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Sustainable corporate governance and gender diversity on corporate boards: evidence from COVID-19

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ABSTRACT

The unprecedented challenges caused by the COVID-19 pandemic have led to a need to re-examine sustainable corporate governance practices. Within this context, the current study investigates the moderated effect of gender-diverse corporate boards on sustainable corporate governance practices in Malaysian financial and non-financial firms during the period 2011–2020, employing the dynamic estimator (S-GMM). During the COVID-19 pandemic, a negative relationship between ownership constructs and Global Reporting Initiative (GRI) indicators is observed in non-financial firms, whereas the opposite is reported for financial firms. Moreover, the moderated effect of gender-diverse boards is only substantiated in financial firms. The findings reveal that sustainable corporate governance is practised in financial firms but not in non-financial firms. Particularly, we draw significant implications for policymakers and regulatory bodies of Malaysia to carefully monitor the implementation of sustainable corporate governance given uncertain circumstances of COVID-19 pandemic. Further, our study is beneficial for academics, practitioners, and research scholars for their future research endeavours.

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1. Introduction

Sustainable corporate governance is a topic of great interest for research scholars, practitioners and policy-makers, as it combines both corporate governance and corporate sustainability. Corporate sustainability, also referred to as corporate sustainable performance (CSP) (Aksoy et al., 2020), is part of the core strategy of many 21st century corporations (Mirza, Hasnaoui, et al., 2020; Mirza, Rahat, et al., 2020; Rizvi,

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Mirza, et al., 2020; Rizvi, Yarovaya, et al., 2020; Sreevas et al., 2020). Several nations have focused on corporate social responsibility (CSR) and corporate sustainability, given the economic, social, and environmental dynamics of the current business environment (Iqbal et al., 2021; Karim & Naeem, 2021; Qa'dan & Suwaidan, 2019; Yarovaya et al., 2020a, 2020b). The COVID-19 pandemic has revealed serious shortcomings in both previous and current corporate governance practices, as well as possible outcomes that may negatively affect a firm's performance. Sustainable corporate governance plays a vital role in adding value to a firm's sustainable and financial performance. Against this background, this study investigates whether sustainable corporate governance practices have prevailed in Malaysia since the COVID-19 outbreak, and it considers both financial and non-financial firms.

Ownership structure, which stipulates the role of shareholders in a firm, is a key corporate governance attribute that is responsible for reducing agency conflicts between majority and minority shareholders (Aluchna & Kaminski, 2017). It is asserted that ownership structure can improve the alignment of management and shareholders' interests and mitigate any opportunistic behaviour resulting from conflicts of interest (Chen et al., 2017). Several research studies have examined the connection between corporate governance and CSR in developed economies, such as the UK, the US, Australia and Canada (Issa & Fang, 2019; Mirza, Naqvi, et al., 2020; Zhuang et al., 2018). There is, however, a lack of evidence regarding this relationship in the emerging markets context, particularly in Malaysia. The majority of earlier research studies on corporate governance and corporate sustainability has been limited to one CSR proxy, for example CSR investments (Harjoto & Jo, 2011; Karim, 2021a), CSR disclosure (Hongming et al., 2020), and CSR reporting index (Reddy & Jadhav, 2019). In contrast, recent research examines the impact of corporate sustainability on corporate governance (Aksoy et al., 2020; Sreevas et al., 2020) using the logit regression model, but there is a lack of empirical evidence examining the influence of corporate governance on CSP, particularly during the COVID-19 pandemic.

Malaysia can be seen as a relevant example when examining the relationship between corporate governance and corporate sustainability. It is considered to be an emerging economy, which is ranked fifth in the ASEAN region, with a GDP OF 336.7 USD Billion (World Bank, 2021). Moreover, the country differs as regards demographical characteristics such as religion, ethnicity, and culture. The concept of CSR and CSP in Malaysia is well developed (Karim et al., 2020a, 2020b; Karim, Akhtar, et al., 2021; Karim, Rabbani, et al., 2021), as companies are continuously striving to address economic, social and environmental concerns in their daily operations and organisational processes. However, some non-financial firms have addressed CSR and CSP concerns inadequately in their annual reports (Chiang, 2020; Hongming et al., 2020), whether it is CSR in practice or in terms of reporting mechanisms. The COVID-19 pandemic has significantly influenced daily business operations in Malaysia, where recurring Movement Control Orders (MCOs) have spurred the need to examine sustainable corporate governance practices.

Corporate governance in Malaysia has attracted the attention of several research scholars and practitioners, as blockholders dominate the listed companies in Malaysia (Karim et al., 2020a). Approximately 10–12 family groups control a range of

companies, while several government-linked investment funds hold around 30% of market capital. In addition, the concentrated ownership structure in Malaysia is significant, as the conflict of interests between owner and management has shifted towards owner–owner conflicts (AlQadasi & Abidin, 2018; Karim, Lucey, et al., 2022a; 2022b; Karim, Naeem, et al., 2021; Sheikh & Karim, 2015). Thus, Malaysian firms, with blockholder ownership in terms of families, state, and individuals differ from those in Western countries, such as the US and the UK.

There is little consensus on the effects of corporate governance on CSP (Sreevas et al., 2020; Umar, Ji, Mirza, & Naqvi, 2021; Umar, Ji, Mirza, & Rahat, 2021). Focusing on the period of the COVID-19 pandemic, this study contributes to existing knowledge by empirically testing sustainable corporate governance practices in Malaysian financial and non-financial firms. The research findings indicate a research gap in the existing literature in which there is little empirical evidence on the given relationship, and it suggests further investigation of the connection between corporate governance and sustainable corporate performance. Moreover, the role of female board members is emphasised. It is felt that the caring nature of women is needed in order to enhance socially responsible activities within a firm and contribute to the sustainable operations of a firm, thus enhancing CSP (Karim, 2021b; Karim, Lucey, et al., 2021; Manogna, 2021). This study is innovative as it suggests the moderating effect of board gender diversity on the relationship between corporate governance and CSP. Its investigations into the impact of corporate governance on corporate sustainability in Malaysian financial and non-financial firms during COVID-19 has important implications for regulators, analysts, academics and practitioners.

The remainder of this research is organised as follows: Section 2 presents the literature review; Section 3 describes the methodology, including the measurement of samples and variables and the research models; Section 4 presents the regression analysis using the System-Generalised Method of Moments (S-GMM) and discussion of the results; and Section 5 concludes with research implications and future research directions.

2. Literature review

2.1. Sustainable corporate governance and COVID-19

The COVID-19 crisis has provided a context for firms to initiate change through sustainable practices and to use transformed models to add value to their operations. The European Commission (2019) has outlined several shifts in the production and supply systems towards a more environment- and society-friendly governance structure (Ji, Chen, et al., 2021; Ji, Zhang, et al., 2021; Mattera et al., 2020). To initiate changes, a firm requires infrastructure, resources and different communication channels to cope with the challenges of the competitive environment. To attain sustainability of its operations, it is necessary to include corporate reputation and firm financial outcomes as significant keys to the ladder of success (Teece, 2010; Umar, Su, Rizvi, & Lobonç, 2021; Umar, Su, Rizvi, & Shao, 2021). The COVID-19 pandemic has substantially altered the socio-economic structure of each country. Therefore, contemporary approaches demand corporate governance to maintain a balance

between sustainable practices and firm-value (Gaur et al., 2019). Given that existing practices do not fit the current challenging business environment, firms and regulatory bodies are adopting new practices to achieve process sustainability (Ferrat et al., 2022; Ielasi et al., 2018; Lobato et al., 2021; Tarchouna et al., 2019). Beyond profitability, firms have to be more knowledgeable regarding the sustainability of their businesses and corporate governance structures (El-Kassar & Singh, 2019).

Since sustainable corporate governance is based on the premise of a triple-bottom line, it needs to comply with the strong commitment of these strategic moves for long-lasting benefits. Albuquerque et al. (2020) assert that stocks that have higher environmental and social features outperform others during periods of crisis. Naeem, Adekoya, et al. (2021), Naeem, Farid, et al. (2021) and Naeem, Rabbani, et al. (2021) also highlight the fact that environmentally friendly investments, such as green bonds, have safe-haven properties that substantiate the role of these bonds towards achieving sustainability. Similarly, clean-energy (Naeem & Karim, 2021; Taghizadeh-Hesary et al., 2019, 2021), environmental stocks (Arif et al., 2021), and ethical investments (Naqvi et al., 2021; Nguyen et al., 2021) are highlighted as performing well during the COVID-19 pandemic. In this way, sustainable corporate governance procedures are assumed to outperform others during periods of economic stress.

Researchers have become increasingly interested in examining the connection between corporate governance and corporate sustainability, but, to date, findings have provided vague and inconclusive results. The relationships between the two main areas of research focus on agency and stakeholder theories. For this reason, corporate governance and corporate sustainability complement each other significantly. Jensen and Meckling (1976) and Yilmaz et al. (2020) argue that corporate governance and sustainability point to an organisation's fiduciary and ethical commitments towards stakeholders. In a similar vein, Jamali et al. (2010) claim that corporate governance and a firm's sustainable practices overlap each other, with one construct strengthening the other in a meaningful way.

Some studies assert that corporate governance contributes directly towards developing the core strategy of a company and that effective control and governance structure contribute equally to a firm's CSR strategy (Aksoy et al., 2020). On the other hand, there are studies that reaffirm the predictions of agency theory, suggesting a negative influence of corporate governance on CSP and contending that companies with diffused ownership structures tend to reduce their CSP, as the commitment of controlling shareholders is limited to wealth maximisation rather than stakeholder satisfaction (Kansal et al., 2018). In particular, where the institutional structure of a firm is underdeveloped, and there is little external control, this study also proposes that the agency cost perspective fits the situation while increasing the hazards of expropriation by large shareholders and neglecting concerns for corporate sustainability.

The term 'state ownership' refers to shares being held by the government and government-linked bodies. This leads to the government having significant dominance over companies (Aluchna & Kaminski, 2017). It is asserted that state monitoring improves the CSP of firms, as it monitors investment and lowers the risk (Berninger et al., 2021; Kaiser & Welters, 2019; Kansal et al., 2018). In the same vein,

government-controlled firms are able to combat risks far better than those where government influence is low (Chen et al., 2017). Companies have access to the financial resources of the state, attracting several investments, particularly those related to corporate sustainability (Mishra & Suar, 2010), which are offered by the government and provide compensation schemes to less developed firms. State ownership, as indicated by the construct, is responsible for internalising the relationship between government and firms within the state (Chen et al., 2017). For this reason, state ownership may have an inverse effect on CSP due to social, political factors, as well as little or no benefit for the goals of firms (Aksoy et al., 2020; Memili et al., 2018).

The term 'director ownership' defines the proportion of shares held by the directors, their spouses and children (Karim et al., 2020a, 2020b). As owners of the firm, they can influence the monitoring mechanisms and CSP strategies. Agency theory suggests that, if the proportions of director shareholdings increase within a firm and equates to the main shareholders, their interests tend to be aligned with reduced agency costs. Correspondingly, this alignment mechanism of interests will persuade the directors to initiate sustainable practices within the firm in order to increase its reputation and overall wellbeing (Karim, 2021b). However, directors that act as owners may also misuse the rights of shareholders because they may pursue value-declining decisions and encourage personal benefits that result in a value-declining impact on CSP. In addition, some studies have reported results regarding agency theory that document a direct connection between director ownership and corporate sustainability.

A financial investor is viewed as an important element of corporate governance. Due to their experience and professional knowledge, institutions provide insights, monitor executives and discipline dominant owners (Nagel et al., 2015). Furthermore, financial investors influence strategic behaviour towards active shareholder policy by monitoring corporate inflows and outflows, reforming corporate governance patterns and bringing to the board social, environmental and economic issues (Hongming et al., 2020; Nagel et al., 2015). The positive relationship between financial investor ownership and CSP is documented in numerous studies, but this relationship is more complicated in its nature (Mattingly, 2017). The empirical findings of this study report that financial owners hold different opinions and expectations towards a firm's CSR strategy, and they have different expertise in monitoring a firm's strategies and its behaviour regarding governance (Chen et al., 2017; Ghazali, 2010). In emerging markets, the relationship between financial investors and a firm's sustainable performance is rather inconsistent, and few studies document positive relationships (Hassan & Halbouni, 2013).

The term 'CEO duality' refers to a situation in which a person performs dual roles as CEO and chairman of a firm. Theoretically, duality increases the unity of command (Nuanpradit, 2019), but avoiding dual roles causes CEO entrenchment. Evidence reveals that one person holding two positions may lead to decline in performance and, ultimately, raises concerns of internal organisational rifts (Kesner, 1988; Sheikh & Karim, 2015). Scholars have argued that CEO duality causes conflicts of interest, leads to weaker monitoring, declines the value of a firm, raises concerns for stakeholders and brings less fruitful results for sustainability due to entrenchment

(Garas & ElMassah, 2018). Given these reasons, this study also expects an inverse relationship between CEO duality and corporate sustainability.

2.2. The moderated role of gender-diverse boards

The need for females on boards has been stressed in several studies. Advocates of gender diversity on boards suggests that including female members increases the competitive advantage of a firm in terms of saving costs, inspiring the company and improved communication across different levels of the organisation and between members of the board (Karim, 2021a). Diversity on the board offers potential employment opportunities, attracts more qualified individuals and better serves the company as compared to boards that only consist of men (Byron & Post, 2016; Zhuang et al., 2018). This study is significant as it investigated the effect of female directors in corporate governance and CSP, and it concluded that women have a more caring behaviour towards the environment, community and society (Karim, 2021b).

Theoretically, the upper echelons theory states that women differ cognitively to men; their prior knowledge, experience and values also differ when making the strategic decisions that ultimately elevate a firm's sustainable performance (Karim et al., 2019). Hence, it is expected that decisions of boards of directors towards CSP differ according to their composition in terms of gender (Reddy & Jadhav, 2019). In the same vein, this study also asserts that women tend to moderate the relationship between corporate governance and corporate sustainability, as women's values are aligned towards the social and sustainable practices of firms. In addition, women bring experience and knowledge to the board, and this may have strategic implications for firms in terms of sustainable performance, philanthropy, and community-related activities (Gilligan, 1982; Jaffee & Hyde, 2000). Evidence that supports the arguments of board gender diversity accentuates the significant role of female directors on the board regarding the relationship between a firm's corporate governance and CSP.

3. Methodology

The data was obtained from the annual reports of several Malaysian financial and non-financial listed firms. In total, there are 842 financial and non-financial companies listed on Bursa Malaysia, and the balanced panel data were extracted from 452 non-financial companies. The number of financial firms in Malaysia is quite low compared to other sectors. After careful scrutiny of financial firms and the availability of data, this study included the data of 40 financial firms from the period 2011–2020. In addition, estimations for both financial and non-financial firms were conducted independently, as the nature of business of both types of firms differs in terms of regulations and lending mechanisms. Data was analysed using system-GMM, which controls for the problem of heterogeneity, endogeneity and reverse causality.

Table 1. Operational definition and measurement of variables.

Variables	PROXY	Definition
Panel A: Dependent variables		
Economic index	ECO_{it}	Consisted of 5 Economic indicators divided by total 45 indicators included in the study.
Social index	SOC_{it}	Consisted of 18 Social Indicators divided by total 45 indicators included in the study.
Environmental index	ENV_{it}	Consisted of 22 Environmental indicators divided by total 45 indicators included in the study.
Panel B: Independent variables		
Ownership concentration	$OWNC_{it}$	Shares held by 5–10 largest shareholders to outstanding common shares.
State ownership	$SOWN_{it}$	Shares held by the state and state-affiliated institutions to outstanding common shares.
Director ownership	$DOWN_{it}$	Shares held by directors, their spouses and children to total outstanding common shares.
Financial institution ownership	$FLOWN_{it}$	Shares held by financial institutions to total outstanding common shares.
CEO duality	$CEOD_{it}$	A situation where a CEO performs dual roles.
Board gender diversity	$BGDIV_{it}$	Ratio of female members on board to total board of directors.
Panel C: Moderating variable		
Board gender diversity	$BGDIV_{it}$	Ratio of female members on board to total board of directors.
Panel D: Control variables		
Firm size	$FSIZE_{it}$	Natural logarithm of total assets.
Firm age	$FAGE_{it}$	Number of years in corporation.
Firm leverage	$FLEV_{it}$	Total liabilities to total assets.

Source: Developed by the author(s).

Dependent variables included in the study were economic, social and environmental indicators based on the Global Reporting Initiative (2013) G4 guidelines. Independent variables included ownership concentration, state ownership, director ownership, financial institution ownership and CEO duality. Data that was relevant to corporate governance variables was collected from the annual reports of the firms. Accordingly, for economic, social and environmental indicators, the indicators were proxied by '0' if there was no information available and '1' if firms reported relevant information of indicators in their annual reports. Furthermore, each indicator was distinguished by its index divided by the total number of indicators relevant to economic, social and environmental components. Based on the relevance of the indicators in the Malaysian business environment, this study used a total of 45, and these consisted of five economic indicators, 18 social indicators and 22 environmental indicators.¹ Table 1 presents the operational definitions and measurements of the variables used in the study.

In order to deal with the dynamic nature of the corporate governance and performance relationship, the dynamic panel estimation was carried out using the generalised method of moments (GMM) estimator. The application of this dynamic panel estimator was preferable for several reasons: it allows for lagged dependent variables and unobserved individually specific effects in the specification, which may contribute towards consistent and unbiased estimates of other parameters, thus leading to a more influential model (Blundell & Bond, 1998). The GMM estimator is regarded a robust one, as this estimation method does not require unnecessary assumptions. For example, there is no requirement to have complete information of the exact

distribution of data generating process or the error terms. In developing the GMM estimation, it is commonly assumed that the error terms in the model are not correlated with a set of explanatory variables (Arellano & Bond, 1991). This econometric method efficiently selects the estimator of parameters so that the correlations between error terms and the explanatory variables are very close to zero.

The general regression equation for investigating the impact of corporate governance indicators on corporate sustainability is as follows:

$$Sustainability_{Index} = \beta_0 + \beta_1 CG_{Indicators} + \beta_2 Control_{Variables} + \beta_3 Lagged_{DV} + \varepsilon_{it}$$

For examining the moderating effect of board gender diversity, the general equation is as follows:

$$Sustainability_{Index} = \beta_0 + \beta_1 BGDIV + \beta_2 CG_{Indicators} + \beta_3 BGDIV * CG_{Indicators} + \beta_4 Control_{Variables} + \beta_5 BGDIV * Control_{Variables} + \beta_6 Lagged_{DV} + \varepsilon_{it}$$

4. Data analysis and empirical results

In Table 2, Panel A presents the descriptive statistics of Malaysian non-financial firms, and it indicates that, on average, 56.03% of the ownership was listed as

Table 2. Descriptive statistics of variables.

Variable	Obs.	Mean	SD.	Min.	Max.
Panel A: Descriptive statistics of Malaysian non-financial firms					
<i>ECO_{it}</i>	4520	0.5236	0.5347	0	1
<i>SOC_{it}</i>	4520	0.6128	0.5381	0	1
<i>ENV_{it}</i>	4520	0.5427	0.5607	0	1
<i>OWNC_{it}</i>	4520	0.5603	0.3251	0.2648	0.9284
<i>SOWN_{it}</i>	4520	0.4554	0.1578	0.2254	0.7169
<i>DOWN_{it}</i>	4520	0.1348	0.1409	0.0010	0.4074
<i>FLOWN_{it}</i>	4520	0.3450	0.1270	0.1467	0.5502
<i>CEOD_{it}</i>	4520	0.0951	0.0712	0	1
<i>BGDIV_{it}</i>	4520	0.1098	0.1124	0	0.5
<i>FSIZE_{it}</i>	4520	3842.5	1.8541	2.3014	4.0365
<i>FAGE_{it}</i>	4520	15.26	5.30	6.00	38.00
<i>FLEV_{it}</i>	4520	0.4285	0.4094	0.1287	0.6780
Panel B: Descriptive statistics of Malaysian financial firms					
<i>OWNC_{it}</i>	400	0.5501	0.1684	0.2487	0.7954
<i>SOWN_{it}</i>	400	0.6012	0.4578	0.1289	0.6989
<i>DOWN_{it}</i>	400	0.1434	0.0978	0.0010	0.2148
<i>FLOWN_{it}</i>	400	0.3587	0.2549	0.2146	0.5218
<i>CEOD_{it}</i>	400	0.0023	0.0019	0	1
<i>ECO_{it}</i>	400	0.6895	0.3581	0	1
<i>SOC_{it}</i>	400	0.7861	0.4920	0	1
<i>ENV_{it}</i>	400	0.6746	0.4329	0	1
<i>TSS_{it}</i>	400	0.6920	0.5421	0.09	0.75
<i>BGDIV_{it}</i>	400	0.2010	0.1687	0	0.59
<i>FSIZE_{it}</i>	400	3201.0	1.0327	2.0091	3.4573
<i>FAGE_{it}</i>	400	11.84	4.43	5.00	32.00
<i>FLEV_{it}</i>	400	0.8865	0.8580	0.4754	0.9551

Source: Authors' own estimations.

Malaysian companies. State ownership yields a 45.54% average value, whereas the mean value of director ownership is 13.48%, and ownership by financial institutions is 34.50% on average. CEO duality indicates a mean value of 9% meaning that out of 452 firms, almost 9% of firms have CEOs with dual roles. Corporate sustainability indicators show that Malaysian companies report economic, social and environmental indicators with average values of 52.36%, 61.28%, and 54.27%, respectively. Moreover, the total sustainability score reveals an average value of 55.08%. Regarding board gender diversity, on average, approximately 11% of board members are female. Average firm size indicates 3842.50 USD, and the mean age of firms is 15 years. For leverage, the mean value shows that Malaysian non-financial firms owe 0.4285 USD for each US dollar.

Correspondingly, Panel B of [Table 2](#) provides descriptive statistics of Malaysian financial firms and reveals that the mean value of ownership concentration is 55.01%. The average value of state ownership is 60.12%, whereas director ownership is 14.34% on average. The financial institution ownership reveals that Malaysian financial firms own, on average, 35.87% of the shares of financial institutions. A very low average value of 0.2% of financial firms consists of CEOs that simultaneously hold chairman positions. The corporate sustainable performance indicators show average values of 68.95%, 78.61%, and 67.46% for economic, social and environmental indicators, respectively. The total sustainability score yields an average value of 69.20% in financial firms. The mean board gender diversity is almost 20% in Malaysian financial firms, revealing that women are twice as likely to have a role on the board in financial firms than in non-financial firms. Average firm size is 3201 USD, and the mean value of firm age is approximately 12 years. The average firm leverage for financial firms is 0.8865 USD, meaning that, for each dollar, financial firms owe creditors 0.8865 USD.

4.1. Empirical results and discussion

[Table 3](#) (Panel A) illustrates the impact of corporate governance on CSP of non-financial Malaysian firms. *L1* indicates the value of a lagged dependent variable that is positive and significant across five models in Malaysian non-financial firms, thus signifying that the models are dynamic and cater for the problems of endogeneity, simultaneity, unobserved heterogeneity and reverse causality. The regression results reveal that all of the independent and control variables are negatively related to corporate sustainability. Notably, the results of Sargan's test for misspecifications and the Arellano-Bond test for autocorrelation indicate that models are specified correctly and do not suffer from an autocorrelation problem. These findings are consistent with agency theory presumptions, as the controlling shareholders tend to pursue their own financial well-being instead of focusing on the elevated sustainable practices within a firm (Hongming et al., 2020; Karim et al., 2020b, 2020c). Agency theory, based on an entrenchment perspective, argues that firms with a diffused ownership structure are likely to invest in projects that are beneficial for their own wealth maximisation rather than those of organisations or society. In this way, ownership structure and CEO duality negatively affect CSP (Chen et al., 2017).

Table 3. The impact of corporate governance on corporate sustainable performance using S-GMM (two-step results).

Variable	Model 1(a)	Model 1(b)	Model 1(c)
Panel A: Regression results of Malaysian non-financial firms			
	<i>ECO_{it}</i>	<i>SOC_{it}</i>	<i>ENV_{it}</i>
<i>L1</i>	0.1217 (4.48)***	0.1073 (3.36)***	0.1728 (5.26)***
<i>OWNC_{it}</i>	-0.6383 (-0.25)**	-0.4960 (-0.74)**	-0.1225 (-0.15)***
<i>SOWN_{it}</i>	-4.5130 (-1.13)**	-0.1466 (-0.68)**	-0.2323 (-0.67)***
<i>DOWN_{it}</i>	2.6024 (0.75)**	0.1755 (0.83)**	0.1381 (0.49)**
<i>FLOWN_{it}</i>	0.4992 (0.72)***	0.1125 (0.10)*	0.1978 (1.85)**
<i>CEOD_{it}</i>	-1.0352 (-1.21)**	-0.3556 (-1.23)*	-0.7451 (-0.39)***
<i>BGDIV_{it}</i>	0.1825 (1.09)***	0.1217 (0.38)**	0.0174 (0.80)**
<i>FSIZE_{it}</i>	3.4345 (1.25)**	0.2163 (0.32)**	0.5170 (1.57)***
<i>FAGE_{it}</i>	4.3136 (1.81)**	0.1460 (0.90)*	0.1251 (0.12)***
<i>FLEV_{it}</i>	-2.2487 (-0.89)**	-0.1452 (-0.56)***	-0.1514 (-0.15)**
Sargan test	Pass	Pass	Pass
AR(2)	Pass	Pass	Pass
Firm-year observations	4520	4520	4520
N	10	10	10
Panel B: Regression results of Malaysian financial firms			
	<i>ECO_{it}</i>	<i>SOC_{it}</i>	<i>ENV_{it}</i>
<i>L1</i>	1.2379 (1.26)***	0.2641 (2.34)***	0.1895 (1.02)***
<i>OWNC_{it}</i>	-0.6546 (-1.03)***	-0.1465 (-1.36)***	-1.0348 (-1.03)**
<i>SOWN_{it}</i>	-0.3865 (-1.95)***	-0.3947 (-1.10)**	-1.0251 (-2.39)**
<i>DOWN_{it}</i>	0.8748 (0.25)**	4.4551 (0.95)***	1.2355 (0.21)***
<i>FLOWN_{it}</i>	-0.0152 (-0.21)	-0.0587 (-0.41)	0.2130 (0.19)
<i>CEOD_{it}</i>	-1.2409 (-0.98)*	-2.3601 (-0.52)*	-1.2859 (-0.36)**
<i>BGDIV_{it}</i>	1.5689 (0.54)***	2.3105 (0.81)*	0.8790 (1.21)**
<i>FSIZE_{it}</i>	0.7166 (1.02)*	0.8411 (0.18)***	0.5113 (0.10)**
<i>FAGE_{it}</i>	0.4675 (1.36)**	0.6414 (1.33)***	0.1571 (1.25)**
<i>FLEV_{it}</i>	-7.3348 (-1.59)***	-0.1208 (-2.89)***	-0.2108 (-0.14)**
Sargan test	Pass	Pass	Pass
AR(2)	Pass	Pass	Pass
Firm-year observations	400	400	400
N	10	10	10

Note: ***, ** and * indicate significance at 1, 5 and 10 percent, respectively.

Source: Author's own estimations.

Similarly, Panel B of Table 3 indicates the impact of corporate governance on CSP of Malaysian financial firms. The models show a dynamic panel data set in which all values of *L1* are positive and significant with the dependent variables. Regression

results indicate that economic, social and environmental indicators are positively related to ownership concentration, state ownership and director ownership. Data on financial institution ownership and CEO duality revealed an insignificant relationship with corporate sustainable indicators in financial firms, but a positive and significant relationship is observed with board gender diversity. Control variables (firm size and firm age) are positively linked to corporate governance, whereas firm leverage revealed an inverse and significant relationship with corporate governance variables. Post-estimation specification tests also revealed that models are not misspecified and do not bear the problem of autocorrelation. Prior studies argue that directors, having a significant number of shares in firms, are more likely to positively affect sustainable practices. When insider ownership is observed at low levels, there is a lower possibility of expropriation of a firm's resources. However, when this ownership reaches a limit, the directors of firms tend to allocate resources that are aligned to their financial interests. Given this condition, director ownership shows that shares are owned by directors at a relatively lower percentage, suggesting that directors positively impact CSP.

The empirical results regarding the role of board gender diversity in [Table 4](#) show that female representation on Malaysian non-financial companies insignificantly moderates the relationship between the corporate governance and corporate sustainability relationship. As evident in interaction terms, apart from a few control variables, the remainder of the relationships are insignificantly moderated by female participation. The value of *LI* indicates that the models are dynamic and do not suffer from the problems of endogeneity, simultaneity, and reverse causality. Regarding post-estimation specification tests, it is indicated that models are correctly specified and are not autocorrelated. One probable explanation for the insignificant moderating impact of female board members is the lower percentage of women in non-financial firms. To some extent, women are considered as female tokens without significantly contributing to sustainability indices (Khaoula & Moez, 2019).

In addition, results related to the role of board gender diversity on corporate governance and CSP relationship reveal that board gender diversity significantly and positively moderates interaction terms in financial firms ([Table 5](#)). This result indicates that when financial firms have more female members on corporate boards, it significantly affects the relationship between corporate governance and CSP. Theoretically, female representation causes firms to pursue courses of action that meet their sustainability agenda. Having an innate caring nature benefits the economic, social, and environmental indicators of the sustainability score index, which ultimately enhances the overall reputation and well-being of the firm. In addition, the significant values of *LI* reveal that the models are of a dynamic nature. Furthermore, post-estimation specification tests indicate that models are appropriately specified and do not have the problem of autocorrelation.

In summary, it is evident that corporate governance significantly affects CSP, both in Malaysian non-financial and financial firms with few exceptions given in the regression results. Moreover, female participation on boards is insignificantly related to the CG-CSP relationship in Malaysian non-financial firms, whereas the moderating effect is substantial in financial firms.

Table 4. Moderating effect of $BGDIV_{it}$ on corporate governance and corporate sustainable performance in Malaysian non-financial firms.

Variable	ECO_{it}	SOC_{it}	ENV_{it}
$L1$	0.3575 (7.06)***	0.4039 (8.08)***	0.3699 (7.99)***
$BGDIV_{it}$	2.5888 (0.66)	2.7409 (0.46)	-2.2557 (-0.83)
$OWNC_{it}$	-4.4561 (-1.90)	-1.0974 (-1.94)	-0.8466 (-0.40)
$OWNC_{it} * BGDIV_{it}$	1.5302 (0.79)	5.6832 (1.49)	11.812 (0.88)
$SOWN_{it}$	-2.0596 (-0.62)	-0.2439 (-0.36)	-2.0664 (-0.56)
$SOWN_{it} * BGDIV_{it}$	1.1876 (1.03)	2.9952 (0.98)	7.2515 (0.45)
$DOWN_{it}$	-1.3189 (-0.34)	-0.8578 (-1.26)	-0.5720 (-0.17)
$DOWN_{it} * BGDIV_{it}$	9.7579 (0.40)	5.7588 (1.16)	1.2707 (0.16)
$FLOWN_{it}$	-6.5308 (-0.54)	-0.1405 (-0.62)	-1.7712 (-1.34)
$FLOWN_{it} * BGDIV_{it}$	4.0836 (0.62)	0.5856 (0.41)	11.036 (1.17)
$CEOD_{it}$	-1.0541 (-0.36)	-0.2850 (-0.98)	-0.1475 (-0.12)
$CEOD_{it} * BGDIV_{it}$	0.2184 (0.12)	0.8426 (1.98)	0.1762 (2.39)
$FSIZE_{it}$	1.0738 (0.67)	0.1889 (0.29)	-0.2298 (-0.13)
$FSIZE_{it} * BGDIV_{it}$	2.0133 (0.36)	0.2493 (0.20)	4.9424 (0.64)
$FAGE_{it}$	6.7073 (0.71)	0.1994 (0.53)	-0.9009 (-0.77)
$FAGE_{it} * BGDIV_{it}$	11.549 (0.21)	0.3087 (0.37)	-1.3863 (-0.23)*
$FLEV_{it}$	8.9669 (0.69)	0.1370 (0.69)	1.0597 (0.67)
$FLEV_{it} * BGDIV_{it}$	11.122 (1.02)	0.4736 (0.26)	-9.9415 (-0.84)
Sargan test	Pass	Pass	Pass
AR(2)	Pass	Pass	Pass
Firm-year observations	4520	4520	4520
N	10	10	10

Note: ***, ** and * indicate significance at 1, 5 and 10 percent, respectively.

Source: Author's own estimations.

5. Conclusion and implications

As evident from the empirical results, corporate governance substantially affects the corporate sustainable practices in Malaysian financial and non-financial firms. This study's findings reveal that financial firms indicated more concrete results than non-financial firms, particularly during the COVID-19 pandemic. The probable explanation for such differences in results is the regulatory authorities monitoring Malaysia's financial and non-financial firms. Correspondingly, the findings imply that COVID-19 has brought unprecedented challenges for Malaysian financial and non-financial firms, and regulatory bodies play a significant role in sustaining corporate governance mechanisms. Bank Negara Malaysia (the central bank of Malaysia) is the authority that regulates financial firms and provides guidelines for effective corporate governance and sustainability indicators. Bursa Malaysia and Securities Commission

Table 5. Moderating effect of $BGDIV_{it}$ on corporate governance and corporate sustainable performance in Malaysian financial firms.

Variable	ECO_{it}	SOC_{it}	ENV_{it}
$L1$	1.6955 (1.09)***	2.0516 (1.30)***	2.0451 (2.20)***
$BGDIV_{it}$	1.0311 (1.01)	1.9546 (1.80)	1.3652 (1.84)
$OWNC_{it}$	1.0213 (0.21)	1.3612 (0.84)	1.8742 (1.40)
$OWNC_{it} * BGDIV_{it}$	1.0212 (1.61)	2.0254 (1.58)	2.3684 (2.04)
$SOWN_{it}$	1.0988 (1.23)	1.6972 (1.87)	1.0584 (1.01)
$SOWN_{it} * BGDIV_{it}$	1.8742 (1.29)	1.0658 (0.98)	0.5454 (0.83)
$DOWN_{it}$	0.4185 (1.10)	0.9641 (0.28)	0.8418 (0.68)
$DOWN_{it} * BGDIV_{it}$	0.9874 (1.98)	0.5241 (1.08)	1.0654 (0.18)
$FLOWN_{it}$	1.0698 (1.30)	1.0983 (1.51)	1.3285 (2.00)
$FLOWN_{it} * BGDIV_{it}$	1.0577 (1.84)	1.0365 (1.23)	1.8784 (1.92)
$CEOD_{it}$	1.9244 (0.36)	0.8465 (0.86)	0.9142 (0.28)
$CEOD_{it} * BGDIV_{it}$	0.5448 (0.30)	0.7488 (0.39)	0.1552 (1.06)
$FSIZE_{it}$	0.4789 (1.84)	0.5474 (1.31)	0.6998 (1.26)
$FSIZE_{it} * BGDIV_{it}$	0.8879 (1.03)	0.9965 (1.42)	0.3654 (0.21)
$FAGE_{it}$	0.3288 (1.12)	0.2111 (1.08)	0.8870 (2.04)
$FAGE_{it} * BGDIV_{it}$	0.1177 (1.04)	1.0254 (1.50)	0.6587 (1.62)
$FLEV_{it}$	1.0650 (1.46)	1.9674 (1.00)	1.0687 (1.95)
$FLEV_{it} * BGDIV_{it}$	1.0852 (1.21)	0.9822 (1.98)	0.2411 (2.84)
Sargan test	Pass	Pass	Pass
AR(2)	Pass	Pass	Pass
Firm-year observations	400	400	400
N	10	10	10

Note: ***, ** and * indicate significance at 1, 5 and 10 percent, respectively.

Source: Author's own estimations.

Malaysia regulate financial, as well as non-financial firms. Since financial firms deal with customers' deposits, and their stakes must be protected to avoid default risk, Bank Negara Malaysia provides effective monitoring mechanisms to ensure compliance with corporate governance codes and sustainability practices. On the other hand, Bursa Malaysia needs to develop an efficient controlling mechanism for listed firms so that the stakeholders' concerns are well addressed and well protected in the wake of the COVID-19 pandemic. The differences in the empirical results for both types of firm reveals that sustainability preferences of financial and non-financial firms vary; this is based on the given business environment, the firm's approach towards social responsibility, and the moral standards of companies towards addressing the needs of the society, economy, and the environment.

Concurrently, the moderated role of gender-diverse boards in Malaysian non-financial firms is not highlighted significantly. In contrast, female directors significantly influence the relationship between corporate governance attributes and CSP. This difference refers to the percentage of female board members in both types of firm. Financial companies, having a significant percentage of women on their boards, reveal that women are influencing the relationship between corporate governance and CSP. In contrast, in non-financial firms, female participation is quite low (approximately half that of financial firms), making the role of women in affecting the corporate governance and firm sustainable performance relationship insignificant. Noticeably, several factors, such as different economic orientation, lower institutional control, and inappropriate monitoring mechanisms make the findings insignificant in non-financial firms of Malaysia.

This study has several implications for Malaysian regulators and policy-makers to direct listed firms towards adopting more sustainable practices. Moreover, the regulatory bodies, superior authorities, and policy-makers that develop corporate governance codes need to reassess their corporate governance codes and ensure that firms comply with the given corporate governance and sustainability structures. They must also provide a refined set of corporate governance and CSP structures for financial and non-financial firms and then monitor their compliance with the codes. In this way, firms can achieve corporate sustainability by performing sustainable practices and complying with corporate governance's given rules and regulations.

Note

1. The indicators are as follows: economic (EC1, EC2, EC4, EC7, EC8), social (LA1, LA2, LA5–LA13, HR2, HR3, SO1–SO5), and environmental (EN1–EN10, EN15–EN24, EN31, EN32). Detailed descriptions of each indicator can be found in Global Reporting Initiative (2013).

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