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(AIJBES)[www.aijbes.com](http://www.aijbes.com)**ESG CONTROVERSIES ON CORPORATE VALUE AND  
MARKET RISK: THE MODERATING ROLE OF BOARD  
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This work is licensed under [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)**Abstract:**

This study investigated the impact of ESG controversies on firms' corporate value and market risk, with a keen interest in the moderating role of board independence. Deploying pooled panel models as earlier adopted by prior studies, the study sampled 117 publicly quoted firms indexed as constituents in FTSE4Good Bursa Malaysia (F4GBM), with ESG controversy scores between the period 2021 to 2023, giving a total of 351 firm-year observations. The findings revealed that the ESG controversy score has an insignificant impact on corporate value, while the ESG combined score, which is the performance score after controversy outlay, had a strong, significant positive impact on corporate value. However, the ESG controversy score was revealed to have a considerable positive impact on market risk, while the ESG combined score showed a significant but inverse effect on market risk. Furthermore, it was revealed that the interaction of board independence and ESG controversy does not have a significant moderating effect on corporate value. In contrast, the interaction of board independence and ESG controversy has a significant moderating effect on firms' market risk exposure. The study's findings prompted a couple of substantial contributions relevant to scholarly literature, researchers in ESG disputes, governance practitioners, ESG regulatory policymakers, and company managers. It will enhance understanding within the academic community and facilitate business and regulatory decision-making in the corporate environment.

**Keywords:**

ESG Controversies, Corporate Value, Market Risk, Board Independence

## Introduction

Environmental, Social and Governance performance scores have garnered substantial attention from governments, corporations, and scholars, as ESG investments are crucial for meeting emissions objectives (Wang et al., 2023). Theoretically, firms exhibiting high ESG performance are regarded as more stable, owing to their focus on fostering long-term sustainable growth (Beckmann & Rogmann, 2024). However, these ESG performance scores and ratings in recent times have been associated with controversies and have attracted a couple of research study interest (Beckmann & Rogmann, 2024; Shakil, 2024 Barkemeyer et al., 2023; Xue et al., 2023). ESG controversial issues could have numerous connotations.

Controversy surrounding ESG may stem from conflicting ESG reports from various sustainability sources for a firm or country. This can be ascribed to trends that yield mixed messages regarding ESG scores and indexes. It is plausible that disparity in ESG scores arises from varying corporate methodologies. Conversely, controversy may signify a scandal that contravenes ESG standards. In this context, controversy constitutes a distinct component of the overall ESG score. Beckmann & Rogmann (2024), in their study on ESG controversies, identified the variation in methodologies as a debate on ESG ratings, while the scandalous reported practices were termed an ESG conflict, as it signifies a breach of implementation and reporting norms.

Another concern that diminishes the credibility of ESG ratings is that corporations are assessed based on information disseminated by the companies themselves. Corporate disclosures arguably are not devoid of bias (Giamporcaro & Gond, 2016). Consequently, users of these reports and market players sometimes witness a mismatch between a firm's ESG evaluation and practical ESG implementations. An emerging and widely acknowledged source of information that challenges this self-referential system is ESG controversy scores. These scores are derived from analyses of mainstream media and highlight ESG-related news regarding instances of perceived corporate misconduct (Barkemeyer et al., 2023). ESG controversy scores constitute a specific conduit in the information chain linking corporations to their investors. Investors tend to penalise firms with low ESG scores and a track record of significant sustainability malpractice (Shakil, 2021). Companies that exhibit social irresponsibility and engage in social and environmental disputes and controversies equally encounter stiff reactions from valued stakeholders (Aouadi & Marsat, 2018).

ESG controversy encompasses unfavourable ESG news regarding companies, including questionable practices and product scandals reported in the media (Cai et al., 2012; Aouadi & Marsat, 2018). Investor backlash about ESG controversies and sustainability issues has led to an exponential rise in stock price volatility in the market, impacting corporate entities' market risk exposure (Nguyen & Nguyen, 2015). ESG scores play a significant role in mitigating stock volatility, and firm risk (Shakil, 2020; Sassen et al., 2016), and firms may encounter elevated financial risk stemming from associated ESG controversies. However, the firm's ESG controversies may also mitigate its risk exposures. Although ESG controversies may significantly impact firm risk and corporate value, research investigating ESG controversies, corporate value and market risk, and more precisely, the interaction effect of board independence and ESG controversies on the market risk and corporate value, is limitedly evident in the academic literature.

Controversies around ESG ratings reveal significant origins of uncertainty. At the corporate level, controversy amplifies ambiguity over a company's long-term outlook, as seen by increased forecast inaccuracies among analysts (Schiemann & Tietmeyer, 2022). Consistent with this argument, Avramov et al. (2022) postulated that ESG uncertainty typically elevates the market premium and diminishes stock demand. Conflicts concerning ESG scores and their associated disputed issues have been observed to decrease stock prices and may affect the firm's corporate value. Such conflicts can significantly impact companies' reputations and financial health (Janney & Gove, 2011). ESG controversies, as elucidated by Lange & Washburn (2012), reflect the firm's operational and reputational risk exposures and can substantially impair its financial results and health.

The inadequacy of information regarding the actual state of companies' ESG performance scores and ratings has led to ill-informed sustainable investment decisions by investors, market players and corporate managers. A persistent trend can expose firms to market risk of stock price volatility and equally impact their corporate value. Thus, there is a need to address this challenge so that corporate managers, investors, and market players can better understand the controversies surrounding ESG performance and its likely effect on firms' corporate valuations and market risk exposures. Investors and consumers exhibit more sensitivity to negative occurrences associated with firms than favourable publicity (Groening & Kanuri, 2013). ESG scandals often lead to reputational damage, including decreases in stock prices (Gao et al., 2022). Investors are becoming increasingly attracted to firms that demonstrate proactivity and significant commitments to sustainability issues while exhibiting scepticism towards those that neglect ethical ESG practices, perceiving them as signs of future sustainability challenges and heightened risks (Useche et al., 2024; Vargas-Santander et al., 2023). Researchers propose that a proactive sustainability approach may enhance organisational resilience to future crises and dangers, including climate change (Chen et al., 2022). ESG measures and corporate reputational risk are critical concerns that corporate managers must address (Bruna & Nicolo, 2020). An improved scoring framework may offer more nuanced and specific information for managers and market advisors to assess during investment decision-making (Xue et al., 2023).

ESG controversies have garnered considerable interest due to companies' engagement in contentious practices. Companies face repercussions from investors and regulatory authorities for their immoral conduct (Carberry et al., 2018). This may render their stocks undesirable to investors and capital market participants. Despite the growing interest in ESG controversies as a research area, studies investigations explicitly addressing these issues remain scarce (Treepongkaruna et al., 2022), and few studies have examined the mechanisms by which ESG controversies influence corporate value and market risk (Shakil, 2024). While research generally asserts that ESG controversies can damage a firm's reputation and adversely affect its value (Aouadi & Marsat, 2018), ESG issues may also augment corporate value, as Walker et al. (2016) suggested. These conflicting standpoints make debates around ESG controversies continue to be pertinent subjects for further exploration and acquisition of fresh insights and perspectives.

The subject of ESG performance has gained prominence in the strategic decision-making of corporations, business sectors, and markets (Juca' et al., 2024). Corporate plans and decisions related to ESG are formulated at the organisation's strategic level. Consequently, cost-efficient strategic decisions such as ESG practices assist firms in minimising operating expenses and enhancing profitability, thereby decreasing corporate risk and increasing value (Shakil, 2021).

An independent board may provide unbiased perspectives and help prevent conflicts of interest concerning ESG planning, execution, and reporting. This could limit the potentiality of future ESG controversies associated with firms. Governance structures, encompassing board compositions and independence, are crucial in influencing organisations' ESG performances (Abdelkader et al., 2024; Elamer & Boulhaga, 2023; Nirino et al., 2022). However, the precise moderating roles of board independence in the context of ESG controversies, corporate value and market risk are still inadequately comprehended.

In summary, existing research underscores the impact of corporate ESG controversies on firm value and sustainable investment. This paper will further investigate the likely impact of ESG controversies on corporate value and market risk, focusing on the moderating role of board independence. The study will contextualise quoted firms in the FTSE4Good Bursa Malaysia (F4GBM) Index as they have passed through the rigorous collaborative ESG review process of Bursa Malaysia and FTSE Russell geared towards promoting and encouraging the adoption of ESG practices in the marketplace. Moreover, considerable prior research has mainly focused on the impact of ESG issues in developed markets (Boubakri et al., 2021), with limited studies focusing on emerging markets still lacking (Mendiratta et al., 2023). Malaysia, being amongst the leading emerging markets in Southeast Asia, will be of interest to the business and academic community.

The findings of this study will assist potential investors in prioritising ESG controversies, corporate valuation, market risk exposures, and board independence prior to making investment decisions. The findings will equally assist portfolio managers in mitigating portfolio risk by directly investing in sustainability-conscious enterprises in Bursa Malaysia. Furthermore, the findings will support regulatory agencies and policymakers, including securities exchange commissions, environmental scoring agencies, and stock markets, in reassessing ESG criteria, ranking firms based on their ESG performance, and enforcing sanctions based on firms' controversial scores. Moreover, regulators and policymakers would have a deeper understanding of the essential function of an independent board in fostering quality and sustainable corporate decision-making. This study dramatically advances the emerging field of ESG controversy research by revealing crucial insights into the intricate relationships between ESG controversies, corporate valuation, market risk, and governance structure (board independence). Thus, it offers insightful knowledge for researchers and professionals in corporate governance and sustainability within academia and the business sectors.

## Literature Review and Hypothesis Development

### *ESG Controversies and Corporate Value*

ESG controversies emerge from specific events or activities linked to organisations' products or corporate actions that may jeopardise their reputation due to potential adverse effects concerning environmental, social, or governance standards (Juca' et al., 2024). According to Juca et al. (2024), these controversies may lead to litigation, penalties, and judicial conflicts and are extensively reported by the international media. The spread of adverse publicity regarding a corporation has more significant ramifications than that associated with positive press coverage. Consequently, these controversial issues may influence corporate value and financial results, postulated by prior studies (Beckmann & Rogmann, 2024; Mendiratta et al., 2023; Xue et al., 2023). Lankoski et al. (2016) define corporate value as the subjective

evaluation of the entire monetary and non-monetary benefits that a stakeholder derives from the choices or measures undertaken by the firm at an individual level. Della Corte et al. (2021) assert that corporate value is the valuation of a corporation as viewed by stock market investors, shaped by the dynamics of supply and demand and influenced by external sustainability variables.

Empirical research showed an inverse correlation between the effects of ESG controversies and the corporate value of firms, attributable to reputational harm and operational inefficacy (Juca´ et al., 2024). Several research has examined the effect of ESG controversies on company value (Mendiratta et al., 2023; de Franco, 2020) and have identified inverse relationships. Mendiratta et al. (2023) found that media coverage of ESG controversies diminishes corporate value. Similarly, de Franco's (2020) study findings indicated that ESG controversies adversely impact the corporate value of European and US corporations, as markets respond unfavourably to increased levels of controversy. This is supported by Brighi et al. (2022) assertion that ESG controversies predominantly exert a detrimental influence on market value while positively affecting market risk.

The stakeholder theory elucidates the relationship between ESG and corporate value, asserting that investment in ESG enhances shareholder wealth and incentivises other stakeholders to allocate resources towards the firm's financial success (Freeman, 2010). However, stakeholders and participants in the capital markets impose penalties on corporations for inadequate ESG performance and scandals, which may negatively impact their value. Consequently, the execution of ESG planning and implementation by corporate managers may affect the firm's corporate value if inadequately managed. In their study, Melinda & Wardhani (2020) concluded that the ESG score and controversy score strongly influenced the corporate value of Asian companies. Similarly, the cross-sectional findings in the research of Beckmann & Rogmann (2024) indicated that increased ESG controversies are associated with diminished annual economic growth, hence affecting corporation value. In light of the aforementioned arguments, this study proposes the following hypothesis to further investigate the ESG controversy and corporate value issue within the Malaysian context:

**H1:** ESG controversies significantly impact the corporate value of firms.

### ***ESG Controversies and Firm's Market Risk***

The ESG controversy can be conceptualised as an opposing force to ESG, resulting in detrimental stakeholder relationships and thereby heightening corporate risks. These controversial issues are unfavourable occurrences, including environmental and business ethics discrepancies portrayed in the media, which impact firms' systematic and idiosyncratic risks (Lee & Isa, 2024). Corporate scandals convey adverse indications for the market, undermining the reputation of business corporations. This may heighten stakeholders' impression of the firm's market risk exposures, elevating the cost of capital, diminishing their asset stocks liquidity, and increasing the volatility of returns to shareholders. On the contrary, a minimal level of ESG controversy may signify a firm's enhanced dedication to sustainable practices (Juca´ et al., 2024). Market risk is conceptualised in this study as the volatility of stock price returns, as earlier adopted in the studies of Sandu (2023) and Shakil (2021).



According to Galbreath (2013), ESG data and information at large provide an opportunity to incorporate non-monetary performance metrics into key stakeholders' decision-making considerations. The inadequacy of this data regarding the actual state of companies' ESG performance scores and ratings has led to ill-informed sustainable investment decisions by investors, market players and corporate managers. This inadequacy is occasionally evident in the more recent offerings provided by ESG data sources and providers, specifically through ESG controversies scores, aggregating conventional media coverage associated with perceived corporate irresponsibility and scandals. Scores for ESG controversies are argued to improve ESG evaluations by providing more unbiased data sources (Svanberg et al., 2022). They highlight unfavourable ESG news regarding corporations, including questionable practices and product-related issues (Shakil, 2021).

Prior research has identified considerable results about the impact of ESG controversies on market risk and stock price volatility (Lee & Isa, 2024; Sandu, 2023; Gao et al., 2022; Shakil, 2021; Nirino et al., 2021). Lee and Isa (2024) discovered that ESG is inversely correlated with risk, while ESG controversies are positively correlated with risks. Their study argues that ESG controversies can inflict significant reputational harm on companies, undermining stakeholder relationships and heightening the fluctuation in stock price returns, thus increasing firm risks. Sandu (2023) examined the effect of controversies and ESG outcomes on stock return volatility, revealing a direct association between ESG controversies and stock return volatility. Similarly, in their separate studies, Gao et al. (2022) and Nirino et al. (2021) found that ESG scandals frequently result in reputational harm, causing declines in stock values. According to Beckmann & Rogmann (2024), the increased volatility of stock price returns, stemming from the potential of unclear signals arising from ESG controversies, may also align with increased share prices. However, implementing ESG practices and activities by firms could mitigate their risks (Shakil, 2021). This largely depends on the rigorous scrutiny of an independent board of directors.

The impact of ESG issues on corporate risk, namely stock return volatility, remains inconclusive and has not been adequately examined in academic literature (Sandu, 2023). Thus, there is a need for a hypothesis to explore further the possible association between ESG controversy and the firm's market risk to contribute to closing the gap in the Malaysian context. This is as shown below:

**H<sub>2</sub>:** ESG controversies significantly influence firms' market risk exposure.

### ***The Moderating Role of Board Independence***

The board of directors is at the apex level of decision-making in corporate organisations. As such, a board structured to be independent in their decisions and actions could advert inevitable consequences resulting from ESG controversies, which may negatively impact the firm's corporate value and increase its market risk exposure. According to Kang & Kim (2014), Corporations lose market share when subjected to unfavourable coverage in the media pertaining to environmental sustainability. This could be due to losing stakeholders' confidence and poor public reputation. Aouadi & Marsat (2018) similarly clarified that adverse market news regarding the firm undermines its reputation, resulting in reduced market value and increased risk for the firm. Corporate reputation is primarily influenced by ESG controversies, which instigate uncertainties regarding companies' future performance and consequently affect

various domains, including financial results, risk exposures, and overall corporate value (Capelle-Blancard & Petit, 2019).

To recover their public image, conscious firms and sectors make efforts to disclose more information in sustainability reports, leading to a relatively higher ESG performance (Garcia et al., 2017). The decision and the approval of information disclosed in the ESG reports is saddled with the board of directors. As a result, an independent board may ensure quality ESG decisions and implementations in the interest of key stakeholders. Fama & Jensen (1983) contended that the fundamental premise of this approach is that independent directors can improve the efficacy of board oversight, hence augmenting the corporate value and mitigating market risk. Prior research has demonstrated substantial evidence about the impact of ESG controversies on financial risk and corporate value (Shakil, 2021; Nirino et al., 2021; Melinda & Wardhani, 2020; Aouadi & Marsat, 2018). Xue et al. (2023) found that ESG controversies considerably diminish firms' overall investment efficiency, resulting in underinvestment inefficiency. This could affect corporate value and expose the firm to increased market risk. Similarly, Wu et al. (2023) argue that ESG controversies undermine a firm's resource efficiency, reducing its corporate value and exposing it to market risk.

Lee & Isa (2024) assert that adverse market news undermines a firm's reputation and stakeholder relations and can escalate corporate risks. Li et al. (2019) argued that corporate controversy may compel corporations to participate in sustainable business activities. Controversies often jeopardise a firm's reputation and could expose it to market risk, affecting its corporate value. Thus, an effective independent board of directors may persuade corporate managers to engage in well-thought-out sustainable practices to boost corporate value and retain investors' market confidence in the firms' stocks. Terjesen et al. (2016) articulated that including independent directors on the boards is an effective governance tool capable of impacting corporate social responsibility performance within ESG activities, chiefly by enhancing transparency and oversight.

Independent directors have been associated with effective corporate social responsibility and sustainability initiatives (Beji et al., 2021; Benkraiem et al., 2021). Beji et al. (2021) assert that including independent directors on boards correlates positively with corporate social responsibility performance within the framework of ESG activities. This occurs against the backdrop that independent directors do not engage in the organisation's daily operations and primarily fulfil an oversight function regarding the company's activities. As a result, they are more predisposed to promote enhanced sustainability disclosures (Benkraiem et al., 2021). Furthermore, due to the strong association between their reputation and the firm, independent directors may advocate for significant sustainability practices to improve the firm image and protect their reputation (Beji et al., 2021). This can, in turn, increase their corporate value and reduce their market risk exposures.

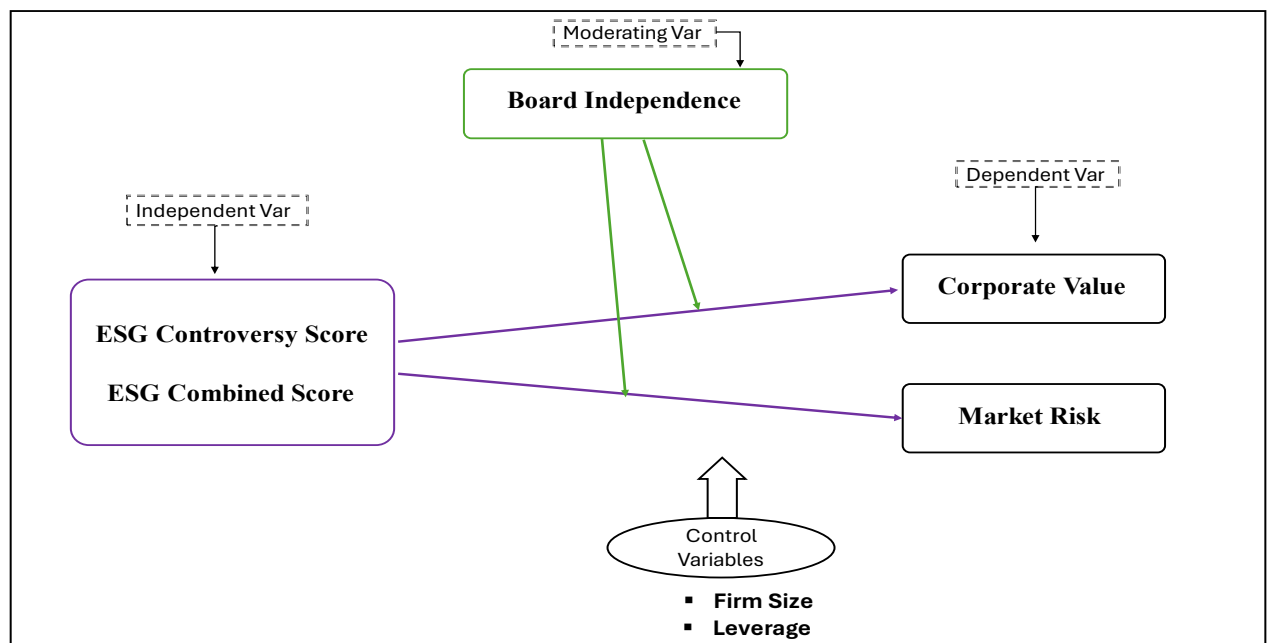
Based on the above arguments, examining the likely moderating influence of an independent board of directors on the relationships between ESG controversy and corporate value and between ESG controversy and a firm's market risk would interest various stakeholders. Thus, this study puts forward the following hypotheses:

**H3:** Board independence moderates the relationship between ESG controversies and the corporate value of firms.

**H4:** Board independence moderates the relationship between ESG controversies and firms' market risk exposure.

### Theoretical Framework

The theoretical structure of this study, illustrated in Figure 1 below, reveals four potential relationships with the controversial issue of ESG. The ESG controversy, serving as the independent variable, is represented by two metrics: the ESG controversy score and the ESG combined score. The first relationship investigates the impact of ESG controversies on corporate value, while the second relationship investigates the effect of ESG controversies on market risk exposure. The third and fourth relationships considered the separate moderating influence of board independence on the first and second relationships. These investigations are conducted under the control of two essential variables: firm size and leverage.



**Figure 1. Theoretical Framework.**

### Research Methodology

This describes the study sample and data collection, describes the variables, and specifies econometric models for the study.

#### *Sample and Data Collection*

The study sampled 117 publicly quoted firms indexed as constituents in the FTSE4Good Bursa Malaysia (F4GBM) Index's latest update as of June 2024. Purposive sampling was deployed, which focused on constituents with ESG controversy scores between 2021 and 2023, thus giving a total of 351 firm-year observations. These companies have passed through the rigorous collaborative ESG review process of Bursa Malaysia and FTSE Russell, which is geared towards promoting and encouraging the adoption of ESG practices in the marketplace.



The ESG controversy and the combined ESG scores were sourced from the Refinitiv Eikon database. The ESG combined score represents a comprehensive corporation evaluation based on the disclosed data within the environmental, social, and governance pillars scores, augmented by the ESG controversies overlay. The ESG controversy score (ESGC) quantifies the adverse information reported about corporations derived from 23 contentious ESG issues in the database. These include human rights violations, environmental innovations, emissions, resource usage, employee working conditions, consumer protections, etc (Refinitiv, 2023). Refinitiv considers negative media stories and concerns around these ESG practices thematic areas. An elevated ESGC signifies that a corporation experiences lower ESG issues, with a score of 100 indicating the absence of any issues (Dorfleitner et al., 2022; Shakil, 2021). Thus, to ensure a straightforward interpretation and presentation of the controversies scores, this study adopted an interpretation guide similar to the approach by past studies (Lee & Isa, 2024; Aouadi & Marsat, 2018). That is by multiplying the controversy scores by -1.

This study equally employed proxies for the dependent and the control variables, which data were all collected from the Refinitiv Eikon workspace. Such proxies included market-to-book value, stock price volatility, firm size, and leverage. Data on the moderating variable, proxied by board independence, was sourced from the published annual reports of the sampled firms and the Refinitiv workspace. Refinitiv is among the leading global providers of financial markets data and infrastructure, serving as a reputable and extensive international database for financial and accounting information (Refinitiv, 2023).

### ***Variable Descriptions***

The description of the variables employed in the study has been summarised in Table 3.1 below to reflect the variable's name, type, measurement, and the prior study source from which it was adopted earlier.

**Table 3.1: Description of Variables**

<b>Variable Name</b>	<b>Type</b>	<b>Measurement</b>	<b>Prior Study Adopted</b>
Market to Book Value (MTB)	Dependent Variable	<i>Market Value divided by the Firm's Equity Book Value.</i>	(Okoye et al., 2024; Passos & Campos-Rasera, 2023)
Stock Price Volatility (SPV)	Dependent Variable	<i>Annualised Standard Deviation of the Monthly Returns.</i>	(Lee & Isa 2024; Shakil, 2021)
ESG Controversy Score (ESGC)	Independent Variable	<i>As reported by Refinitiv, it assesses a company's vulnerability to ESG controversies and adverse occurrences covered in the media.</i>	(Juca' et al., 2024; Shakil, 2021)
ESG Combined Score (ESGCOM)	Independent Variable	<i>Computed by Refinitiv as the overall ESG Score based on reported information with an ESG Controversies overlay.</i>	(Sandu, 2023)

Board Independence (BDIND)	Moderating Variable	<i>Proportion (%) of Independent Non-Executive Directors on the board.</i>	(Elamer & Boulhaga, 2023); Okoye 2021)
Firm Size (FS)	Control Variable	<i>Natural logarithm of Total Assets.</i>	(Elamer & Boulhaga, 2023; Sandu, 2023)
Leverage (LV)	Control Variable	<i>Ratio of Total Debt to Total Assets.</i>	(Lee & Isa 2024; Juca' et al., 2024)

### ***Econometric Model Specification***

This paper's empirical modelling specification was designed to test the research hypotheses and achieve the study objective. As such, pooled OLS panel regression models were employed, as earlier adopted by prior studies in Lee & Isa (2024), Wu et al. (2023), and Shakil (2021). Four (4) regression models were specified in line with the formulated hypotheses, as shown below.

**H1:** ESG controversies significantly impact the corporate value of firms:

$$MTB_{it} = \beta_0 + \beta_1 ESGC_{it} + \beta_2 ESGCOM_{it} + \beta_3 FS_{it} + \beta_4 LV_{it} + e_{it} \dots\dots\dots (Model\ 1)$$

**H2:** ESG controversies significantly influence market risk exposure of firms:

$$SPV_{it} = \beta_0 + \beta_1 ESGC_{it} + \beta_2 ESGCOM_{it} + \beta_3 FS_{it} + \beta_4 LV_{it} + e_{it} \dots\dots\dots (Model\ 2)$$

**H3:** Board independence moderates the relationship between ESG controversies and the corporate value of firms:

$$MTB_{it} = \beta_0 + \beta_1 ESGC_{it} + \beta_2 ESGCOM_{it} + \beta_3 BDIND_{it} + \beta_4 ESGC_{it} \times BDIND_{it} + \beta_5 ESGCOM_{it} \times BDIND_{it} + \beta_6 FS_{it} + \beta_7 LV_{it} + e_{it} \dots\dots\dots (Model\ 3)$$

**H4:** Board independence moderates the relationship between ESG controversies and market risk exposure of firms:

$$SPV_{it} = \beta_0 + \beta_1 ESGC_{it} + \beta_2 ESGCOM_{it} + \beta_3 BDIND_{it} + \beta_4 ESGC_{it} \times BDIND_{it} + \beta_5 ESGCOM_{it} \times BDIND_{it} + \beta_6 FS_{it} + \beta_7 LV_{it} + e_{it} \dots\dots\dots (Model\ 4)$$

**Where:** *MTB* - market to book value of equity, *SPV* - stock price volatility, *ESGC* - ESG controversies score, *ESGCOM* - ESG combined score, *BDIND* – board independence, *FS* – firm size, *LV*- leverage,  $\beta_0$  – Constant,  $\beta_1 \dots \beta_7$  - Coefficient to be estimated, where  $\beta_1 \dots \beta_7 > 0$ , *it* - cross-section of the listed firms at a time-variant, and *e* – the error terms.

## Results and Discussion

### *Descriptive Statistics Results*

As deployed in this study, descriptive statistics analyses the inherent characteristics and behaviour of the collected sample data and unveils their probable connection in addressing the research questions and study objective. Table 4.1 below provides a comprehensive summary statistics overview, capturing all the study variables with 351 observations for each. It equally provides a summary of the normality test conducted to ascertain the distribution in the data set.

**Table 4.1 Summary Statistics**

Variable	Obs.	Mean	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Prob>chi2
MTB	351	3.319	7.476	-5.62	66.59	0.000	0.000	0.000
SPV	351	0.306	0.225	0.04	1.74	0.000	0.000	0.000
ESGC	351	-96.597	10.592	-100	-18.75	0.000	0.000	0.000
ESGCOM	351	55.628	15.882	12.49	91.6	0.213	0.117	0.133
BDIND	351	54.141	12.708	25	93.75	0.253	0.591	0.448
FS	351	10.855	1.869	7.35	16.15	0.000	0.772	0.000
LV	351	0.249	0.255	0	3.48	0.000	0.000	0.000

Source: Authors' Stata Output Results, 2024

As shown in Table 4.1 above, market-to-book value (MTB) has a mean of 3.32 with a dispersion of 7.48. Its maximum observation is 66.59, while the minimum is -5.62. This indicates a more dispersed distribution around the mean, as the standard deviation is over double the average MTB. Conversely, the stock price volatility (SPV) showed a mean value of 0.31 with a lower standard deviation of 0.23. It has a maximum value of 1.74 and a minimum value of 0.04. SPV could be said to demonstrate a concentrated distribution around the mean. This may connote lower market risk exposures for the sampled firms. The ESG controversy score (ESGC) has an average score of 96.60 with a dispersion of 10.59 from both sides of the mean. The highest controversy performance score observed was 100, and the lowest was 18.75. The mean and the standard deviation indicated that most of the sampled firms had few ESG controversy issues. This is supported by the assertion of Shakil (2021) that a higher ESGC suggests that the firm has a lower level of ESG issues. Thus, a performance score of 100 connotes zero controversial issues present. Similarly, the average ESG combined score (ESGCOM) stood at 55.63, with a standard deviation 15.88. The maximum value is 91.6, while the minimum value is 12.49. The mean demonstrated that an average firm scored above 50% in their ESG performance even after considering the controversy outlay.

Board Independence (BDIND), as illustrated in Table 4.1 above, showed its highest observed value at 93.75%, while the lowest value was 25%. Its average score was 54.14%, with a standard deviation of 12.7%. This indicates that over half of the sampled firms recognised the

need for an independent board to drive quality organisational decision-making and control. The firm size (FS) showed a mean of 10.85 with a low dispersion of 1.86, and leverage (LV) showed a mean of 0.25 with a standard deviation 0.25 around the mean value.

Further, Table 4.1 equally presents results for the normality test performed. It revealed that the computed Pr(kurtosis) and Pr(skewness) observed for all the variables, with the exception of ESGC and BDIND, are less than 0.05, which disproves the null hypothesis that distributions are normal. The joint probability of chi2 for skewness and kurtosis of all the variables corroborated the individual test results. The abnormal distribution in the data set may indicate the presence of some outliers in the collected data set.

### Correlation Matrix Analysis

The study considered Anscombe's (1960) assertion that Spearman's rank-order correlation will show a modest relationship when the data set distribution is abnormal. Thus, given that the results from the Skewness and Kurtosis tests revealed a non-normal distribution due to the presence of some outliers, we adopted Spearman's rank-order correlation.

**Table 4.2 Correlation Matrix**

```
. spearman mtb spv esgc esgcom bdind fs lv, stats(rho)
(obs=351)
```

	mtb	spv	esgc	esgcom	bdind	fs	lv
mtb	1.0000						
spv	-0.2192	1.0000					
esgc	-0.1005	0.0712	1.0000				
esgcom	0.1168	-0.2382	-0.0804	1.0000			
bdind	0.0261	-0.0691	-0.0259	0.2771	1.0000		
fs	-0.2260	-0.2632	0.0878	0.4256	0.1166	1.0000	
lv	-0.1648	-0.0046	0.0269	-0.0022	-0.1594	0.2824	1.0000

Source: Authors' Stata Output Results, 2024

Table 4.2 above captured the relationships between variables and cuts across the independent, dependent, moderating and control variables. The results obtained showed that stock price volatility (SPV) has a negative relationship (-0.022) with the market-to-book value (MTB). This indicates that increasing market risk exposures could decrease the corporate value of firms in the market. ESG controversy score (ESGC) displays a positive association (0.071) with stock price volatility (SPV), indicating that an increase in controversies will lead to increasing volatility of stock price returns and, thus, higher market risk exposure. This agrees with the postulation of Kölbel et al. (2017) that ESG controversies will lead to firms' exposure to market risk. However, the ESGC recorded an inverse relationship (-0.100), indicating that increasing controversies will translate to declining corporate value. This is in line with the assertion of Wu et al. (2023), which argued that ESG controversies distort firms' resource efficiency, subsequently deteriorate their corporate values and expose them to increased market risk. The ESG combined score (ESGCOM), as illustrated in the table, is positively correlated (0.117) and negatively correlated (-0.234) with market-to-book value and stock price volatility, respectively. This indicates that the corporate value will increase at a higher performance ESG combined score while the market risk exposures will decrease. Similarly, board independence (BDIND) is positively associated (0.026) and negatively associated (-0.069) with the market-to-book value and stock price volatility, respectively. Thus, it is connoting that the presence of

an effective independent board could improve corporate value and reduce firms' market risk exposure.

The control variables also shared noteworthy insights regarding the variable relationships. The firm size (FS) negatively correlates with the market-to-book value and stock price volatility. This indicates that large firms with controversial issues will face declining corporate value and are more susceptible to volatility and market risks, given their asset size. Similarly, leverage (LV) is negatively correlated with the market to book value and stock price volatility, indicating more leverage firms will experience lower corporate values but are less vulnerable to variations in stock price return volatility at the market level, as argued by Aydemir et al. (2007). Furthermore, it was observed that none of the relationships amongst sampled variables were more significant than 0.70 to pose a problem of singularity and subsequent multicollinearity.

## Regression Analysis Results and Discussion

### *Heteroskedasticity*

The study conducted the Breusch-Pagan test of heteroskedasticity to ascertain if the variations in the error term were constant across all levels of the independent variable proxies. The results obtained, as shown in Table 4.3 below, indicated that heteroskedasticity was a problem present in all four mathematical models of the study. Thus, a robust regression with standard errors was adopted to correct the issue and give a better interpretation of the data set.

**Table 4.3 Heteroskedasticity Test**

<b>Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity</b>				
<b>Model Type</b>	<b>chi2</b>	<b>Prob&gt;chi2</b>	<b>Joint Significance</b>	<b>Correction</b>
Model 1	196.12	0.0000	Yes	Robust Pool OLS
Model 2	49.08	0.0000	Yes	Robust Pool OLS
Model 3	199.91	0.0000	Yes	Robust Pool OLS
Model 4	68.82	0.0000	Yes	Robust Pool OLS

Source: Authors' Stata Output Results, 2024

### *Impact of ESG Controversies on the Corporate Value of Firms.*

The results of the robust pooled regression model 1, as presented in Table 4.4 showed that the ESG controversy score (ESGC) had an insignificant impact on market-to-book value (MTB), but the ESG combined score (ESGCOM), which is the performance score after controversy outlay had a strong significant positive impact on market to book value (MTB), with a p-value 0.005 and coefficient of 0.118 at 1% significant level. The insignificant impact of the ESG controversy score on corporate value contradicts the findings of Mendiratta et al. (2023) and de Franco (2020), which all found significant and inverse relationships in their past studies. The results of the ESG combined score on corporate value agree with the findings of Melinda & Wardhani (2020), who concluded that both the ESG score and the ESG controversy score directly affect the corporate value of firms in Asia. The ESGC score combines both the ESG performance score and controversy score. Furthermore, Aouadi & Marsat (2018) had earlier



argued that ESG controversy impacts the image of firms, reduces their corporate value and enhances vulnerability to stock price volatility due to the unethical practices and ESG controversies issues associated with corporate organisations.

#### ***Impact of ESG Controversies on the Market Risk Exposure of Firms.***

The results of the robust pooled regression model 2 conducted for SPV, as illustrated in table 4.4, depict that the ESG controversy score (ESGC) had a significant positive impact on stock price volatility (SPV) with a coefficient of 0.003 and p-value of 0.015, which is significant at the 5% level. This indicates that increased ESG controversies will lead to increased volatility and market risk exposure for firms. The results of the ESG combined score also showed a significant but inverse effect on stock price volatility (SPV) with a coefficient of -0.002 and p-value of 0.030, at a 5% significant level. This connotes that firms with high-performance scores after controversy outlay will have less volatility in their stock returns and, thus, lower market risk exposures. This finding is consistent with prior studies, which found ESG controversies to significantly impact market risk and stock price volatility (Lee & Isa, 2024); Sandu, 2023; Gao et al., 2022; Shakil, 2021). Lee & Isa (2024) found that ESG is negatively related to risks while ESGC are positively related to market risks. Similarly, Sandu (2023) investigated the impact controversies and ESG performance on stock return volatility and found a significant direct impact.

#### ***The Moderating Effects of Board Independence on: ESG Controversies and Corporate Value, ESG Controversies and Market Risk Exposure.***

This study went further to formulate two mathematical models to separate investigate the moderating effect of board independence on the relationships between ESG Controversy and corporate value, and ESG Controversy and market risk. The study results are as presented in table 4.4. The results of pooled regression model 3 showed that, the interaction of board independence and ESG Controversy does not have a significant moderating effect on corporate value with a coefficient of -0.003 and p-value of 0.495 for the controversy score, and coefficient of -0.000 and p-value of 0.856 for the combined score. This may open up an opportunity for corporate governance portioners and regulators to take a further look on how corporate boards can be structured to cushion possible adverse effect of ESG controversies on corporate value of firms.

On the other hand, the results of pooled regression model 4 showed that, the interaction of board independence and ESG Controversy have a significant moderating effect on market risk exposure of firms with a controversy score coefficient of 0.000 and p-value of 0.000, which is highly significant at the 1% level. This is an indication that board independence interaction with ESG controversy can cushion the adverse effect of controversies have market risk exposure of firms. This finding is consistent with the result obtained by Elamer & Boulhaga (2024), which found a significant positive interaction between board independence and ESG controversies. Beji et al. (2021) had earlier postulated that independent directors on boards correlate positively with corporate social responsibility performance within the framework of ESG activities. This occurs against the backdrop that independent directors do not engage in the organisation's daily operations and primarily fulfil an oversight function regarding the company's activities. Benkraiem et al. (2021) agree with view and argue that independent directors are more predisposed to promote enhanced sustainability disclosures (Benkraiem et al., 2021). As such, an effective independent board of directors will persuade corporate managers to engage in well-thought-out sustainable activities that could boost corporate

performance and, retained investors' market confidence in the firms' stocks, and at large reduce market risk exposures.

**Table 4.4: Robust Pooled OLS Regression Models for ESG Controversy on MTB and SPV, with Board Moderating Influence.**

	Model 1 – MTB		Model 2 – SPV		Model 3 – MTB		Model 4 – SPV	
Variable	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
ESGC	<b>0.019</b> (0.029)	0.500	<b>0.003**</b> (0.001)	0.015	<b>0.174</b> (0.247)	0.481	<b>-0.018***</b> (0.004)	0.000
ESGCOM	<b>0.118***</b> (0.042)	0.005	<b>-0.002**</b> (0.001)	0.030	<b>0.140</b> (0.106)	0.187	<b>-0.007*</b> (0.004)	0.100
BDIND					<b>-0.275</b> (0.427)	0.520	<b>0.035***</b> (0.008)	0.000
ESGC*BDIND					<b>-0.003</b> (0.004)	0.495	<b>0.000***</b> (0.000)	0.000
ESGCOM*BDIND					<b>0.000</b> (0.002)	0.856	<b>0.000</b> (0.000)	0.202
FS	<b>-1.088***</b> (0.232)	0.000	<b>-0.018***</b> (0.006)	0.006	<b>-1.069***</b> (0.237)	0.000	<b>0.020***</b> (0.006)	0.001
LV	<b>0.668</b> (1.394)	0.632	<b>0.063</b> (0.040)	0.118	<b>0.541</b> (1.412)	0.702	<b>0.067*</b> (0.041)	0.100
Constant	<b>10.267***</b> (3.485)	0.003	<b>0.949***</b> (0.163)	0.000	<b>24.795</b> (25.326)	0.328	<b>-0.893**</b> (0.376)	0.018
Observation(N)	351		351		351		351	
R-squared	0.0751		0.1012		0.0777		0.1467	
Prob > F	0.0000		0.0000		0.0001		0.0000	

Source: Authors' Stata Output Results, 2024

Note: Standard errors are in parenthesis, while \*\*\*, \*\*, and \* represents statistical significance at 1%, 5% and 10% respectively

### Conclusion and Study Contributions

This study sets out to examine the effect of ESG controversies on corporate value and market risk, focusing specifically on the moderating influence of board independence. Four hypotheses were formulated and tested by deploying pooled panel regression models. The following empirical findings were obtained. Firstly, the study revealed that the ESG controversy score has an insignificant impact on corporate value, while the ESG combined score, which is the performance score after controversy outlay, had a strong, significant positive impact on corporate value. Secondly, the ESG controversy score was determined to exert a substantial positive effect on market risk and stock return volatility. In contrast, the ESG combined score showed a significant but inverse impact on stock return volatility. These findings were consistent with prior studies on ESG controversies (Lee & Isa, 2024); Sandu, 2023; Gao et al., 2022; Shakil, 2021). Thirdly, the study revealed that the interaction between board independence and ESG controversies does not significantly moderate corporate value, presenting an opportunity for corporate governance practitioners and regulators to explore further how corporate boards can be structured to mitigate the potential adverse effects of ESG controversies on the corporate value of firms. Finally, the study found that the interaction of board independence and ESG Controversy has a significant moderating effect on the market risk exposure of firms.

The above findings of this study have instigated a couple of noteworthy contributions. It has expanded the academic literature on ESG controversies and their potential impacts on firms' corporate value and market risk exposure while exploring and unveiling interesting findings from a fresh perspective of the moderating effect of board independence, particularly in an emerging economy context like Malaysia. The study findings have provided information and guidance to governance practitioners and ESG regulatory policy makers to help them be better equipped in their policy formulation and practical implementation. Corporate managers have also been provided with information on how corporate structures and ESG strategies can affect corporate value and a firm's risk exposures. This will go a long way in guiding their organisational structuring and corporate strategy formulation, which is targeted at reducing the firm's ESG controversies and market risk exposures while growing its corporate value.

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