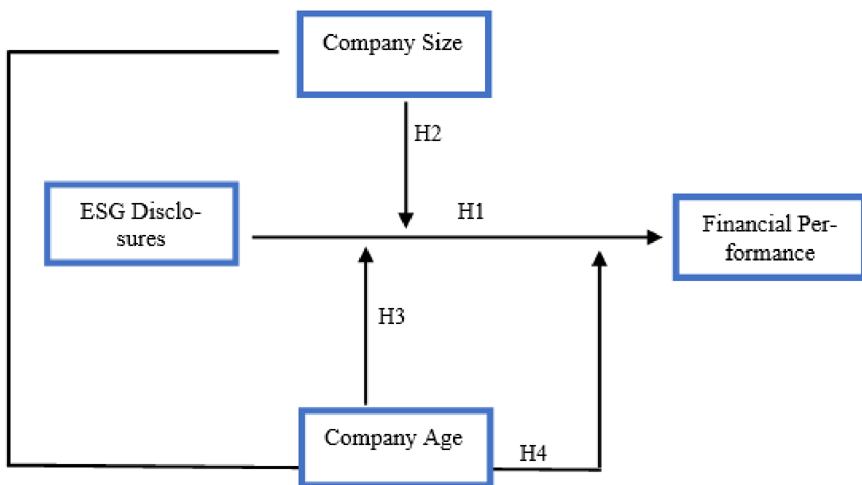

Fig 1. Research Framework

2.4 Hypothesis Development:

ESG and Financial Performance

Within the framework of stakeholder theory, it is posited that a firm's ethical con-

duct positively influences its financial performance [88]. A commitment to socially responsible practices may alleviate potential damage to the firm's market value [89]. Numerous studies have established a positive association between corporate governance and financial performance [90-91]. [92] demonstrated a favorable connection between corporate social engagement and financial performance. [78] maintained that corporate governance stands as the paramount determinant of a firm's sustainability, highlighting the significance of ESG investment.

According to [93], the ESG information disclosure has enhanced a firm's competitive advantage over a decade, thereby contributing to enhanced financial performance. In the realm of strategic management, [94] postulated that repetitive utilization of established methods and practices yields valuable feedback, enabling organizations to refine existing competencies and assess the potential success of exploitation endeavors with greater precision over time. Hence, it is improbable that the adoption of ESG innovations among SMEs would yield an immediate impact on their financial performance. It is more plausible that a performance lag exists due to the time-intensive nature of incorporating ESG capabilities. [95] reported a favorable association between a firm's ESG reporting and financial performance metrics, including Return on Assets (ROA) and Return on Equity (ROE). ROE assesses financial performance by dividing net income by shareholder's equity, while ROA evaluates profitability concerning total assets. Likewise, the amalgamation of ESG scores can positively affect financial performance metrics such as ROA and ROE [96].

Contrarywise, the ESG controversy scores may adversely impact these financial indicators. The prevailing body of research predominantly identifies a positive association between ESG factors and financial performance, yet a universally consistent conclusion remains elusive within the literature [97]. It is widely acknowledged that the judicious incorporation of ESG criteria does not invariably yield inferior returns or financial outcomes [98]. This assertion primarily hinges on the notion that engagement in sustainability initiatives enhances a company's ethical standing, elevates stakeholder contentment, and subsequently bolsters financial performance [99]. This study delves into the exploration of the correlation between the various elements of an organization's ESG disclosure and its financial performance. Henceforth, in light of prior discourse, the first hypothesis of the study is formulated.

H1: ESG practices have a significant positive impact on financial performance.

Moderating Effect of Company Size

The association between ESG practices and financial performance exhibits a complex interplay with firm size. The intricate association can be attributed to various factors. To begin with, large enterprises tend to have access to more extensive financial resources, surpassing those available to the businesses of a smaller scale [23]. Thus, these sizable enterprises possess the capability to allocate more substantial financial resources to support and drive their ESG strategies. The precisely outlined objectives of large companies and their strategic initiatives position them advantageously for the efficient administration

of sustainability strategies. Furthermore, the visibility of a firm holds relevance in this context. Larger and more prominent entities often demonstrate more inclination to embrace comprehensive sustainability policies. This inclination is influenced by the favorable perception they have among their stakeholders [23]. [100] contends that the influence of ESG factors on business performance exhibits a relationship with firm size for several reasons. Firstly, larger companies typically possess greater financial resources compared to their smaller counterparts [101]. The financial advantage enables them to engage more extensively in discretionary projects, including ESG initiatives, which, in turn, facilitates the effective management of stakeholder relationships, thereby enhancing legitimacy and credibility [102].

Smaller enterprises, on the other hand, often constrained by limited finances, tend to allocate their financial resources toward enhancing performance through conventional means. In contrast, size assumes paramount importance in the efficacy of ESG endeavors, as they necessitate intricate processes and extensive scale to yield meaningful results [103]. Large corporations exhibit sharp environmental, societal, and governance responsiveness due to their abundant resource availability [104], well-defined ESG frameworks, formal procedures, resource allocation mechanisms, and a substantial workforce actively participating in such initiatives [105].

Large enterprises, endowed with well-defined objectives, performance benchmarks, and robust control mechanisms, are better positioned to fulfill ESG reporting requirements [106-107]. Scholars assert that the extent and diversity of stakeholder engagement depend on a firm's visibility. The prominence of visibility and size compels businesses to diligently heed stakeholder anticipations. Given the likelihood of a positive size-visibility relationship, larger enterprises are better positioned to implement ESG disclosures, chiefly for marketing and communication objectives.

In light of prior discourse, the second hypothesis of the study is formulated.

H2: Company size moderates the relationship between ESG practices and financial performance, strengthening their positive association.

Moderating Effect of Company Age

As prior research indicates [108], a company's age significantly influences its characteristics and behavior. For instance, younger firms often prefer hiring and managing younger, less experienced employees, with workplace reputation primarily linked to performance outcomes [109]. This dynamic often stems from the inclination of younger managers toward innovation and risk-taking. Younger companies exhibit a willingness to furnish additional information, demonstrate their capacity to reform unethical corporate conduct and attract increased investor attention [110]. In contrast, older firms tend to maintain lower debt levels, possess stable asset portfolios, and adhere to established business practices. Younger enterprises are more inclined to ESG, offer data, and align with investor expectations, underscoring the significance of ESG disclosure, particularly for startup ventures. Companies tend to leverage their relationships and resources as they age,

aiming to preserve existing advantages and embracing a conservative management approach [111]. In contrast, older firms are more inclined to conceal negative developments. Conversely, younger enterprises actively address information asymmetry with investors and enhance market access by providing extensive nonfinancial disclosures [111]. This dichotomy underscores the proactive stance of younger businesses in facilitating transparent communication with stakeholders. In light of the prior discourse, the third hypothesis of the study is formulated.

H3: Company age moderates the relationship between ESG practices and financial performance, enhancing their positive association.

Combined Moderating Effect of Company Size and Age

Furthermore, examining the empirical nexus between ESG factors and financial performance, prior research has explored their influence within the context of firm characteristics, including firm category [112], licensing strategies [113], and impact of oil prices [48]. Nonetheless, this research investigates the moderating effects of firm size and age. The association between ESG practices and financial performance is intricately tied to firm size for several reasons. Firstly, larger companies typically enjoy more substantial financial resources, outstripping those available to smaller counterparts [23]. As a result, larger enterprises possess the capacity to allocate more substantial financial resources toward sustainability initiatives. Moreover, their well-defined corporate objectives and strategies position them favorably for the effective management of sustainability programs.

Additionally, the visibility of a firm assumes significance in this context, as more prominent entities may exhibit a greater propensity to adopt robust sustainability policies, owing to the positive perception they enjoy among stakeholders [23]. The age of a company is also considered a potential moderator, reflecting the notion that managers may seek assurance before committing to sustainable endeavors [114]. The introduction of sustainability practice valuation offers insights into the cause-and-effect relationship linking ESG factors with financial performance. In light of this, the younger firms tend to prioritize financial performance over their public and social image. Consequently, it is anticipated that these younger businesses may engage in limited activities related to sustainability [115]. Recent empirical research conducted by [23] supports this perspective, as their study examined both variables as moderators influencing the implementation of ESG practices and firm value within Western European firms. Their findings revealed significant moderating effects of age and size on the relationship. Therefore, this study posits, that both size and age influence the link between ESG factors and financial performance.

In light of the prior discourse, the fourth hypothesis of the study is formulated.

H4: The combined moderating effect of company size and age strengthens the relationship between ESG practices and financial performance, leading to a more pronounced positive impact.

3 Research Methodology

This study employed a quantitative approach to acquire objective and unbiased insights, aligning with the principles of positivist research [116]. It employs fundamental statistical techniques typical of positivist inquiry. A cross-sectional design was employed to capture the population's characteristics, allowing for demographic analysis. This approach facilitated the comparison of research variables with the population's descriptive attributes, streamlining the assessment of financial performance prevalence in manufacturing companies and the advancement of ESG initiatives.

3.1 Sampling and Data Collection

This study focuses on manufacturing firms located in five distinct Malaysian states. These states were selected based on data from the 2016 Economic Census [117], which revealed a significant concentration of SMEs within their respective regions: Selangor (19.8%), Kuala Lumpur (14.7%), Johor (10.8%), Perak (8.3%), and Penang (7.4%). The inclusion of these five states considers the crucial aspect of geographical diversity. By making this choice, the research effectively captures the various regional variations in operational processes and organizational structures. Within the Malaysian manufacturing sector, the research's sample consists of four distinct subcategories: plastic, rubber, basic and fabricated metals, electrical, and electronics, non-metallic minerals, food, and drinks. The selection of these subsectors is based on their potential for actively promoting environmentally friendly practices and their significant contribution to the Malaysian manufacturing sector as of 2022 [118]. Each subsector possesses unique characteristics and attributes that facilitate the analysis of its sustainability practices and implications.

The list of potential samples was compiled using the Federation of Malaysian Manufacturers [119] directory, with a specific focus on Malaysian manufacturing SMEs. The sample frame encompassed departmental heads, entrepreneurs, managers, supervisors, and proprietors of manufacturing SMEs in the states revealed above. The research employed a non-probability approach and adopted a convenience sampling method. It is noteworthy that non-probability sampling can yield reasonably precise estimates of the population characteristics. The research methodology utilized a quantitative survey approach, employing a carefully designed questionnaire to collect data. This approach allowed for the expansion of the sample findings to a broader context and the objective evaluation of hypothesized correlations among the research variables within a quantitative framework. The estimated sample size for the study, maintaining a 95% confidence level with a 5% margin of error, consisted of manufacturing SMEs.

An online survey was administered to manufacturing companies, and out of the 130 questionnaires forwarded, 110 were completed, resulting in an impressive 85% response rate, ensuring a robust dataset for analysis. These respondents were selected based on their firsthand knowledge of environmental issues, their unique insights into these matters, and their demonstrated commitment to enhancing their companies' environmental performance, as highlighted in the work of [55]. The

research employed a structured mail survey, individually sent to each eligible respondent within their respective organizations.

3.2 Data Measurement

The items linked with the dimensions of financial performance were sources from [120] research. The ESG construct was derived from ten distinct components, drawn from [121] research. Adjustments were made to the measurement scales to enhance the data collection to ensure they were more reader-friendly and comprehensible to respondents. The strategic decisions made by survey participants significantly influence the outcomes. These modifications facilitated a comprehensive examination of financial performance within the organizational context.

Measurement scales were modified to enhance the clarity and ensure respondents could readily comprehend during data collection. It's worth noting that the strategic choices made by survey participants hold significant influence over the research outcomes. These adjustments were instrumental in facilitating a thorough examination of the phenomenon of financial performance from an organizational perspective.

A five-point Likert scale ranging from "strongly disagree" to "strongly agree" was employed for all items. To maintain content authenticity, questions were adapted from prior research. Following [122] guideline, a coefficient alpha value of 0.7 is considered adequate for deductive studies. The alpha coefficients, meticulously computed for each highlighter construct and its constituent elements based on an extensive review of relevant literature, affirm the measurements' reliability [123-124]. To enhance response comprehension, several questions underwent revision following a pretest.

4 Data Analysis

Table 1 offers an overview of the descriptive statistics about the demographic variables. The statistical parameters equipped within this table encompass minimum and maximum values, measures of central tendency including the mean, indicators of dispersion such as standard deviation, as well as indicators of the data's distribution shape, skewness, and kurtosis.

Table 1. Descriptive Statistics

Items	Min	Max	Mean	SD	Skewness		Kurtosis	
					Statistic	Std. Error	Statistic	Std. Error
Firm Age	1	7	3.56	1.59	0.09	0.23	-0.88	0.46
Firm Size-Employees	1	4	2.28	0.95	0.45	0.23	-0.64	0.46
Firm Size Annual Turn Over	1	4	2.17	0.91	0.32	0.23	-0.7	0.46

Position in the Company	1	7	4.4	1.98	-0.56	0.23	-0.9	0.46
Respondents Age	18	54	34.06	8.57	0.25	0.23	-0.72	0.46
Gender	1	2	1.52	0.5	-0.07	0.23	-2.03	0.46
Academic Qualification	1	8	4.76	1.19	-0.57	0.23	0.65	0.46
Legal Status	1	4	2.05	0.87	0.67	0.23	0	0.46
Company Ownership	1	4	1.22	0.58	3.09	0.23	10.1	0.46

Table 2 presents an overview of the descriptive statistics about the main variables (i.e., financial performance and ESG factors). The statistical parameters equipped within this table encompass minimum and maximum values, and measures of central tendency including the mean, and standard deviation.

Table 2. Descriptive Statistics

Items	Minimum	Maximum	Mean	Std. Deviation
ROE	1.00	5.00	3.5273	.78646
Net Profit Margin	1.00	5.00	3.5272	.85358
Sales Growth	1.00	5.00	3.5636	.87291
ROI	1.00	5.00	3.5000	.75115
ROG	1.00	5.00	3.4636	.77433
Net Profitability	2.00	5.00	3.5455	.77384
ESG role investment process	1.00	5.00	3.6545	.79490
Describes ESG instructions	1.00	5.00	3.5455	.73742
ESG data availability	1.00	5.00	3.5273	.77470
Spends significant ESG amount	1.00	5.00	3.5455	.77384
Provide concrete ESG examples	1.00	5.00	3.5182	.82096
ESG expertise	1.00	5.00	3.5000	.83226
Detailed instructions of ESG	1.00	5.00	3.5273	.79804
Uses ESG information to limit investment universe	1.00	5.00	3.4909	.83221
Uses ESG to manage risks	1.00	5.00	3.5273	.83181
Uses ESG in valuation of companies	1.00	5.00	3.4727	.78646

Table 3 presents the correlation matrix of the main variables of the study. These variables encompass a range of financial performance and ESG metrics, encompassing 110 sampled firms.

Table 3. Summary of Correlations

Items	ROE	NPM	SG	ROI	ROG	NP	In	Ins	Da	S	Ex	E	D	IU	R
NPM	.443**														
SG	.485**	.681**													
ROI	.544**	.615**	.700**												
ROG	.423**	.557**	.560**	.765**											
NP	.412**	.602**	.627**	.710**	.676**										
In	.030	.244*	.296**	.292**	.307**	.399**									
Ins	.053	.136	.245**	.315**	.356**	.390**	.700**								
Da	.097	.283**	.276**	.410**	.445**	.465**	.731**	.793**							
S	.111	.213*	.138	.331**	.324**	.403**	.578**	.696**	.801**						
Ex	.141	.235*	.165	.201*	.297**	.316**	.628**	.681**	.735**	.764**					
E	.126	.336**	.278**	.345**	.406**	.356**	.555**	.598**	.640**	.684**	.732**				
D	.225*	.396**	.360**	.444**	.402**	.392**	.622**	.551**	.659**	.600**	.643**	.746**			
IU	.218*	.330**	.348**	.455**	.484**	.378**	.647**	.606**	.691**	.563**	.578**	.742**	.698**		
R	.146	.251**	.307**	.382**	.472**	.376**	.583**	.589**	.661**	.547**	.510**	.596**	.628**	.709**	
V	.201*	.227*	.383**	.357**	.360**	.356**	.616**	.595**	.626**	.507**	.527**	.603**	.608**	.679**	.794**

Note: Table 3 presents the correlation between Financial Performance and ESG. ESG Valuation (V), ESG Risks (R), ESG Universe (U), ESG Detail (D), ESG Expertise (E), ESG Examples (Ex), ESG Spending (S), ESG Data (Da), ESG Instructions (I), ESG Investment (In), Net Profit Margin (NPM), Sales Growth (SG), Return on Investment (ROI), Return on Growth (ROG), Net Profitability (NP)

Table 4. Construct's Reliability & Validity-Overview

	Cronbach's Alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
ESG	0.948	0.954	0.955	0.680
FP	0.895	0.924	0.919	0.656

Cronbach's Alpha and composite reliability were systematically assessed for the variables encompassed in the study. The results related to the reliability and validity, encompassing Average Variance Extracted (AVE), are presented in Table 4 for the entire sample. Notably, all alpha values and Composite Reliability (CRs) surpassed the recommended threshold of 0.700, attesting to the robustness of the measurement instruments. The AVE and CRs demonstrated values higher or in close proximity to 0.500 and 0.700, respectively, thereby affirming the convergent validity of the constructs under investigation. Discriminant validity was assessed through cross-loadings, as stated in Table 5.

Table 5. Discriminant Validity-Heterotrait-monotrait ratio (HTMT) – Matrix

	Age	ESG	FP	Size
ESG	0.226			
FP	0.055	0.488		
Size	0.068	0.088	0.277	
Age * ESG	0.155	0.178	0.112	0.153
Size * ESG	0.164	0.112	0.158	0..032

Discriminant validity was assessed through the criteria proposed by Fornell and Larcker, alongside the heterotrait-monotrait method (HTMT). The outcomes of both assessments are precisely delineated in Table 5. Table 5 illustrates that utilizing the heterotrait-monotrait (HTMT) analysis, all construct ratios are below 0.85, affirming robust discriminant validity as per the HTMT method [125].

Table 6. Collinearity Statistics (VIF) – Inner Model – Matrix

	FP
Age	1.102
ESG	1.085
Size	1.038

An assessment of multicollinearity was undertaken, revealing the Variance Inflation Factor (VIF) for each indicator remained below the established threshold of 5. The findings as presented in Table 6, delineate the cross-factor loadings for all items. Notably, a discernible pattern emerges, wherein all factor loadings surpass their corresponding cross-loadings, serving as a clear indicator of robust discriminant validity.

5 Conclusion and Implication of Study

This research is motivated by the desire to assess how ESG factors influence financial performance within the manufacturing sector. Although there is existing research on this topic across various sectors, there is a notable absence of empirical studies in the context of emerging economies that explore the moderating roles of firm size and age in the relationship between ESG and financial performance. To address this gap, this study offers insights for manufacturing executives and managers looking to enhance financial performance while simultaneously addressing environmental, societal, and governance concerns. This study focused on a sample of 110 Malaysian manufacturing SMEs, representing five distinct states exploring how ESG disclosures relate to the firms' financial performance. The study proposes that this relationship might differ based on factors such as firm size and age, although the moderating impact of these variables is yet to be calculated.

In doing so, the study aims to investigate whether the firm size and age play a moderating role in the relationship between ESG disclosures on financial performance.

The correlation matrix presented in this study examines the connections between various financial performance metrics including return on equity (ROE), net profit margin, sales growth, return on investment (ROI), return on growth (ROG), net profitability), and firms' ESG disclosure activities (ESG Valuation, ESG Risks, ESG Universe, ESG Detail, ESG Expertise, ESG Examples, ESG Spending, ESG Data, ESG Instructions, ESG Investment). The results indicate a statistical relationship between ESG disclosures and financial performance, though the exact nature of these relationships can differ depending on factors like industry, firm size, and age. This correlation analysis highlights a positive link between ESG disclosures and various financial performance metrics, signifying a favorable association between ESG disclosures and financial performance. The analysis reveals noteworthy relationships between ESG factors and financial performance.

To be specific, ESG spending shows a weak positive correlation with ROE, suggesting that the firms that allocate more resources to ESG initiatives may have slightly better financial performance. ESG data demonstrates a weak positive correlation with financial indicators implying that firms with better access to ESG data may have slightly better financial performance evaluation. Furthermore, ESG investment exhibits a very weak positive correlation with financial metrics, indicating that the level of ESG investment is not strongly associated with financial performance. These correlations provide valuable insights, but causation cannot be inferred. To draw meaningful conclusions about the impact of ESG factors on financial performance or vice versa, further research and context-specific analysis is suggested. The findings hold significance for both academic research and manufacturing sector executives and managers offering guidance for their sustainability strategies. In the realm of academia, this study advances our understanding of the link between the implementation of ESG factors and financial performance within the manufacturing sector. It provides empirical support for stakeholder theory, institutional theory, and legitimacy theory, shedding light on how incorporating sustainability criteria can impact financial performance. Moreover, given the limited exploration of moderator variables in the context of emerging economies by prior researchers, this study sought to address this gap by empirically examining the potential influences of firm size and age. As such, the findings of the study offer insights for future investigations in this context. Specifically, the findings of this study provide actionable information that can aid managers in optimizing resource allocation for ESG activities by adopting more efficient and robust approaches.

Furthermore, this study aims to underscore the potential moderating role of firm size and age in shaping sustainability strategies. It offers evidence that can assist managers of small, medium, and large enterprises in making informed decisions when prioritizing environmental, societal, and governance activities within their sustainability initiatives. Consequently, this study's findings carry policy implications, potentially enabling manufacturing firm executives to enhance the allocation and utilization of their resources for sustainability efforts. Given the study's focus on a limited number of manufacturers over a short timeframe, future research could expand its scope by examining a larger sample of manufacturers over an ex-

tended duration. This broader investigation could delve into not only the impact of ESG initiatives on firm performance but also the specific contexts or conditions under which ESG influences firm outcomes, providing a more comprehensive perspective on the subject.

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