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CEO Power and ESG Performance: The Mediating Role of Managerial Risk-Taking

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Abstract: *Business sustainability calls for responsibility in the context of the environmental, social, and governance (ESG) agenda. According to the upper echelons' theory, a firm's activities and business outcomes are charted by top management. However, how the Chief Executive Officer (CEO) balances the firm's profit maximisation objectives while serving the ESG agenda remains unexplored. Therefore, this study takes a holistic approach to examine how CEO power affects the business sustainability of a firm through managerial risk-taking. We augment the upper echelons theory of Hambrick and Mason (1984) by incorporating the CEO power framework of Finkelstein (1992) with the managerial risk-taking framework of Hoskisson et al. (2017). We find that CEO power is associated with greater managerial risk-taking and poorer business sustainability. The ownership power, expert power and prestige power of the CEO are important in explaining the managerial risk-taking and firm sustainability. Specifically, financial leverage and research and development (R&D) expenses partially mediate CEO power in explaining a firm's ESG performance.*

Keywords: ESG; CEO power; Business sustainability; Corporate governance; Managerial risk-taking
JEL Classification: G30, G32, M12, M14

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1 Introduction

The environmental, social, and governance (ESG) agenda is gaining significant attention from investors, regulators and companies worldwide to ensure that businesses orient their practices towards those goals (Tonello & Singer, 2015). ESG is of extreme importance for the sustainability of public-listed companies, emphasising long-term success by promoting better corporate governance, and greater concern for environmental and social impact. ESG presents growth opportunities for firms, but at the same time poses challenges in the risk-return relationships between shareholders and other stakeholders. According to stakeholder theory, key organisational stakeholders do not merely comprise shareholders. Hence, firms should protect the interest of all stakeholders while creating value for shareholders (Freeman, 1984; Jensen, 2001). Thus, the bigger challenge is whether companies can adhere to profit maximisation and fulfil their ESG obligations at the same time. It then becomes essential to know whether Chief Executive Officers (CEOs) can perform their duties in such a way as to maximise shareholders' wealth through optimised risk-taking to ensure business sustainability.

Investors now prioritise ESG information for investment decisions. More than a quarter of total assets under portfolio management today are invested in sustainable companies with an ESG focus (CFA Institute, 2018). The literature shows that the pursuit of ESG activities enhances a firm's value (Wong et al., 2021), improves a firm's performance (Buallay, 2019), and strengthens a firm's reputation and interactions with its stakeholders (Branco & Rodrigues, 2006). Ignoring ESG considerations can result in substantial risks and unsustainable business due to the deprivation of financing for company projects (The Star, 2022).

With the increase in global investors' appetite for ESG, Bursa Malaysia, being one of the major bourses in ASEAN has embarked on the implementation of ESG initiatives for sustainable economic development (i.e., FTSE4Good Bursa Malaysia Index). Malaysian ESG investment funds have grown to USD143.5 billion (Bursa Malaysia, 2022). The business sustainability model articulates that a firm should optimise ESG activities to benefit all stakeholders while maximising profitability for shareholders. This creates a complex decision-making process, as investments in an uncertain future may or may not benefit shareholders. The CEO is confronted with an

immense challenge in maximising profits and meeting ESG responsibilities.

The CEO is the central decision-maker in a firm and their individual attributes influence corporate decision-making. The behaviour of a firm is expected to be aligned with its CEO's personal decision-making (Korkeamäki et al., 2017). The impact is more pronounced when CEOs have the dominant power to control the resources of a firm. This power paves the way for CEOs to practice their executive power in executing the firm's strategies and capital allocation. CEO power is an abstract concept. It is practised through their executive authority when decision-making is up to the individual discretion of the CEO, instead of the top management team (TMT) or group consensus. This happens when the CEO is the founder, heir, one of the significant members of the family firm, or holds a dual position (CEO and chairperson) and has significant shareholdings. Most of these profiles are not easily observable but can be translated into a specific financial management style that matches the CEO personnel profile, for example, in terms of managerial risk-taking behaviour. When managerial risk-taking behaviour is aligned with the CEO's individual characteristics, the impact on business outcomes could be pronounced if the CEO wields significant power.

The theoretical framework of Hoskisson et al. (2017) indicates that different managerial risk-taking behaviours are translated into different business outcomes at the managerial, firm, and environmental levels. Nevertheless, how CEO power affects ESG through managerial risk-taking is unexplored. Most of the extant literature discusses the impact of ESG. Instead, this study goes back to the ground to investigate how CEO power affects a firm's ESG undertaking. Secondly, this study contributes to the literature, extends the theoretical framework of Hoskisson et al. (2017) by incorporating the CEO power framework of Finkelstein (1992). Thus, this study proposes a new aspect to the upper echelons theory by focusing on how CEO power affects a firm's sustainability through managerial risk-taking.

The findings of this study reveal that the ownership power, expert power and prestige power of the CEO are important in explaining managerial risk-taking and firm sustainability. This study concludes that most CEO power proxies are associated with greater managerial risk-taking and poorer business sustainability. The mediation effects analysis suggests that managerial risk-taking partially mediates certain CEO power proxies.

Moreover, this study finds that larger and more profitable firms with higher market value have better business sustainability. Similarly, older CEOs contribute to better business sustainability. On the contrary, older firms have poorer business sustainability.

The remainder of this paper is organised as follows. Section 2 reviews related literature and hypothesis development of this study. Section 3 introduces data, variables measurement and methodology. Section 4 presents the results and discussions, and Section 5 concludes the paper.

2. Literature Review

The strategic choice perspective (Child, 1974) has motivated extensive investigation into the impact of top executives on organisational outcome. Contemporary theoretical and empirical research has demonstrated a significant relationship between the characteristics of powerful actors and firms' strategic decision-making. The upper echelons theory assumes that organisational outcomes and strategies are partially predicted by the value and cognitive bases of the executives in the organisation, and the characteristics of executives can be used as a proxy for the cognitive frame of the executives (Hambrick & Mason, 1984).

Given that CEOs are the central decision-makers, they have the power to control firm resources. Outreville (2014) shows that the risk appetite of a firm could be indicated by the risk acceptance of the CEO. Thus, firm behaviour is influenced by the CEO's personal preference and decision-making (Cheng et al., 2014; Korkeamäki et al., 2017; Lewin & Stephens, 1994). The literature shows that the power of the CEO is a comparatively new issue worth investigating.

Existing studies examine CEO power with varied corporate governance mechanisms, for example, firm performance (Adam et al., 2005; Veprauskaitė & Adams, 2013), banks performance and governance (Fang et al., 2020; Ting et al., 2017), firm leverage preferences (Korkeamäki et al., 2017), and dividend policy (Onali et al., 2016). These findings provide evidence that CEO power is negatively related to firm performance, and that firm behaviour is reflected by the CEO's personal preferences.

Recent studies have examined the impact of CEO power on sustainability, with two strands of research focusing on corporate social responsibility (CSR) or merely environmental responsibility. For instance,

Chu et al. (2022), Pucheta-Martínez and Gallego-Álvarez (2021) and Sheikh (2019) examine the impact of CEO power on CSR. Apart from Pucheta-Martínez and Gallego-Álvarez (2021), who find a positive association between CEO power and CSR disclosure, other studies suggest that powerful CEOs engage in fewer CSR activities. In particular, Sheikh (2019) finds that only the structural power and ownership power of the CEO are significant in explaining CSR.

Only Al-Shaer et al. (2022) and Francoeur et al. (2021) explore the link between CEO power and environmental responsibility, offering differing perspectives. Al-Shaer et al. (2022) show that powerful CEOs engage less in environmental activities because of the additional costs involved. Francoeur et al. (2021), meanwhile, find that powerful CEOs are influential in generating sufficient resources to invest in projects that eventually improve the environmental performance of their companies.

Given the growing significance of ESG concerns, more recent studies have focused on its impact, such as enhancing firm value (Wong et al., 2021), improving firm performance (Buallay, 2019), and strengthening a firm's reputation and interactions with its stakeholders (Branco & Rodrigues, 2006). Instead of looking at the impact of ESG, this study contributes to the literature by going back to the ground and investigate how CEO power affects a firm's ESG undertaking.

This study further argues that when managerial risk-taking behaviour is aligned with the CEO's individual characteristics, the impact on business outcomes could be pronounced if that CEO has significant power. Nonetheless, little is known about how CEO power influences a firm's sustainability through managerial risk-taking. We find that the extant literature focuses on the effect of CEO power on risk-taking or how risk-taking affects a firm's sustainability, without connecting the two. For example, Lewellyn and Muller-Kahle (2012) and Altunbaş et al. (2020) find that CEO power is positively associated with risk-taking. In contrast, Victoravich et al. (2011) and Tan and Liu (2016) find that powerful CEOs take less risks.

Another interesting finding by Hwang et al. (2020) demonstrates that CEO power can lead to overconfidence and impact merger and acquisition decisions. If the CEO's personal characteristics and power does affect risk-taking behaviours, it is believed that any decision made will eventually affect the firm's sustainability. Walls and Berrone (2017) prove that CEOs with

substantial informal and formal power will tend to get their way, and thus, be more likely and better positioned to execute risky environmental initiatives (Berrone & Gomez-Mejia, 2009).

The scarcity of existing literature demonstrates the need to investigate how CEO power affects a firm's sustainability through managerial risk-taking. Thus, the main hypothesis is developed as below:

H1: CEO powers affect business sustainability through managerial risk-taking

The above hypothesis suggests that the effect of CEO power on business sustainability is mediated through CEO management skills that are reflected in their managerial risk-taking measures.

Following Baron and Kenny (1986) and Sobel (1982), this study develops another three hypotheses to further examine the mediating path relationships among the three variables:

H2: CEO powers affect business sustainability
*H*3: CEO powers affect managerial risk-taking
H4: Controlling for managerial risk-taking, the CEO powers affect business sustainability

3. Research Method

3.1 Sample

This study involves public-listed companies on Bursa Malaysia for a period of nine years (2009 to 2017). The sample of this study is selected based on the convenience sampling method, where the sample selection is based on the availability and accessibility of data. We begin the sample selection process by hand-collecting the firm-level data including CEO profiles, managerial risk-taking, and firm profitability from annual reports. The initial dataset consists of 811 public listed companies. To ensure unbiased inference, financial institutions are excluded from the study due to different listing requirements, financial rules and regulations. Next, we collect ESG data from the Thomson Reuters Datastream database. Then we further exclude companies with no ESG data accessibility during the period of this

study. The final sample of this study consists of 36 non-financial companies in Malaysia.

3.2 Variables measurement

3.2.1 CEO power

Following Finkelstein's (1992) classification, this study employs four dimensions for the power of CEO: structural, ownership, expert, and prestige powers. CEO structural power is proxied by CEO duality and the number of committees chaired. The CEO duality dummy variable equals one if the CEO is also the chairman of the board, and zero otherwise. Besides, the number of committee chairs held by CEO is measured as the ratio of the number of committee chairs held over the total number of committees within a firm.

CEO ownership power is proxied by share ownership and CEO founder. CEO share ownership is measured by the proportion of shares held over the total shares issued by the firm. CEO founder is a dummy variable that equals one if the CEO is the founder of a firm and zero otherwise.

CEO expert power is measured by tenure and the number of committees held. CEO tenure is measured as the total number of years served in a firm. Moreover, the number of committees held is measured as the ratio of the number of committees held over the total number of committees in a firm.

CEO prestige power is measured by external directorships and education. The CEO external directorships dummy variable equals one if the CEO holds external directorships in other firms, and zero otherwise. The CEO education dummy variable equals one if the CEO has at least tertiary education or higher, and zero otherwise.

The CEO power proxies used in this study are non-index based, as with many existing studies. This study also provides a more comprehensive CEO power dimension, which includes eight proxies for CEO power. The CEO proxies employed in the existing literature only include a few dimensions (i.e., see Korkeamäki et al., 2017, Onali et al., 2016, Adams et al., 2005, Ting et al., 2017, Fang et al., 2020).

3.2.2 Business sustainability with ESG index

The ESG score comprises environmental, social, and corporate governance sub-components. The overall score of each scope is calculated by equally weighting and z-scoring all underlying data points of the sub-elements and comparing them against all companies in the ASSET4 universe. The resulting percentage is a relative measure of performance, z-scored and normalised to better distinguish values and position the score between 0 and 100%.

3.2.3 Managerial risk-taking

Three managerial risk-taking measurements are extracted from the theoretical framework of managerial risk-taking suggested by Hoskisson et al. (2017). The financial leverage of a firm is proxied by the ratio of book value of total long-term debts to the book value of total assets. Research and development (R&D) expenditure is proxied by the ratio of R&D expenses to the book value of total assets. Lastly, capital expenditure is proxied by the ratio of total capital expenditure to total assets.

3.2.4 Model specification

Panel data analysis is conducted using structural equation modelling (SEM) regression. SEM is a powerful tool for mediation analysis to explore the relationship between an independent variable (X) and a dependent variable (Y) and determine if one or more mediating variables (M) mediate this relationship. SEM is preferred for mediation analysis due to its flexibility, allowing for multiple variables to be included in the analysis and enabling the estimation of direct and indirect effects simultaneously while controlling for measurement error (Iacobucci et al., 2007; Kline, 2016; Pardo & Román, 2013).

The Baron and Kenny (1986) approach and the Sobel (1982) test are two common approaches for mediation analysis. For instance, the Baron and Kenny approach is straightforward. They test the mediation effect through a series of regression analyses: (1) X is correlated to M, (2) M is correlated to Y, and (3) the magnitude of the relationship between X and Y is reduced when M is included in the analysis. On the other hand, the Sobel test is

a statistical test used to determine whether the indirect effect of X on Y through M is statistically significant (p-value of ≤ 0.05). In short, the Sobel test provides valuable information about the strength and significance of the mediation effect. Iacobucci et al. (2007) claim that a single SEM model provides superior estimation and is more efficient than the three regression pieces. Their approach combines the methods of Baron and Kenny (1986) and Sobel (1982) for a more comprehensive mediation analysis.

There are four regression models in this study. Equation 1 below shows the baseline model to examine the relationship between CEO power and business sustainability with the mediator managerial risk-taking:

$$\mathrm{ESG}_{it} = \alpha + \sum \beta_k \, \mathrm{Control}_{it} + \beta_2 \mathrm{Power}_{it} + \beta_3 \mathrm{Risk}_{it} + \varepsilon_{it} \quad (1)$$

where for firm *i* and year *t*, ESG_{it} is the ESG score proxy for firm business sustainability, and Risk_{it} denotes the managerial risk-taking measure such as financial leverage, R&D, and capital expenditure. Power_{it} is the CEO power dimensions that measure the different CEO power profiles, including CEO duality, CEO tenure, CEO directorship etc. Other control variables include firm size, ROA, sales growth, market-to-book value, firm age as well as CEO age; ε_{it} denotes the error term.

To infer the mediating effect of managerial risk-taking, we perform the complete mediation analysis using the approach of Iacobucci et al. (2007) that involves estimating three models from Baron and Kenny (1986): first regress the dependent variable against the key independent variable, then regress the mediator against the independent variable, finally regress the dependent variable against the key independent and mediator variables. Then, we test the mediation effect using the Sobel test. The equations are presented below:

$$ESG_{it} = \alpha + \sum \beta_k \, Control_{it} + \beta_2 Power_{it} + \varepsilon_{it} \quad (2)$$

$$\mathrm{Risk}_{it} = \alpha + \sum \beta_k \, \mathrm{Control}_{it} + \beta_2 \mathrm{Power}_{it} + \varepsilon_{it} \quad (3)$$

$$\mathrm{ESG}_{it} = \alpha + \sum \beta_k \, \mathrm{Control}_{it} + \beta_2 \mathrm{Power}_{it} + \beta_3 \mathrm{Risk}_{it} + \varepsilon_{it} \quad (4)$$

The steps of mediation effect analysis via SEM are summarised below: No mediation when either indirect path coefficients X → M or M → Y (or both) are not significant. In other words, both X → M and M → Y

coefficients must be significant for mediation to be present. The mediation is 'full' when the Sobel test is significant but the direct path of X → Y is not significant. The mediation is 'partial' when Sobel test is not significant but the direct path coefficient of X → Y is significant. Likewise, it is a 'partial' mediation when both the Sobel test and X → Y coefficient are significant. When neither the Sobel test nor X → Y are significant, the mediation is 'partial'.

4. Results and Discussion

4.1 Descriptive statistics

Table 1 below provides the summary statistics of this study. The ESG score, CEO share ownership and control variables are winsorised at 0.5% level (0.5th and 99.5th percentiles) to remove the effects of outliers. Throughout the sample of this study, we observed the ESG score of Malaysian companies ranged between 3.28 and 84.21 with an average score of 38.03. Among the CEO power measures, only the CEOs of three firms hold the position of board chairperson. On average, Malaysian CEOs serve their company for a tenure of 10 years, and 83% of them had at least a tertiary education. CEO age is around 55 years on average. The youngest CEO was aged 35 and the oldest was aged 74.

Table 1: Descriptive Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Dependent variable					
Total ESG score	277	38.03	17.63	3.28	84.21
Independent variables (CEO power)					
Structural power					
CEO duality	307	0.05	0.22	0	1
Committee chair	293	0.06	0.15	0	1
Ownership Power					
CEO share ownership	306	0.07	0.19	0.00	1.10
CEO founder	308	0.05	0.22	0	1
Expert Power					
CEO tenure	320	10.57	12.02	1	43
Committee hold	306	0.17	0.20	0	1

Variable	Observations	Mean	Std. Dev.	Min	Max
Prestige Power					
External directorship	307	0.46	0.50	0	1
CEO education	306	0.83	0.37	0	1
Mediating variables (Managerial risk-taking)					
Financial leverage	320	0.21	0.15	0.00	0.66
R&D	177	0.01	0.03	0.00	0.19
Capital expenditure	320	0.06	0.05	0.00	0.30
Control variables					
Firm size	320	7.06	0.51	5.68	8.12
ROA	320	9.97	11.57	-19.00	69.78
Sales growth	320	0.08	0.24	-0.66	2.62
MTBV	322	5.15	11.05	0.25	75.90
Firm age	322	30.83	13.54	1	67
CEO age	320	54.56	7.83	35	74

4.2 Discussion of findings

Table 2 presents the baseline regression result for this study. Columns (1) to (3) differ according to managerial risk-taking proxies. Panel A presents the regression between CEO power and managerial risk-taking, whilst Panel B shows the regression between CEO power, managerial risk-taking and total ESG score.

The results in Panel A show that most of the CEO power proxies are associated with greater managerial risk-taking. For instance, CEO founder, the number of committees held by the CEO and external directorship are positively related to managerial risk-taking. Nonetheless, CEO education is negatively related to managerial risk-taking and other CEO power proxies have no significant impact. These findings show that the prestige power and, to a lesser extent, ownership and expert power of the CEO are significant in explaining managerial risk-taking. These findings support Altunbaş et al. (2020) and Lewellyn and Muller-Kahle (2012), showing that CEO power is associated with greater managerial risk-taking.

The results demonstrate that the founder CEO tends to take more risks to leverage, which supports Tang et al. (2015) who state that founder CEOs engage in higher risk-taking compared to agent CEOs. This study further finds that CEOs who are involved in multiple committees invest more in

Table 2: Baseline Regression Result

	Financial leverage	R&D	Capital expenditure
Panel A: → Managerial risk-taking			
CEO duality	-0.0688	-0.0125	0.0119
	(0.3048)	(0.3844)	(0.6292)
Committee chair	-0.0709	0.0058	0.0316
	(0.2210)	(0.6825)	(0.1363)
CEO share ownership	-0.0222	-0.0198	0.0195
	(0.7600)	(0.2324)	(0.4641)
CEO founder	0.1181***	-0.0076	0.0069
	(0.0012)	(0.3908)	(0.6052)
CEO tenure	0.0015	0.0002	0.0002
	(0.1238)	(0.5317)	(0.6487)
Committee hold	-0.0096	-0.0116	0.0351**
	(0.8249)	(0.4313)	(0.0275)
External directorship	0.0572***	-0.0065	0.0294***
	(0.0029)	(0.2991)	(0.0000)
CEO education	-0.0040	-0.0146**	0.0089
	(0.8643)	(0.0274)	(0.3044)
Firm size	0.1264***	0.0150***	0.0172**
	(0.0000)	(0.0036)	(0.0331)
ROA	0.0002*	0.0002*	0.0018***
	(0.0853)	(0.0602)	(0.0000)
Sales growth	0.0098	0.0240	-0.0050
	(0.7524)	(0.5740)	(0.6583)
MTBV	0.0019**	0.0001	0.0021***
	(0.0102)	(0.7858)	(0.0000)
Firm age	-0.0036***	-0.0003**	0.0001
	(0.0000)	(0.0140)	(0.8148)
CEO age	-0.0010**	-0.0002*	-0.0004**
	(0.0471)	(0.0569)	(0.0410)
constant	-0.5522***	0.1277***	-0.0479
	(0.0008)	(0.0014)	(0.4256)
Panel B: → Total ESG score			
CEO duality	0.2871	-3.8294	1.7683
	(0.9701)	(0.5661)	(0.8184)
Committee chair	3.4084	2.2087	5.4398
	(0.6066)	(0.7363)	(0.4155)
CEO share ownership	-7.2870	-13.9831*	-6.4017
	(0.3784)	(0.0710)	(0.4429)

	Financial leverage	**R&D**	**Capital expenditure**
CEO founder	-0.6494	-7.5124*	-2.4820
	(0.8781)	(0.0670)	(0.5523)
CEO tenure	-0.1822	-0.0797	-0.2040*
	(0.1108)	(0.5472)	(0.0751)
Committee hold	2.7480	-1.4204	3.8290
	(0.5798)	(0.8354)	(0.4484)
External directorship	-11.8322***	-8.5329***	-13.5729***
	(0.0000)	(0.0035)	(0.0000)
CEO education	9.4183***	8.0923***	9.7186***
	(0.0005)	(0.0099)	(0.0003)
Firm size	6.0110**	4.0970*	4.3064*
	(0.0250)	(0.0975)	(0.0922)
ROA	0.2415*	0.0903*	0.1901
	(0.0562)	(0.0557)	(0.1522)
Sales growth	-4.0334	-9.3279	-4.3307
	(0.2533)	(0.1164)	(0.2236)
MTBV	0.4027***	0.2795**	0.4269***
	(0.0021)	(0.0168)	(0.0020)
Firm age	-0.3970***	-0.6469***	-0.3339***
	(0.0000)	(0.0000)	(0.0000)
CEO age	0.6383***	0.8143***	0.6444***
	(0.0001)	(0.0000)	(0.0001)
Financial leverage	-17.0323**		
	(0.0211)		
R&D		-119.4435***	
		(0.0036)	
Capital expenditure			-26.0854
			(0.1992)
constant	-27.5070	-17.2474	-19.3497
	(0.1504)	(0.3705)	(0.3048)
N	238	128	238

Notes: N indicates the number of observations. The dependent variable of this study is the total environmental, social, and governance (ESG) score. The independent variable of this study is the CEO power which consists of four dimensions: structural, ownership, expert, and prestige powers. The proxies for the CEO power include CEO duality, committee chair held by CEO, CEO share ownership, CEO founder, CEO tenure, committee held by CEO, CEO external directorship, and CEO education. The mediating variables of this study measure the managerial risk-taking proxied by financial leverage, R&D, and capital expenditure. The control variable of this study includes firm size, ROA, sales growth, market-to-book value, firm age, and CEO age.

capital expenditure due to their capabilities and experience being a source of corporate dynamic capability (den Driesch et al., 2015). We contend that CEOs' exposure to different task environments and capabilities increased their expert power and confidence, thereby increasing risk exposure, assuming they are capable of handling the situations.

CEO prestige power shares contradicting findings. Results show that CEOs are prompted with greater risk-taking when they engaged in external directorship. This finding is consistent with Lewellyn and Muller-Kahle (2012), who claim that CEOs tend to increase risk exposure with their prestige power due to possessing higher levels of social resources. Nonetheless, this study finds that CEO education is negatively related to risk-taking. The nature and outcomes of a particular decision should be understood more thoroughly by an educated person, helping them overcome their 'fear' of risk (Rosen et al., 2003). In the Malaysian context, this study finds that 83% of the CEOs have at least a tertiary education and are more aware of risks from past hazardous incidents in established firms.

The results in Panel B show that most of the CEO powers are associated with lower ESG scores, with CEO share ownership, CEO founder, CEO tenure and CEO external directorship all negatively related to ESG scores, except for CEO education. Similarly, these findings show that CEO prestige power and, to a lesser extent, ownership and expert power are important in explaining ESG performance. These findings confirm the results from Al-Shaer et al. (2022), Chu et al. (2022) and Sheikh (2019) showing that CEO power is associated with poorer business sustainability.

This study reveals that CEO prestige power has a greater impact on ESG performance than ownership and expert power. Serving as a director in other firms can harm a firm's ESG performance. Fang et al. (2020) show that CEO prestige power improves a bank's profitability but raises its risk-taking capability. We contend that when CEOs are engaged in more connections and wield greater influence in the industry, they tend to prioritise shareholder value over environmental, societal and governance sustainability for other stakeholders.

CEOs with tertiary degrees demonstrate better ESG performance. An educated person may be more aware of the outcomes of their decisions (Rosen et al., 2003). Knowing the consequence of not adhering to ESG sustainability, our findings propose that CEOs' education levels influence their managerial style towards greater responsibility and sustainability.

CEO ownership power is enhanced when they hold more shares or

are founders. CEO ownership power negatively affects ESG performance, contradicting existing literature. When the CEO holds greater shareholdings or is the founder, the interest between the manager and shareholders are more aligned and thus, the CEO prioritise creating value for shareholders over other stakeholders.

CEO tenure is also found to be negatively associated with ESG performance. CEO expert power is enhanced when they serve the CEO position for a longer period. Our findings support Khan et al. (2020) and Oh et al. (2016) who find that longer-tenured CEOs impair CSR rating, corporate social and environmental performance. Miller (1991) suggests that longer-tenured CEOs are hindered in their ability to meet stakeholder needs due to their outdated decision-making paradigms, thereby, neglecting the importance of ESG sustainability.

The control variables, such as firm size, ROA, MTBV and CEO age, have positive relationships with ESG score. Nevertheless, firm age is negatively related to ESG score. These findings suggest that larger and more profitable firms with higher market value have better ESG scores. These firms usually own a moderately large market share and are more reputable in the market where most people and businesses are engaged. A company's reputation can be shattered in an instant if they engage in illegal or irresponsible behaviour. Hence, they prioritise environmental, societal and governance sustainability initiatives. CEO age is also found to be positively related to the firm's ESG score. Older CEOs tend to make less risky investments and are more dedicated towards environmental, societal, and governance sustainability. Table 1 shows that Malaysian CEOs have an average age of 55, nearing retirement and seeking a stable future. They tend to be meticulous and avoid risky decision-making that would impair their reputation and retirement. On the contrary, firm age is associated with poorer ESG performance, suggesting that the older firms in Malaysia have neglected their responsibility towards better sustainability.

Managerial risk-taking proxies show an inverse relationship with ESG performance, suggesting that firms are devoted to fewer sustainability measures when undertaking riskier investments (engaging with higher financial leverage and R&D spending). Our findings support Younas and Zafar (2019), showing that high-risk undertaking impairs a firm's sustainability. Thus, we contend that a firm's sustainability is highly interconnected with risk-taking.

The mediation results are presented in Tables 3a, 3b, and 3c. Four steps were involved in the mediation analysis. Step 1 tests the indirect effect of X → M (CEO power → Managerial risk-taking). Step 2 tests the indirect effect of M → Y (Managerial risk-taking → ESG score). Step 3 tests the direct effect of X→Y (CEO power → ESG score) and Step 4 involves the Sobel test. X denotes the CEO power measures where X1 = CEO duality, X2 = committee chair hold by CEO, X3 = CEO share ownership, X4 = CEO founder, X5 = CEO tenure, X6 = committee hold by CEO, X7 = CEO external directorship, and X8 = CEO education, whereas M denotes the managerial risk-taking proxy employed in each model. The coefficient estimates for total effect of X → Y is calculated using the formula: Direct effect (X → Y) + indirect effects (X → M * M → Y).

Table 3a reveals that there is a mediation effect of managerial risk-taking through financial leverage on CEO power and firm sustainability for ownership power (proxied by CEO founder) and prestige power (proxied by external directorship). For ownership power, both of the indirect effects are significant. However, the direct effect and Sobel test are not significant. Hence, this result supports partial mediation. The indirect effect to the total effect (RIT) ratio calculation shows that nearly 76% of the effect of CEO founder on business sustainability is mediated by financial leverage. Moreover, the indirect effect to the direct effect (RID) ratio calculation shows that the mediated effect is about 3.1 times as large as the direct effect of CEO founder on business sustainability (RIT = 2.012 / 2.662 = 0.756; RID = 2.012 / 0.649 = 3.098).

Table 3a: Mediation: Indirect, Direct, and Total Effects (M = Financial Leverage)

						95% CI		
Type	**Effect**	**Coefficient**	**Std. Err**	**z value**	**p value**	**Lower**	**Upper**	**Result**
Indirect	X1 → M	-0.0688	0.0670	-1.0300	0.3050	-0.2002	0.0626	
	M → Y	-17.0323	7.3856	-2.3100	0.0210	-31.5078	-2.5568	
Direct	X1 → Y	0.2871	7.6563	0.0400	0.9700	-14.7190	15.2933	No mediation
Total	X1 → Y	1.4589	7.7243	0.1900	0.8500	-13.6805	16.5984	
Sobel test		1.1720	1.2500	0.9380	0.3480	-1.2780	3.6220	
Indirect	X2 → M	-0.0709	0.0579	-1.2200	0.2210	-0.1844	0.0426	
	M → Y	-17.0323	7.3856	-2.3100	0.0210	-31.5078	-2.5568	
Direct	X2 → Y	3.4084	6.6195	0.5100	0.6070	-9.5657	16.3825	No mediation
Total	X2 → Y	4.6156	6.6721	0.6900	0.4890	-8.4616	17.6927	
Sobel test		1.2070	1.1170	1.0810	0.2800	-0.9820	3.3960	

Type	Effect	Coefficient	Std. Err	z value	p value	Lower	Upper	Result
Indirect	X3 → M	-0.0222	0.0726	-0.3100	0.7600	-0.1644	0.1201	
	M → Y	-17.0323	7.3856	-2.3100	0.0210	-31.5078	-2.5568	
Direct	X3 → Y	-7.2870	8.2719	-0.8800	0.3780	-23.4996	8.9256	No mediation
Total	X3 → Y	-6.9094	8.3621	-0.8300	0.4090	-23.2989	9.4801	
Sobel test		0.3780	1.2470	0.3030	0.7620	-2.0670	2.8220	
Indirect	X4 → M	0.1181	0.0364	3.2500	0.0010	0.0469	0.1894	
	M → Y	-17.0323	7.3856	-2.3100	0.0210	-31.5078	-2.5568	
Direct	X4 → Y	-0.6494	4.2334	-0.1500	0.8780	-8.9468	7.6479	Partial mediation
Total	X4 → Y	-2.6616	4.1885	-0.6400	0.5250	-10.8710	5.5478	
Sobel test		-2.0120	1.0700	-1.8810	0.0600	-4.1090	0.0850	
Indirect	X5 → M	0.0015	0.0010	1.5400	0.1240	-0.0004	0.0035	
	M → Y	-17.0323	7.3856	-2.3100	0.0210	-31.5078	-2.5568	
Direct	X5 → Y	-0.1822	0.1143	-1.5900	0.1110	-0.4061	0.0418	No mediation
Total	X5 → Y	-0.2083	0.1150	-1.8100	0.0700	-0.4337	0.0170	
Sobel test		-0.0260	0.0200	-1.2800	0.2000	-0.0660	0.0140	
Indirect	X6 → M	-0.0096	0.0436	-0.2200	0.8250	-0.0950	0.0757	
	M → Y	-17.0323	7.3856	-2.3100	0.0210	-31.5078	-2.5568	
Direct	X6 → Y	2.7480	4.9629	0.5500	0.5800	-6.9791	12.4750	No mediation
Total	X6 → Y	2.9121	5.0175	0.5800	0.5620	-6.9221	12.7462	
Sobel test		0.1640	0.7450	0.2200	0.8260	-1.2960	1.6250	
Indirect	X7 → M	0.0572	0.0192	2.9800	0.0030	0.0196	0.0949	
	M → Y	-17.0323	7.3856	-2.3100	0.0210	-31.5078	-2.5568	
Direct	X7 → Y	-11.8322	2.2292	-5.3100	0.0000	-16.2014	-7.4629	Partial mediation
Total	X7 → Y	-12.8069	2.2131	-5.7900	0.0000	-17.1445	-8.4692	
Sobel test		-0.9750	0.5350	-1.8240	0.0680	-2.0220	0.0730	
Indirect	X8 → M	-0.0040	0.0236	-0.1700	0.8640	-0.0503	0.0422	
	M → Y	-17.0323	7.3856	-2.3100	0.0210	-31.5078	-2.5568	
Direct	X8 → Y	9.4183	2.6894	3.5000	0.0000	4.1471	14.6894	No mediation
Total	X8 → Y	9.4870	2.7191	3.4900	0.0000	4.1576	14.8164	
Sobel test		0.0690	0.4030	0.1700	0.8650	-0.7210	0.8590	

For prestige power, the indirect and direct effects are all significant. However, the Sobel test is not significant. Hence, this result supports partial mediation. The RIT ratio calculation shows that about 8% of the effect of external directorship on business sustainability is mediated by financial leverage. Moreover, the RID ratio calculation shows that the mediated effect is around 0.1 times as large as the direct effect of external directorship on business sustainability (RIT = 0.975 / 12.807 = 0.076; RID = 0.975 / 11.832 = 0.082).

Moving on to the next managerial risk-taking proxies (R&D), Table 3b shows that there is a mediation effect of managerial risk-taking through R&D on the CEO power and firm sustainability only for prestige power (proxied by CEO education). The indirect and direct effects are all significant. However, the Sobel test is not significant. Hence, this result supports partial mediation. The RIT ratio calculation shows that about 18% of the effect of CEO education on business sustainability is mediated by R&D. Additionally, the RID ratio calculation shows that the mediated effect is about 0.2 times as large as the direct effect of CEO education on business sustainability (RIT = 1.748 / 9.840 = 0.178; RID = 1.748 / 8.092 = 0.216).

Table 3b: Mediation: Indirect, Direct, and Total Effects (M = R&D)

						95% CI		
Type	**Effect**	**Coefficient**	**Std. Err**	**z value**	**p value**	**Lower**	**Upper**	**Result**
Indirect	X1 → M	-0.0125	0.0143	-0.8700	0.3840	-0.0406	0.0156	No mediation
	M → Y	-119.4435	41.0104	-2.9100	0.0040	-199.8223	-39.0646	
Direct	X1 → Y	-3.8294	6.6730	-0.5700	0.5660	-16.9081	9.2494	
Total	X1 → Y	-2.3395	6.8703	-0.3400	0.7330	-15.8050	11.1260	
Sobel test		1.4900	1.7880	0.8330	0.4050	-2.0140	4.9930	
Indirect	X2 → M	0.0058	0.0141	0.4100	0.6820	-0.0219	0.0335	No mediation
	M → Y	-119.4435	41.0104	-2.9100	0.0040	-199.8223	-39.0646	
Direct	X2 → Y	2.2087	6.5590	0.3400	0.7360	-10.6467	15.0642	
Total	X2 → Y	1.5184	6.7685	0.2200	0.8220	-11.7475	14.7844	
Sobel test		-0.6900	1.7040	-0.4050	0.6850	-4.0300	2.6490	
Indirect	X3 → M	-0.0198	0.0166	-1.1900	0.2320	-0.0524	0.0127	No mediation
	M → Y	-119.4435	41.0104	-2.9100	0.0040	-199.8223	-39.0646	
Direct	X3 → Y	-13.9831	7.7443	-1.8100	0.0710	-29.1617	1.1955	
Total	X3 → Y	-11.6156	7.9527	-1.4600	0.1440	-27.2025	3.9713	
Sobel test		2.3670	2.1430	1.1050	0.2690	-1.8320	6.5670	
Indirect	X4 → M	-0.0076	0.0088	-0.8600	0.3910	-0.0248	0.0097	No mediation
	M → Y	-119.4435	41.0104	-2.9100	0.0040	-199.8223	-39.0646	
Direct	X4 → Y	-7.5124	4.1011	-1.8300	0.0670	-15.5505	0.5256	
Total	X4 → Y	-6.6090	4.2227	-1.5700	0.1180	-14.8853	1.6673	
Sobel test		0.9030	1.0970	0.8230	0.4100	-1.2480	3.0540	
Indirect	X5 → M	0.0002	0.0003	0.6300	0.5320	-0.0004	0.0007	No mediation
	M → Y	-119.4435	41.0104	-2.9100	0.0040	-199.8223	-39.0646	
Direct	X5 → Y	-0.0797	0.1324	-0.6000	0.5470	-0.3392	0.1798	
Total	X5 → Y	-0.1010	0.1365	-0.7400	0.4590	-0.3686	0.1666	
Sobel test		-0.0210	0.0350	-0.6110	0.5410	-0.0900	0.0470	

Type	Effect	Coefficient	Std. Err	z value	p value	Lower	Upper	Result
Indirect	X6 → M	-0.0116	0.0147	-0.7900	0.4310	-0.0404	0.0172	
	M → Y	-119.4435	41.0104	-2.9100	0.0040	-199.8223	-39.0646	
Direct	X6 → Y	-1.4204	6.8342	-0.2100	0.8350	-14.8152	11.9743	No mediation
Total	X6 → Y	-0.0392	7.0400	-0.0100	0.9960	-13.8373	13.7589	
Sobel test		1.3810	1.8180	0.7600	0.4470	-2.1820	4.9450	
Indirect	X7 → M	-0.0065	0.0063	-1.0400	0.2990	-0.0188	0.0058	
	M → Y	-119.4435	41.0104	-2.9100	0.0040	-199.8223	-39.0646	
Direct	X7 → Y	-8.5329	2.9207	-2.9200	0.0030	-14.2574	-2.8085	No mediation
Total	X7 → Y	-7.7554	3.0033	-2.5800	0.0100	-13.6418	-1.8691	
Sobel test		0.7780	0.7950	0.9780	0.3280	-0.7800	2.3350	
Indirect	X8 → M	-0.0146	0.0066	-2.2100	0.0270	-0.0276	-0.0016	
	M → Y	-119.4435	41.0104	-2.9100	0.0040	-199.8223	-39.0646	
Direct	X8 → Y	8.0923	3.1355	2.5800	0.0100	1.9469	14.2378	Partial mediation
Total	X8 → Y	9.8404	3.1779	3.1000	0.0020	3.6119	16.0688	
Sobel test		1.7480	0.9940	1.7590	0.0790	-0.2000	3.6960	

Nonetheless, Table 3c demonstrates that there is no mediation effect of managerial risk-taking through capital expenditure on the CEO power and firm sustainability. Altogether, these findings suggest that managerial risk-taking supports a partial mediation effect on some proxies of CEO power, but not all.

Table 3c: Mediation: Indirect, Direct, and Total Effects (M = Capital Expenditure)

						95% CI		
Type	Effect	Coefficient	Std. Err	z value	p value	Lower	Upper	Result
Indirect	X1 → M	0.0119	0.0246	0.4800	0.6290	-0.0363	0.0600	
	M → Y	-26.0854	20.3205	-1.2800	0.1990	-65.9129	13.7420	
Direct	X1 → Y	1.7683	7.7015	0.2300	0.8180	-13.3264	16.8630	No mediation
Total	X1 → Y	1.4589	7.7243	0.1900	0.8500	-13.6805	16.5984	
Sobel test		-0.3090	0.6840	-0.4520	0.6510	-1.6510	1.0320	
Indirect	X2 → M	0.0316	0.0212	1.4900	0.1360	-0.0100	0.0732	
	M → Y	-26.0854	20.3205	-1.2800	0.1990	-65.9129	13.7420	
Direct	X2 → Y	5.4398	6.6801	0.8100	0.4150	-7.6529	18.5326	No mediation
Total	X2 → Y	4.6156	6.6721	0.6900	0.4890	-8.4616	17.6927	
Sobel test		-0.8240	0.8480	-0.9720	0.3310	-2.4850	0.8370	

Type	Effect	Coefficient	Std. Err	z value	p value	Lower	Upper	Result
Indirect	X3 → M	0.0195	0.0266	0.7300	0.4640	-0.0326	0.0716	
	M → Y	-26.0854	20.3205	-1.2800	0.1990	-65.9129	13.7420	
Direct	X3 → Y	-6.4017	8.3427	-0.7700	0.4430	-22.7531	9.9498	No mediation
Total	X3 → Y	-6.9094	8.3621	-0.8300	0.4090	-23.2989	9.4801	
Sobel test		-0.5080	0.7980	-0.6360	0.5250	-2.0720	1.0570	
Indirect	X4 → M	0.0069	0.0133	0.5200	0.6050	-0.0192	0.0330	
	M → Y	-26.0854	20.3205	-1.2800	0.1990	-65.9129	13.7420	
Direct	X4 → Y	-2.4820	4.1765	-0.5900	0.5520	-10.6678	5.7037	No mediation
Total	X4 → Y	-2.6616	4.1885	-0.6400	0.5250	-10.8710	5.5478	
Sobel test		-0.1800	0.3740	-0.4800	0.6320	-0.9130	0.5540	
Indirect	X5 → M	0.0002	0.0004	0.4600	0.6490	-0.0005	0.0009	
	M → Y	-26.0854	20.3205	-1.2800	0.1990	-65.9129	13.7420	
Direct	X5 → Y	-0.2040	0.1146	-1.7800	0.0750	-0.4286	0.0206	No mediation
Total	X5 → Y	-0.2083	0.1150	-1.8100	0.0700	-0.4337	0.0170	
Sobel test		-0.0040	0.0100	-0.4290	0.6680	-0.0240	0.0150	
Indirect	X6 → M	0.0351	0.0160	2.2000	0.0280	0.0039	0.0664	
	M → Y	-26.0854	20.3205	-1.2800	0.1990	-65.9129	13.7420	
Direct	X6 → Y	3.8290	5.0510	0.7600	0.4480	-6.0708	13.7288	No mediation
Total	X6 → Y	2.9121	5.0175	0.5800	0.5620	-6.9221	12.7462	
Sobel test		-0.9170	0.8270	-1.1090	0.2670	-2.5370	0.7030	
Indirect	X7 → M	0.0294	0.0070	4.1700	0.0000	0.0156	0.0432	
	M → Y	-26.0854	20.3205	-1.2800	0.1990	-65.9129	13.7420	
Direct	X7 → Y	-13.5729	2.2848	-5.7900	0.0000	-17.1445	-8.4692	No mediation
Total	X7 → Y	-14.3398	2.2131	-5.9400	0.0000	-18.0510	-9.0947	
Sobel test		0.7660	0.6240	1.2270	0.2200	-0.4580	1.9900	
Indirect	X8 → M	0.0089	0.0086	1.0300	0.3040	-0.0081	0.0258	
	M → Y	-26.0854	20.3205	-1.2800	0.1990	-65.9129	13.7420	
Direct	X8 → Y	9.7186	2.7158	3.5800	0.0000	4.3958	15.0413	No mediation
Total	X8 → Y	9.4870	2.7191	3.4900	0.0000	4.1576	14.8164	
Sobel test		-0.2320	0.2890	-0.8020	0.4230	-0.7980	0.3340	

5. Conclusion

This study proposes a new aspect of the upper echelons theory by extending the theoretical framework of Hoskisson et al. (2017) and incorporating the CEO power framework of Finkelstein (1992) to explain how CEO power affects business sustainability through managerial risk-taking. The findings of

this study show that the ownership power, expert power and prestige power of the CEO are important in explaining CEOs' managerial risk-taking and firm sustainability. Founder CEOs have more power and take greater risks than non-founder CEOs. CEOs who hold a greater number of committee positions have more exposure to different task environments and more power to engage in greater risk-taking. Moreover, CEO prestige power is enhanced when they also hold directorships in other firms. These CEOs are more likely to take risks when they have more connections with the elite outside.

Moving onto their effects on business sustainability, CEOs with greater shareholdings or founder CEOs have greater ownership power to steer the company away from sustainability measures. Similarly, CEO expert power increases with longer tenures, and is associated with poorer business sustainability. CEOs who hold directorship in other firms undertake fewer business sustainability measures as well. However, CEOs with at least tertiary degrees take less risk while promoting better business sustainability.

All in all, this study concludes that CEO powers are associated with greater managerial risk-taking and poorer business sustainability. The results from the mediation effect suggest that managerial risk-taking has a partial mediation effect on certain CEO power proxies only. Furthermore, this study finds that larger and more profitable firms with higher market value have better business sustainability. Older CEOs also contribute to better business sustainability, while firm age is found to be negatively related to business sustainability.

This study has important implications for business sustainability among Malaysian firms. First, the findings of this study reveal that CEO powers are associated with greater managerial risk-taking and impairment of business sustainability. The government or policymakers should look into the power of the CEO, particularly ownership power, expert power and prestige power, which significantly affect firms' environmental, societal and governance sustainability. Also, they may want to bring in highly educated CEOs to foster better business sustainability in the nation. Second, regulators can design policies to encourage smaller, older and less profitable firms, as well as younger CEOs to devote themselves to more business sustainability measures for long-term economic resilience.

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