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To Link this Article: <http://dx.doi.org/10.6007/IJARAFMS/v13-i3/17928> DOI:10.6007/IJARAFMS/v13-i3/17928

**Received:** 18 July 2023, **Revised:** 14 August 2023, **Accepted:** 07 September 2023

**Published Online:** 24 September 2023

**In-Text Citation:** (Wong et al., 2023)

**To Cite this Article:** Wong, K. H., Jaafar, H., & Ling, L. S. (2023). The Influence of Board Characteristics on Integrated Reporting Disclosure among Public Listed Companies in Malaysia. *International Journal of Academic Research in Accounting Finance and Management Sciences*, 13(3), 27–45.

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# The Influence of Board Characteristics on Integrated Reporting Disclosure among Public Listed Companies in Malaysia

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## Abstract

This study aims to examine the influence of the board characteristics (board size, board independence, board gender diversity, the average age of board members, and board activity level) on the extent of integrated reporting of the Public Listed Companies (PLCs) with the control for the effect of corporate characteristics (corporate size, financial performance, and leverage). The sample of this study consists of 99 corporate-year observations from 33 companies of the top 100 PLCs. Data was collected from integrated annual reports of the sample companies, which adopted integrated reporting from 2019 to 2021. The findings reveal that the average disclosure rate of integrated reports was 71%. Although board size, board independence, board gender diversity, the average age of board members, board activity level, and corporate size do not exhibit a statistically significant influence on the extent of integrated reporting, the study emphasized the significance of control variables, as financial performance and leverage showed significant negative relationships with the extent of integrated reporting. The findings offer valuable insights for PLCs and stakeholders seeking to enhance their understanding of the determinants of integrated reporting and enable them to make well-considered decisions and improve corporate transparency.

**Keywords:** Integrated Reporting, Board Characteristics, Corporate Governance, Disclosure, Public Listed Companies.

## Introduction

Integrated reporting is the latest concept in the corporate reporting area. It is a technique used by corporations for expressing a company's ability to produce value over time and convey information to stakeholders for decision-making. In recent years, interest in this new reporting technique has developed in both professional and academic circles. In reality, as a new approach to corporate communication, integrated reporting has attracted a lot of attention in recent years (Camodeca et al., 2019). Integrated reporting is a contemporary and evolving concept of corporate reporting. Integrated reporting could match stakeholders' demands by enhancing the quality of information delivered to them, as well as increasing accountability and stewardship (Chouaibi et al., 2022; Haji & Hossain, 2016). Furthermore, integrated reporting enhances resource allocation in the decision-making process (Frias-Aceituno et al., 2013; Hamad et al., 2020) and provides a more cohesive, concise, and efficient corporate reporting approach, demonstrating how corporates may create value over time (Hamad et al., 2020).

According to International Integrated Reporting Council (IIRC) (2021), integrated reporting is a process based on integrated thinking which leads to a report about value

creation. In December 2013, the first edition of the International Integrated Reporting Framework (IIRF) was developed by IIRC and subsequently revised in January 2021. The 2021 revised framework is applied to reporting corporate for reporting periods commencing 1 January 2022. The IIRF recognizes the existence of six capitals that can be influenced by the corporation's activities and outputs, either by increasing, decreasing, or transforming them. The IIRC has established seven guiding principles and outlined eight content elements that govern the overall structure of an integrated report. These guidelines also aim to explain the essential concepts that will form the foundation of the integrated report. The evolution of integrated thinking in corporate reporting has been accelerated by the IIRF (Camilleri, 2017; Perego et al., 2016).

In April 2017, the Malaysian Code on Corporate Governance (MCCG) 2017, Practice 11.2 was released by the Securities Commission Malaysia (SCM) to promote integrated reporting, in which large Malaysian PLCs were urged to implement integrated reporting based on the globally accepted reporting framework; IIRF (Hamad et al., 2020; SCM, 2017). The MCCG 2017, Practice 11.2 was subsequently revised by MCCG 2021, and become Practice 12.2 where large Malaysian PLCs must disclose whether they have adopted integrated reporting or not in their corporate annual reports. If they have not adopted integrated reporting, an explanation with reason must be given for the non-adoption of integrated reporting. This is because corporate annual reports have traditionally been an important medium for updating stakeholders on the company's financial and strategic performance over the previous financial years. However, the nature and pace of evolution in businesses today have changed over time, and stakeholders are now placing more emphasis on a company's future performance and non-financial information. Furthermore, stakeholders are becoming more aware of the importance of non-financial information in determining long-term financial stability. Along with the growing demand for changes in corporate reporting, integrated reporting is one of the most recent initiatives that has emerged to address stakeholders' disclosure needs and expectations (SCM, 2017).

According to Halid et al (2021), corporations with successful boards are expected to reveal more information in their capacity as representatives of shareholders and other stakeholders. This is because an effective board of directors can reduce managerial opportunism and give a more thorough understanding of stakeholders' interests, which could lead to a better quality of disclosure (Frias-Aceituno et al., 2012; Garcia-Sanchez et al., 2019; Songini et al., 2021), and thus to maintain the long-term sustainability of the corporate (Halid et al., 2021). Integrated reporting is a newly emerged reporting technique in Malaysia and though it is not mandatory, PLCs are expected to voluntarily disclose information in order to reduce information asymmetry between management and shareholders. However, the misalignment of interests between management and shareholders leads to the problems of information asymmetry and a lack of transparency in the reporting process. In addition, the costs associated with monitoring and controlling the extent of integrated reporting disclosure can be significant. In this context, the role of the board of directors becomes crucial in ensuring that the company discloses relevant and material information through integrated reporting.

As a result, this study aims to investigate the influence of the various board characteristics (Board size, Board independence, Board gender diversity, average age of

Board members, and Board activity level) on the extent of integrated reporting disclosure among PLCs in Malaysia. Ultimately, the study seeks to reduce the agency problem by aligning the interests of management and shareholders, reducing information asymmetry, and minimizing the agency costs associated with integrated reporting disclosure.

### **Literature Review**

The theoretical background of the extent of voluntary qualitative corporate integrated reporting disclosures used in this study is related to corporate information asymmetry and the agency problem in corporate disclosures. Therefore, agency theory appears to be relevant to this study that explains the extent of corporate integrated reporting disclosures in compliance with IIRF.

Agency theory is plagued by the problem of information asymmetry, which occurs when one party in a transaction has more or better knowledge than the others, resulting in issues like adverse selection and moral hazard in corporate reporting disclosure. The separation of management and ownership of a corporate and agency, as well as information asymmetry issues, push the corporate to develop three basic kinds of attributable costs in corporate, namely monitoring costs, bonding costs, and residual losses. Monitoring costs are the costs paid by the principal to prevent agents from harming him. Bonding costs are the expenses paid to prevent agents from acting in ways that are detrimental to the principal's interests. Residual losses are the amount of welfare decrease experienced by the principal as a result of a divergence between the agent's actions (optimal monitoring and bonding activities) and those decisions that would optimize the principal's well-being (Jensen & Meckling, 1976; Abeywardana et al., 2021). Corporate disclosures can be identified as a way to reduce information asymmetry and agency costs which in term lead to an increase in the value of the corporate while harmonizing the interests of shareholders and managers (Healy & Palepu, 2001; Abeywardana et al., 2021). As a result, integrated reporting may be described as a tool for reducing information asymmetry between people inside and outside the corporate. Besides, conflicts of interest, such as those emerging from benefit arguments, moral hazards, and adverse selection issues, raise agency costs and lower corporate value, (Mele, 2008; Suttipun & Bomlai, 2019). Furthermore, Healy and Palepu (2001), and Suttipun and Bomlai (2019) discovered that greater agency expenses related to a decrease in the value of corporate shares, a negative management reputation, and a higher cost of capital. As a result, agency theory provides a framework for analyzing the relationship between principals (shareholders) and agents (management), and how information disclosure can help mitigate the agency problem and reduce information asymmetry.

### **Board Size**

The board's size can assist in ongoing monitoring of the management, leading to higher-quality disclosure and subsequently, a reduction in agency costs. The diverse skills and experience of directors enable effective monitoring of the entire process of gathering and disseminating information pertaining to all aspects of corporate management in the context of integrated reporting, which involves the disclosure of both nonfinancial and financial information (Vitolla et al., 2020a). A larger number of board of directors members, according to stakeholder theory, protect various stakeholder interests by encouraging broad and thorough information disclosure (Amran et al., 2014; Frias-Aceituno et al., 2012; Richardson & Welker, 2001; Songini et al., 2021). The inclusion of a larger number of board members, in

particular, enhances diversity in terms of expertise and experience. This factor may influence managers' voluntary disclosure decisions and, as a result, may raise the volume of disclosure (Elzahar & Hussainey, 2012; Songini et al., 2021; Wang & Hussainey, 2013) and quality of disclosure (Qu et al., 2015; Songini et al., 2021). Furthermore, some researchers stated that a larger board increases the efficacy and efficiency of its activities, resulting in an improvement in the degree of corporate transparency, which leads to greater disclosure of corporate information in the integrated report (Gallego-Alvarez et al., 2011; Gandia, 2008; Hidalgo et al., 2011; Songini et al., 2021). This also leads to an enhancement in the disclosure options available to corporates (Adams et al. 2005; Songini et al., 2021). Furthermore, Vitolla et al (2020a, 2020b) proved that the size of the board of directors is positively associated with the quality of integrated reports. Thus, the first hypothesis to test the relationship between the board size and the extent of integrated reporting disclosure adhering to the IIRF is developed as follows

H<sub>1</sub> The board size is positively associated with the extent of integrated reporting disclosure.

### **Board Independence**

In the context of integrated reporting, Fasan and Mio (2017) suggested that increasing the number of independent boards will improve the quality of business disclosure and hence integrated reporting by encouraging materiality disclosure. Independent directors place a stronger emphasis on monitoring corporate behaviour, as well as a motivation to improve a corporate reputation (Fama & Jensen, 1983, as cited in Songini et al., 2021). This mindset has the potential to increase the quality of business disclosure because independent members are less influenced by competitors than executive directors (Prado-Lorenzo & Garcia-Sanchez, 2010; Songini et al., 2021), they are more interested in meeting emerging information demands (Garcia-Sanchez et al., 2011; Songini et al., 2021). Vitolla et al (2020a, 2020b) also confirmed this finding.

Prior literature in this field of inquiry reveals different findings, for example, Kakabadse et al (2010); Songini et al (2021) found that the proportion of independent directors on disclosures to be insignificant and gave various causes for this, among them are the performance of independent members may be influenced by the institutional structures and business cultures in which corporate works, for example, independent members are in weak positions on Chinese boards, which are often controlled by insiders of the corporate. Furthermore, the low level of relationship between board independence and a corporation's disclosure may be attributed to independent members' limited influence in the corporate's reporting practices, as they are not actively involved in corporate operations (Amran & Manaf, 2014; Songini et al., 2021). However, Prado-Lorenzo and Garcia-Sanchez (2010), and Alnabsha et al (2018) discovered a negative association between the number of independent members on the board and the total corporate transparency level.

The existence of a majority of independent directors on a board of directors enhances the board's effectiveness (Frias-Aceituno et al., 2012; Liao et al., 2015; Songini et al., 2021). A more effective board can reduce agency costs and monitor managers more efficiently, this may push management to disclose more corporate information (Songini et al., 2021; Wang & Hussainey, 2013), with an increase in both the quality and quantity of voluntary disclosure regime (Fama & Jensen, 1983, as cited in Songini et al., 2021). Nevertheless, based on the

above literature review of the relationship between the board independence and the extent of integrated reporting disclosure adhering to the IIRF, the second hypothesis to test the relationship between the board independence and the extent of integrated reporting disclosure adhering to the IIRF is developed as follows

H<sub>2</sub> The board independence is positively associated with the extent of integrated reporting disclosure.

### **Board Gender Diversity**

Kilic and Kuzey (2018b), have shown that board gender diversity has a large and positive influence on the quantitative and qualitative forward-looking disclosure offered in integrated reports. Similarly, Vitolla et al (2020a, 2020b) discovered a positive link between the participation of female directors and the quality of integrated reporting. Some studies (Amorelli & Garcia-Sanchez, 2020; Bear et al., 2010; Cook & Glass, 2018; Kassinis et al., 2016) examined the role and impact of females on boards using Critical Mass theory, which proposes that having a critical mass of (at least three) females on the board can improve corporate value creation (Cassell, 2000, as cited in Songini et al., 2021). This impact is connected to the notion that when the number of a minority group grows (as in the case of females on the board), the majority can benefit from additional resources, competencies, and perspectives (Kanter, 1977a, 1977b, as cited in Songini et al., 2021). According to Fernandez-Feijoo et al (2014) having at least three females on the board has a good influence on Corporate Social Responsibility (CSR) disclosure. Ben-Amar et al (2017) discovered that a particular ratio of females on the board enhances the amount of climate change disclosure. Manita et al (2018) discovered a similar result when investigating the impact of females' attendance on the quantity of Environmental, Social, and Governance (ESG) disclosure. Amorelli and Garcia-Sanchez (2020) discovered that increasing the number of female directors to a critical mass has a beneficial impact on the quality of CSR disclosure and that this influence is stronger in the presence of board members with a stronger background, skills, and experience.

Other research, however, reported a non-significant (Giannarakis et al., 2014; Khan, 2010; Prado-Lorenzo & GarciaSanchez, 2010) or negative connection between female directors on boards and various forms of disclosure (Songini et al., 2021). According to Fasan and Mio (2017), the presence of females on boards reduces the quality of materiality disclosure. Muttakin et al (2015), and Shamil et al. (2014) found similar outcomes in terms of CSR disclosure (Songini et al., 2021). Cucari et al (2018) discovered a negative association between females on boards and ESG disclosure in a sample of Italian enterprises. This conclusion is also consistent with Giannarakis' (2014a, 2014b) findings and may be caused by the low representation of females on the board of directors of Italian corporate (Songini et al., 2021). The negative relationship between the presence of females on boards and disclosure can be explained by Token theory (Kanter, 1977b, as cited in Songini et al., 2021), which emphasizes how being a member of an under-represented group, such as females in boards, can make it difficult to contribute effectively to board decisions (Nielsen & Huse, 2010; Songini et al., 2021). Nevertheless, given the above conflicting views of the relationship between the board gender diversity and the extent of integrated reporting disclosure adhering to the IIRF, the third hypothesis to test the relationship between the board gender

diversity and the extent of integrated reporting disclosure adhering to the IIRF is developed as follows

H<sub>3</sub> The board's gender diversity is positively associated with the extent of integrated reporting disclosure.

#### **Average age of the board members**

The qualities of the directors have an influence on the control and monitoring responsibilities of the board of directors (Vitolla et al., 2020a). In this regard, Dahya et al (1996). as cited in Marrone, 2020) emphasize how the experience of board members improves corporate transparency since greater knowledge of the directors increases the chance for comparison. The more experienced board members are more committed to performing control and monitoring activities efficiently and effectively to safeguard their reputation and increase their attractiveness in the labour market. As a result, personnel with more expertise strengthen the board's ability to oversee management actions (Useem, 1993, as cited in Marrone, 2020). Directors' experience is frequently linked to their age. Consequently, Marrone (2020) assumes that senior board members have more experience and a greater capacity for control and monitoring than younger board members. The extent to which the integrated report adheres to the IIRF content elements necessitates the involvement of more experienced directors. It also necessitates a high level of board management and oversight. Such occurrences are more likely on boards of directors with a higher average age.

The characteristics of the directors have an impact on the board of directors' control and monitoring tasks (Vitolla et al., 2020a). In this context, Dahya et al (1996, as cited in Marrone, 2020) emphasize how board members' experience improves corporate transparency since more knowledge of the directors enhances the opportunity for comparison. The more experienced board members are more engaged in carrying out the control and monitoring tasks efficiently and effectively to protect their reputation and boost their attractiveness in the labour market. As a result, individuals with greater experience boost the board's capacity to supervise the activities of management (Useem, 1993, as cited in Marrone, 2020). The experience of directors is frequently tied to their age. As a result, Marrone (2020) presumes that senior members have more experience as well as higher control and monitoring capacity than younger board members. The extent of adherence to the integrated report in accordance with the content elements of IIRF requires involvement from more experienced directors. It also needs a high level of board management and monitoring. Such situations are more likely to occur on boards of directors with greater average age. Nevertheless, based on the above discussions of the relationship between the average age of board members and the extent of integrated reporting disclosure adhering to the IIRF, the fourth hypothesis to test the relationship between the average age of board members and the extent of integrated reporting disclosure adhering to the IIRF is developed as follows

H<sub>4</sub> The average age of board members is positively associated with the extent of integrated reporting disclosure.

### **Board Activity Level**

Vitolla et al (2020a) found that having a significant number of yearly board of directors' meetings has a positive impact on the quality of integrated reports. The effectiveness of the board's supervision is also connected to the number of yearly meetings. In this regard, it is critical for the board to convene several times each year to adequately oversee management's activity in areas of disclosure. In respect of integrated reporting, the process of acquiring and disseminating information can be time-consuming and difficult, demanding ongoing scrutiny by the board of directors via a significant number of yearly meetings. To attain good information disclosure, the corporate board of directors must maintain continual control over data collection, selection, and dissemination methods, which is achieved through a significant number of yearly meetings.

Board activity level is controversial; some argue that an active board with more meetings is inefficient, while others believe that more board meetings allow directors to better manage the corporate (Frias-Aceituno, 2013; Zhou et al., 2017). By holding more meetings, the board will be able to discuss, evaluate, and make decisions on a greater variety of issues, including the information to be included in the integrated report. Nonetheless, the amount of CSR information disclosed is not related to the number of board meetings (Frias-Aceituno, 2013; Tiron-Tudor et al., 2020). The ability of the board to supervise managers' actions is likewise related to the board activity level (Frias-Aceituno et al., 2012; Vitolla, 2020a). According to Lipton and Lorsch (1992, as cited in Vitolla et al., 2020a) boards that have more meetings are more attentive and better address the needs of all stakeholders. Nevertheless, given the above conflicting views of the relationship between the board activity level and the extent of integrated reporting disclosure adhering to the IIRF, the fifth hypothesis to test the relationship between the board activity level and the extent of integrated reporting disclosure adhering to the IIRF is developed as follows

H<sub>5</sub> The board activity level is positively associated with the extent of integrated reporting disclosure.

### **Control Variables**

The control variables chosen for this study are based on previous research to evaluate the effect of the control variables on the variables of interest in the hypotheses under the study. Corporate characteristics such as corporate size Chouaibi et al (2022); Ciavarella (2017); Gul & Leung (2004); Sotorrió & Sánchez (2010), financial performance Girella et al (2019); Frias-Aceituno (2014); Oshika & Saka (2017), and leverage Kılıç & Kuzey (2018b); Patton & Zelenka (1997) are the control variables selected for this research.

### **Research Methodology**

#### **Sample Selection and Data Collection**

The study collected data from integrated annual reports of all 33 of the top 100 PLCs in Malaysia, which adopted integrated reporting from 2019 to 2021. The top 100 PLCs by market capitalization on the Bursa Malaysia are chosen as the targeted research population because these companies contribute more to the economy of Malaysia, and MCG encouraged only large PLCs to adopt integrated reporting.



### Dependent Variable

The dependent variable of this study is the extent of integrated reporting disclosure which is reflected by the Corporate Integrated Reporting Index (CIRI). The non-weighted content analysis method was used to determine whether the integrated annual reports of the PLCs disclosed specific items or not. This method assigned a score of 1 to the company if the specific item was disclosed at least once, and a score of 0 if it was not disclosed. The study derived a self-constructed CIRI based on 40 items under seven content elements of the IIRF and it is adapted from the previous study of Kılıç and Kuzey (2018a) to evaluate the extent of integrated reporting. The seven content elements of the IIRF are organizational overview and the external environment, governance, business model, risks and opportunities, strategy and resource allocation, performance, and outlook.

### Independent Variables

The independent variables are board characteristics measured by board size, board independence, board gender diversity, the average age of board members, board activity. The operational definitions of independent variables are described in Table 1.

Table 1

*The Operational Definitions of Independent Variables*

Key of Variable	Independent Variable	Operational Definition	Adopted from
BSIZ	Board size	The board size refers to the overall number of directors on a corporate board of directors	Alfiero et al (2017) Frias-Aceituno et al (2012) Iredele (2019) Vitolla et al (2020a)
BIND	Board independence	Board independence refers to the number of independent directors within a corporate board of directors	De Andres et al (2005) Frias-Aceituno et al (2012) Vitolla et al (2020a).
BGEN	Board gender diversity	Board gender diversity refers to the number of females and males directors on a corporate board of directors	Alfiero et al (2017) Frias-Aceituno et al (2012) Liao et al (2015) Vitolla et al (2020a)
AABM	Average age of board members	the average age of all the members of the board of directors	Alfiero et al (2018) Anderson et al (2004) Marrone (2020) Songini et al (2021)
BACT	Board activity level	Board activity is often represented by the number of corporate board of directors meetings	Frias-Aceituno et al. (2012) Vitolla et al (2020a)

### Control Variables

The control variables chosen for this study are based on previous research to evaluate the effect of the control variables on the variables of interest in the hypotheses under the study. Corporate size, financial performance, and leverage are the control variables selected for this research. The operational definitions of control variables are described in Table 2.

Table 2  
*The Operational Definitions of Control Variables*

Key of Variable	Control Variable	Operational Definition	Adopted from
CSIZ	Corporate size	Corporate size refers to the natural logarithm of the total assets of the corporation	Chouaibi et al (2022) Ciavarella (2017) Gul and Leung (2004) Sotorrío and Sánchez (2010)
CFPF	Corporate financial performance	Corporate financial performance refers to the Return on Assets (ROA) of the corporation	Girella et al. (2019) Frias-Aceituno (2014) Oshika and Saka (2017)
CLEV	Corporate leverage	Corporate leverage is an indicator of the financial risk of the corporation	Kılıç and Kuzey (2018b) Patton and Zelenka (1997).

This study employed the following multiple linear regression model to examine the potential influence of board of directors characteristics on the extent of integrated reporting disclosure:

$$CIRI_{it} = \beta_0 + \beta_1 BSIZE_{it} + \beta_2 BIND_{it} + \beta_3 BGEN_{it} + \beta_4 AABM_{it} + \beta_5 BACT_{it} + \beta_6 CSIZ + \beta_7 CFPF + \beta_8 CLEV + \varepsilon_{it}$$

Where,

$\beta$  = Beta

$\varepsilon$  = A classical error term

$i$  = Observation number in a cross-sectional data set

$t$  = Observation number in a time-series data set

## Research Findings and Discussions

### Descriptive Statistics

The descriptive statistics of the variables analyzed are presented in Table 3.

Table 3

#### *Descriptive Statistics on Variables*

Variable	N	Minimum	Maximum	Mean	Standard Deviation
CIRI	99	45.0	87.5	70.8	8.0
BSIZ	99	5.0	13.0	9.3	1.9
BIND	99	3.0	10.0	5.2	1.7
BGEN	99	1.0	5.0	2.6	1.0
AABM	99	51.0	69.0	60.3	3.2
BACT	99	4.0	25.0	10.3	5.0
CSIZ	99	1.0	888.2	61.2	153.7
CFPF	99	-2.3	25.3	5.4	5.9
CLEV	99	0.0	0.7	0.3	0.2

Based on Table 3, the dependent variable is the extent of corporate integrated reporting disclosure, which is reflected by CIRI and ranges from 45.0 to 87.5. This finding suggests that the sample has a high extent of integrated reporting disclosure since the mean of CIRI is 70.8 for a total of 99 corporate-year observations of PLCs in Malaysia from 2019 to 2021.

Regarding board characteristics, the minimum and maximum numbers of directors (BSIZ) in the board of directors of the sample PLCs are 5 and 13, respectively. The average number of directors on the board of directors is 9.3. Next, the number of independent directors (BIND) on the Board of Directors ranges from a minimum of 3 directors to a maximum of 10 directors. On average, 5.2 out of 9.3 directors are independent members, representing 56.4% of the average board size. This is in line with the requirement of Practice 5.2, MCGG 21, that at least half of the board comprises independent directors. For large companies, the board should comprise a majority of independent directors. Followed by that, BGEN is the number of females within the board of directors. It ranges from a minimum of 1 female director to a maximum of 5 female directors. On average, 2.6 out of 9.3 directors are female, representing 28.1% of the average board size. In other words, the average number of female directors of PLCs in Malaysia is slightly below the minimum requirement of Practice 5.9, MCGG 21, that all boards should comprise at least 30% of female directors. Concerning the Average Age of Board Members (AABM), the minimum and maximum average age of board members are 51 and 69, respectively. The mean of average age of board members of the sample PLCs is 60.3. Pertaining to the Board Activity Level (BACT), represented by the total number of board of director meetings held annually, it seems that the frequency of board meetings ranges from 4 to 25 times. The mean of board meeting frequency of the sample is 10.3 times.

For the control variables, the first control variable is the Corporate Size (CSIZ), represented by the corporate's total assets. The average total assets of sample PLCs is RM61.2 billion and range from a minimum of RM1.0 billion to a maximum of RM888.2 billion. Next, Corporate Financial Performance (CFPF) is measured by Return on Assets (ROA). The minimum and maximum ROA are negative 2.3% and 25.3%, respectively. On average, the ROA of the sample is 5.4%. Corporate Leverage (CLEV) is measured by the total debts to total assets ratio. The CLEV indicates that, on average, 0.3% of the assets of the sample PLCs are financed through debts and range between a minimum of 0.0% and a maximum of 0.7%. This finding proposes that the sample PLCs have a low leverage ratio, and the risk of becoming insolvent is low.

### Pearson Correlation Analysis

The Pearson correlation coefficient measures the strength of the linear relationship between two variables (Bivariate), but it does not account for the influence of other variables (both independent and control variables). Table 4 tabulates the Pearson correlation coefficients for the variables of the study.

Table 4

#### *Pearson Correlation Coefficients Analysis*

		CIRI	BSIZ	BIND	BGEN	AABM	BACT	CSIZ	CFPF	CLEV
CIRI	Pearson Correlation	1	0.168*	0.125	0.150	0.112	0.095	0.030	-0.303**	-0.124
	Sig. (1-tailed)		0.049	0.110	0.069	0.136	0.174	0.383	0.001	0.111
	N		99	99	99	99	99	99	99	99
BSIZ	Pearson Correlation		1	0.806**	0.391**	0.016	0.451**	0.336**	-0.396**	0.011
	Sig. (1-tailed)			0.000	0.000	0.437	0.000	0.000	0.000	0.458
	N			99	99	99	99	99	99	99
BIND	Pearson Correlation			1	0.483**	0.189*	0.432**	0.480**	-0.280**	-0.210*
	Sig. (1-tailed)				0.000	0.030	0.000	0.000	0.003	0.018
	N				99	99	99	99	99	99
BGEN	Pearson Correlation				1	0.025	0.386**	0.234**	-0.110	-0.106
	Sig. (1-tailed)					0.402	0.000	0.010	0.138	0.148
	N					99	99	99	99	99
AABM	Pearson Correlation					1	-0.016	0.073	-0.117	-0.158
	Sig. (1-tailed)						0.437	0.237	0.124	0.059
	N						99	99	99	99
BACT	Pearson Correlation						1	0.389**	-0.428**	0.194*
	Sig. (1-tailed)							0.000	0.000	0.027
	N							99	99	99
CSIZ	Pearson Correlation							1	-0.249**	-0.152
	Sig. (1-tailed)								0.006	0.067
	N								99	99

CFPF	Pearson Correlation								1	-0.132
	Sig. (1-tailed)									0.096
	N									99
CLEV	Pearson Correlation									1
	Sig. (1-tailed)									
	N									

Notes: \* Correlation is significant at the 0.05 level (1-tailed).

\*\* Correlation is significant at the 0.01 level (1-tailed).

Table 4 shows the Pearson correlation coefficients for the independent variables (BSIZ, BIND, BGEN, AABM, and BACT) and control variables (CSIZ, CFPF, and CLEV) with the dependent variable (CIRI) in the study. The results indicate that only BSIZ,  $r = 0.168$ , and BGEN  $r = 0.150$  have a significant positive correlation with CIRI at  $p$ -value = 0.049 (significant levels of 0.05) and  $p$ -value = 0.069 (significant levels of 0.10) respectively, while CFPF  $r = 0.303$  has a significant negative correlation with CIRI at  $p$ -value = 0.001 (Significant levels of 0.01).

It suggests that CIRI was generally positively related to the independent variables of BSIZ, BIND, BGEN, AABM, and BACT of the sample PLCs in Malaysia. The value between CIRI and independent variables of BSIZ is 0.168, significant at the 0.05 level (1-tailed), BIND is 0.125, BGEN is 0.150, AABM is 0.112, and BACT is 0.095. As a result, BSIZ showed the strongest positive relationship with CIRI ( $r = 0.168$ ), next BGEN ( $r = 0.150$ ), followed by BIND ( $r = 0.125$ ), AABM ( $r = 0.112$ ) and BACT ( $r = 0.095$ ). Whereas for the control variables, CIRI is positively related with  $r = 0.030$  to CSIZ but negatively related with  $r = -0.303$  to CFPF, significant at the 0.01 level (1-tailed), and negatively related with  $r = -0.124$  to CLEV also of the sample PLCs in Malaysia.

### Multicollinearity

The preliminary results of the inferential analysis in Table 4 show that all the correlations are below 0.7, except the correlation between BIND and BSIZ where  $r = 0.806$ . Thus, it is considered no severe multicollinearity problem is present in the data of this study. The multicollinearity problem in the data is further analyzed by Variance Inflation Factor (VIF) and the Tolerance of collinearity statistics, which provide a more precise test than the correlation test and allow for formal evaluation of the correlation among independent and control variables. The VIF scores of all the independent and control variables were well below 10, the highest was 4.483. Pertaining to tolerance scores, all the independent and control variables were above 0.1. The lowest was 0.223. Thus, it is confirmed that there is no multicollinearity issue in the data of this study.

### Multiple Regression Coefficient Analysis

Table 5 tabulates the multiple regression coefficient results of the study.

Table 5

#### *Multiple Regression Coefficient*

Variables	Unstandardized Coefficients		t-value	p-value
	Beta	Std. Error		
(Constant)	60.180	16.965	3.547	0.001
BSIZ	0.645	0.773	0.834	0.204
BIND	-0.760	0.985	-0.772	0.221
BGEN	1.083	0.894	1.211	0.115
AABM	0.185	0.256	0.720	0.237
BACT	-0.046	0.204	-0.228	0.410
CSIZ	-0.004	0.006	-0.677	0.250
CFPF	-0.427	0.154	-2.763	0.004
CLEV	-8.812	5.382	-1.637	0.053

Note: Dependent Variable = CIRI.

The findings from the multiple regression analysis propose that the corporate governance measured by board characteristics (BSIZ, BIND, BGEN, AABM, and BACT) were found to have no statistically significant influence on the extent of integrated reporting, even when considering other independent and control variables of the board and corporate characteristics, respectively, in this study. The empirical evidence suggested that this relationship is complex. Other variables, such as CSIZ, CFPF, and CLEV may influence the integrated reporting disclosure practices of companies. Corporate characteristics can affect integrated reporting disclosure practices through the decisions made by the board of directors. The board of directors responds differently to a specific corporate characteristic, resulting in different approaches to disclosure practices within the context of integrated reporting.

Despite agency theory providing a framework for understanding the relationship between the board of directors and integrated reporting disclosure, empirical evidence from multiple regression analyses does not strongly support this argument. The results indicate that CSIZ is not significantly associated with the level of integrated reporting disclosure, even when considering other independent and control variables related to the board and corporate characteristics. However, the same regression analysis provides robust empirical evidence supporting a significant negative relationship between both CFPF (p-value = 0.004, beta = -0.427) and CLEV (p-value = 0.053, beta = -8.812) with CIRI. These findings support the application of agency theory in understanding the extent of integrated reporting disclosure and the role of the board of directors in managing conflicts of interest. Specifically, the analysis demonstrates that lower CFPF and lower CLEV are associated with increased integrated reporting disclosure. These results highlight the importance of considering both CFPF and CLEV as influential factors in shaping disclosure practices within integrated reporting frameworks.

## Conclusions

The findings suggest that the extent of integrated reporting among the sample of Malaysian public listed companies as proxied by CIRI score is at 70.8%. Additionally, it was found that board characteristics, including board size, independence, gender diversity, average board member age, and activity level, as independent variables do not significantly influence the extent of integrated reporting. Similarly, as a control variable, corporate size also does not provide evidence to a significant relationship with integrated reporting. In contrast, other control variables which are financial performance and leverage demonstrate significant negative associations with integrated reporting, highlighting the importance of these corporate characteristics in influencing the extent of integrated reporting. From a theoretical point of view, the study suggests that financially weaker companies may adopt integrated reporting to mitigate agency costs, while highly leveraged firms may exercise caution in disclosing non-financial information due to a potential agency problem or responsible risk management considerations. From a practical perspective, the study reveals room for improvement in the integrated reporting practices of PLCs in Malaysia, with a CIRI score of 70.8% for the top 100 PLCs. Companies can utilize the study's findings to identify areas for enhancement, taking into account factors beyond board characteristics, such as financial performance and leverage. For example, increasing non-financial disclosure can enhance stakeholder trust, reputation, access to capital, and risk management for financially weaker companies, while highly leveraged companies should carefully weigh the risks and benefits. Overall, the study provides practical insights for companies and regulators seeking to enhance integrated reporting practices.

The research focuses solely on the Top 100 PLCs in Malaysia, with only 33 of them adopting integrated reporting. Consequently, the influence of board characteristics on integrated reporting disclosure can only be applied to Malaysian companies and cannot be generalized to other countries due to varying laws, regulations, and cultures. For future research, it is recommended to include PLCs from other Asian regions, such as those listed on the Hong Kong Stock Exchange and the Singapore Stock Exchange, in order to broaden the scope and enable the findings to be applicable to a wider context, benefiting researchers across Asia. The research outcome indicates that a comprehensive approach is necessary to improve integrated reporting in Malaysia, as board characteristics alone may not be sufficient to understand the relationship with integrated reporting disclosure practices.

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