Board Characteristics and Integrated Reporting Strategy: Does Sustainability Committee Matter?

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Abstract: Integrated reporting (IR) is the latest topic in corporate reporting that has raised interest in the disclosure literature. Although the board’s role in IR practice has received significant attention in developed countries, this effect is still unexamined in an emerging market like Malaysia. Thus, this study sought to fill this gap in the IR literature by investigating the impact of the board of directors’ characteristics on the quantity and quality of IR disclosure. The study also examined whether the existence of a sustainability committee affects the board-IR relationship. The study used all listed companies in Bursa Malaysia that applied IR strategy from 2017 to 2020 to test the hypotheses. It employed a content analysis technique to measure the quantity and quality of IR using an index with 100 items based on the International Integrated Reporting Council guidelines. Multivariate ordinary least squares (OLS) regression was applied to examine these relationships. The analysis showed that board size, independence, gender diversity, and non-executive remuneration were positively and significantly related to greater IR disclosure, suggesting that the board of directors has a monitoring role in reducing agency problems and protecting stakeholders’ interests. However, multiple directorships did not affect IR disclosure. The analysis also showed that the presence of a sustainability committee positively affected IR disclosure, and had a moderating effect on the board-IR disclosure relationship. Our result was robust to alternative measures of the corporate board and an alternative regression model. This study is among the first to provide empirical evidence of the board and sustainability committee’s significant role in enhancing IR strategy. The findings may benefit regulatory bodies, policymakers, company managers, investors, and researchers in better understanding how directors’ characteristics influence companies’ IR practices.

Keywords: integrated reporting; board of directors; sustainability committee; agency theory; resource dependency theory; Malaysia

1. Introduction

In recent years, the topic of integrated reporting (IR) and its disclosure has received substantial attention from regulators, professionals, and academics [1]. IR is a new trend in corporate reporting, representing a paradigm shift from traditional reporting of financial and non-financial information separately to combining the two in a single report [2,3]. It represents the company’s capacity to create value over time [4], enabling it to improve decisions relating to internal resource allocation and improve risk management [5]. IR also allows companies to meet other stakeholders’ information requirements, contributing...
to increased customer and investor awareness and enhancing their trust in company activities [6]. Recently, researchers have provided empirical evidence that IR produced better-quality information, reducing regulatory and reputational risks, improving corporate financial health performance [7,8], increasing earnings quality [9], improving corporate reputation and image [10], increasing the accuracy of analysts’ forecasts [11], reducing capital cost [12], making better internal decision-making processes [13], and enhancing company value [14]. These advantages of an IR strategy provide substantial justification for companies to move to IR disclosure.

Corporate boards are composed of executive and non-executive directors responsible for the running, direction, and leadership of a company; they constitute an internal governance monitoring tool to protect the interests of stakeholders and strengthen corporate disclosure [15,16]. Boards are responsible for overseeing how a company is managed [17], formulating sustainability strategies [18], monitoring managers’ actions, representing and safeguarding all stakeholders’ interests [19], and connecting the company to external resources that are vital for its survival [20]. In keeping with the arguments of agency and resource dependency theories, researchers argue that the board of directors is an effective monitoring tool and source of knowledge and expertise that minimizes agency problems and reduces information asymmetry [21,22]. This, in turn, promotes a higher level of corporate disclosure.

The sustainability or corporate social responsibility (CSR) committee is one of the corporate governance (CG) bodies responsible for formulating, implementing, and reviewing sustainable development policies [23,24] and ensuring the credibility of the information disclosed in their reports. According to [25], the essential role of these committees is to increase sustainability awareness within companies by advising the board of directors on implementing sustainable development policies. Researchers have demonstrated that CSR/sustainability committees play a sensitive role in monitoring, helping companies to strengthen external relations with investors [26], and improving sustainable performance [27], thus increasing the demand for CSR/sustainability assurance [28,29]. Although an abundant literature addresses the link between the sustainability committee and CSR/sustainability disclosure see [23–25,27,30], the impact of the CSR/sustainability committee on IR practices has received little attention, e.g., [1,4,31–33]. Most of these prior studies investigated the direct impact of these committees on IR practice. However, no study has considered the indirect effect of these committees on other CG mechanisms and IR relationships. Therefore, it is useful to investigate what researchers have previously neglected to extract new insights into IR practice that are not limited to the restricted and traditional perspective.

Although several recent studies have investigated the relationship between board characteristics (i.e., size, independence, gender diversity, meetings, age, and education) and IR disclosure quantity and/or quality, these studies largely considered developed countries [4,5,19,34,35]. However, little research has investigated this relationship in emerging and developing markets [36,37]. To the best of the researchers’ knowledge, no comprehensive study has investigated the board’s role in determining IR disclosure quantity and quality in Malaysia. Thus, this study attempts to extend IR disclosure studies by empirically exploring the relationship between corporate board characteristics (e.g., size, independence, gender diversity, meetings, multiple directorships, and non-executive remuneration) and IR disclosure in Malaysia. It also examines whether the presence of a sustainability committee affects the board-IR disclosure relationship.

This study focuses on Malaysia for several reasons. First, Malaysian regulatory and professional bodies have paid much attention to the IR practice through establishing the Integrated Reporting Steering Committee (MIRSC) in 2014 to increase awareness and understanding of IR practice, as well as to build a strong, sustainable culture and a robust CG system within the Malaysian corporate sector [38]. Second, the revised Malaysian Code on Corporate Governance (MCCG) of 2017 recommends that large companies adopt and implement IR practices based on the International Integrated Reporting Framework
(IIRF) [39]. Third, the regulatory authorities in Malaysia (e.g., Securities Commission Malaysia (SCM) and Bursa Malaysia) launched a new prize called “the Integrated Reporting Award” to encourage Malaysian listed companies to apply IR practice in their annual reports [39]. The series of continuous developments in IR regulations makes Malaysia one of the few countries to be making substantial efforts toward encouraging companies to adopt IR in their annual reports [40].

The study used 374 company-year observations from the Malaysian market for the period from 2017 to 2020. Ordinary least squares (OLS) regression was employed to test the established hypotheses. The empirical results indicated that companies with a larger board size, a higher proportion of independent directors, more female directors, more frequent meetings, and higher non-executive director remuneration were more likely to adopt the IR strategy. However, director busyness did not affect IR practice. We also found that these characteristics were more effective in enhancing IR disclosure in companies with sustainability committees than in those without these committees. These results suggest that sustainability committees play a vital role in enhancing the positive relationship between board characteristics and IR practice. The results were robust after using alternative measurements and regression models. Thus, we conclude that the directors’ characteristics play a significant role in determining IR disclosure, reducing agency problems, and protecting stakeholders’ interests.

This study makes several theoretical and practical contributions. First, our paper is among the first to provide a snapshot of the relationship between the corporate board and IR practice (in terms of both quantity and quality) in Malaysia. Second, it extends prior research by providing new evidence on the significant role of establishing a CSR/sustainability committee in enhancing the board characteristics–IR disclosure relationship. Thus, this is the first study, to the best of the researcher’s knowledge, to explore the effect of the sustainability committee on this relationship. Third, the majority of studies have used agency theory to explain how board characteristics affect IR disclosure practice, e.g., [4,17,34,41]. Adopting a single theory may be too limited in explaining IR practice; we believe that there is a need to combine two theories to explain the effect of board characteristics on IR disclosure quantity and quality. Thus, this study adopts both agency and resource dependency theories in showing evidence that the corporate board is an essential monitoring mechanism and source of knowledge and expertise, as we believe they complement each other.

The remainder of this paper is structured as follows: Section 2 presents the theoretical framework for the association between corporate board characteristics and IR disclosure. Section 3 provides a literature review and develops the hypotheses. Section 4 describes the research methodology, and Section 5 reports the results of data analysis and discussion. Section 6 demonstrates the robustness tests. Finally, Section 7 provides conclusions, implications, limitations, and suggestions for future research.

2. Theoretical Framework

Several theories have been employed to understand the numerous issues in IR disclosure. Amongst these are stakeholder theory, agency theory, legitimacy theory, and resource dependency theory, e.g., [42,43]. Most research concerning IR disclosure quantity and/or IR disclosure quality employs either a single or multi-theoretical framework, e.g., [42,43], the latter approach providing a richer basis for understanding IR practice [44]. Despite agency theory being the most appropriate theory to examine IR disclosure, this study applies a multi-theoretical framework (involving both agency and resource dependency theories) to examine whether the board characteristics contribute to IR disclosure and whether this relationship is moderated by the existence of a sustainability committee.

2.1. Agency Theory

Agency theory explains the agency relationship [21]. A conflict of interests occurs when the goals of the management differ from those of the shareholders due to opportunistic
management behaviour and the presence of information asymmetry problems [21,42]. To solve these agency problems, this theory suggests that one of the remedies is to increase internal monitoring mechanisms through appointing more independent directors and disclosure of additional information, including IR [4,21]. In this respect, IR disclosure represents a useful tool to mitigate information asymmetry by reporting more voluntary information to stakeholders [4]. The authors of [45] assume that the board of directors has a monitoring role in reducing agency and information asymmetry problems, which results in improving the quality of disclosure and making a company more transparent. The authors of [4] argue that the board of directors represents a crucial determinant of IR quality aimed at reducing agency problems by addressing the information asymmetry gap and promoting IR-related disclosure.

2.2. Resource Dependency Theory

Resource dependency theory explains how outside resources influence a company’s decision making [22]. This theory describes the company as an open system that should have an interdependent relationship between management and external entities in order to minimize dependency and uncertainty for company survival [22]. As suggested by [22,46], the board’s function of resource provision has four different types of benefit for the company: (1) directors provide advice and counsel to facilitate the company’s strategic decision-making process; (2) directors act as an important channel for communication to the external environment; (3) directors establish networks and connections with other companies, and (4) directors help to improve the legitimacy of companies. The authors of [47] suggest that the board of directors is the sum of human capital (namely knowledge, reputation, and expertise) and relational capital (namely networks and channels), which will influence both monitoring and resource provision. The authors of [48] argue that the directors help companies improve their financial and non-financial performance by reducing their dependence on the external environment, thus increasing company transparency. The author of [49] suggests that the corporate board can play a resource-provisioning role in increasing non-financial performance. Thus, resource dependency theory provides a complementary theoretical basis with agency theory to explain the relationship between the board of directors and IR strategy.

3. Literature Review and Hypothesis Development

3.1. Board Characteristics and IR Practice

The board of directors is regarded as an internal governance monitoring tool that has a vital role, not only in safeguarding the stakeholders’ interests [50], but also in monitoring managers’ work to mitigate agency problems and enhance reporting transparency [16]. According to [4], the board characteristics can be seen as determinants of IR disclosure quality. In Malaysia, the latest revision of MCCG in 2017 emphasized the significance of having an effective board of directors to enhance good CG mechanisms and to sustain and improve company performance [39]. Theoretically, there are two main functions of the board: monitoring company managers to safeguard the shareholders’ interests, as promulgated by agency theory [21], and easing access to information and essential resources, as advanced by resource dependency theory [46]. Thus, it is clear the board of directors is important in enhancing IR disclosure quality.

Most of the empirical studies investigating the board of directors’ role in IR disclosure have been extensively conducted in developed countries. These studies have focused on certain characteristics, such as board size [4,17], board independence [34], board gender diversity [35,51], board meetings [32], board age and educational level [16,19], and board interlocks and influential community directors [36]. Although a few studies have been conducted in developing economies, such as Malaysia, and addressed the influence of board characteristics on CSR or sustainability disclosure [20,53–55], the evidence on IR disclosure is still scarce. Therefore, this study examines the effect of six board characteristics (size, independence, gender, meetings, multiple directorships, and non-executive remuneration) on
IR disclosure. Further, it examines the role of the sustainability committee on the board-IR disclosure relationship. The following subsections relate this to the respective hypotheses.

3.1.1. Board Size and IR Practice

Board size refers to the total number of directors that can influence the board’s functioning and effectiveness [34]. Theoretically, agency theory argues that a smaller board is better than a larger one, because it enables good communication and coordination in decision making, resulting in better monitoring of management [56]. According to [51], its size influences the board’s effectiveness by reducing agency problems between managers and shareholders, mitigating information asymmetry and consequently improving voluntary disclosure. However, resource dependency theory posits that companies with large boards may have access to more resources [22]. This, in turn, improves their legitimacy and reputation and supports the company’s capabilities for strategic implementation. As argued by [57], a large board may be a sign of its strength and efficacy, including diversity of financial expertise and resources; this, in turn, increases the board’s supervisory capacity and enhances the company’s disclosure policies, including financial and non-financial information.

Several previous studies have empirically examined the relationship between board size and IR practice. For example, the authors of [51,52] in different countries showed that a larger board size led to more disclosure and adoption of IR. This was because having more board members provided a greater diversity of opinion and experience, which offered better monitoring, thereby enhancing the level of disclosure. In terms of IR quality, as reported by [2] in South Africa and [58] in Nigeria, companies with larger boards were more likely to have higher IR quality. Similarly, the authors of [4,41] found that companies with more board members were more likely to improve IR quality. More recently, the author of [35] showed that a larger board led to a better quality of IR. However, the authors of [17,34] found that board size did not affect the level of IR practice. Similarly, the author of [19] found no relationship between a large number of board members and the quality of IR. In the Malaysian context, MCCG 2000, 2007, 2012 and 2017 did not determine the board size; rather, the board of directors itself decided on the impact of size on its effectiveness and efficiency. It is not yet known whether board size has an effect on IR strategy in the Malaysian market. We rely on the limited literature and resource dependency theory and argue that boards with more directors could increase the level of disclosure of IR information and, therefore, that their companies may be more transparent. Thus, the following hypothesis is proposed:

**Hypothesis (H1).** Ceteris paribus, board size is positively and significantly associated with the quantity and quality of IR practice.

3.1.2. Board Independence and IR Practice

The independence of the board of directors is an essential factor in improving IR quality [45]. Drawing on agency and resource dependency theories, the authors of [59] argue that a board that includes more independent directors has better monitoring of management’s behaviour towards shareholders; this may enhance the quality of disclosure [60] as well as playing an effective resource dependency role [22] by providing essential resources to a company or by helping the company secure these resources through links with its external environment [61,62].

Previous studies have examined the board independence–IR disclosure relationship in developed and developing countries with conflicting findings. For instance, the authors of [17] showed that higher board independence improved the IR information disclosed, probably because independent directors acted as an effective monitoring tool for reducing opportunistic behavior by managers and protecting stakeholders’ interests. Similarly, the authors of [36,52] found that a greater percentage of independent directors on the board was associated with a higher level of IR disclosure. In terms of IR quality, the authors of [8]
found that independent directors were also able to enhance IR quality as they represented an effective monitoring mechanism for protecting all stakeholders’ interests. The authors of [58] showed that more independent directors had a noteworthy role in promoting IR quality. More recently, having a more independent board led to a higher quality of IR disclosure [4,35]. In contrast, many other empirical studies [16,19,41,51] have failed to find evidence of an association between the independence of the non-executive directors and the quality and quantity of IR. In Malaysia, MCCG 2017 requires that at least half the members of boards of public companies are independent directors, and a majority in large companies [39]. However, it is not yet clear what impact having independent directors on IR disclosure will have in the Malaysian context. In line with these contradictory empirical findings, and in keeping with the arguments of agency and resource dependency theories, the current study predicts that companies in Malaysia with a higher proportion of independent directors will be more inclined to enhance IR disclosure. Therefore, the following hypothesis is proposed:

Hypothesis (H2). Ceteris paribus, board independence is positively and significantly associated with the quantity and quality of IR practice.

3.1.3. Board Gender Diversity and IR Practice

Gender diversity plays a significant role in a board’s decision-making pertaining to the production of sustainability reports and IR [5,63]. Agency theory postulates that the presence of female directors on the board may introduce more knowledge, experience and skills that foster an effective monitoring function [59]. According to [4], a higher presence of female directors is expected to drive the greater dissemination of IR information, which, in turn, reduces information asymmetry and resulting agency problems. Similarly, from the resource dependency theory perspective, gender diversity on boards may well facilitate the provision of additional resources and enhance the company’s reputation and legitimacy [22]. The authors of [64] argue that gender-diverse boards are more effective in managing the resources needed for survival, resulting in better non-financial performance.

Empirically, the authors of [36] indicate that companies with more female directors may improve the adoption of IR because of their broader perspectives on decision making and resources. Consistent with this result, evidence provided by [34] showed that the higher the proportion of female directors, the higher the level of IR disclosure. In terms of the IR quality, the authors of [2] in South Africa and [65] in global companies indicated that the presence of more female directors encouraged companies to more and better-quality IR disclosure. More recently, the appointment of more female directors on the corporate board has been linked to higher IR quality [4,8]. In contrast, some empirical studies have found that the proportion of female board members had an insignificant correlation with IR adoption [51] or with IR quality [41]. Meanwhile, a study by [66] suggested that companies with more female directors were likely to engage less in disclosing IR information, while [19] provided further evidence that the higher the proportion of female directors, the lower the quality of IR information disclosed.

The MCCG emphasizes diversity as one of the criteria for board composition—large companies in Malaysia are required to have at least 30% of female directors—and it also encourages companies to include female participation in senior management [39]. However, the effect of board gender diversity on IR strategy has not yet been investigated, and it is not clear how female directors can affect IR disclosure in the Malaysian market. Based on the contradictory findings, and consistent with the view of agency and resource dependency theories, we anticipate that companies with a high percentage of female directors on their boards might improve their IR practices. Consequently, the following hypothesis is proposed:

Hypothesis (H3). Ceteris paribus, board gender diversity is positively and significantly associated with the quantity and quality of IR practice.
3.1.4. Board Frequency Meetings and IR Practice

The board meeting has been considered an indicator of the board’s diligence and activity [67] and a representation of its time commitment [68]. More frequent meetings may allow better communication between directors and signal greater efficiency. This may, in turn, motivate companies to provide more disclosures. Agency theory postulates that board meetings are the main channel through which boards carry out their management monitoring role [21]. The authors of [4] argue that the frequency of board meetings gives directors more time to efficiently carry out their monitoring role and thereby enhance corporate disclosure such as IR. The authors of [52] argue that boards that hold frequent meetings can address IR disclosure issues by improving their ability to control reports and reduce agency problems.

Several empirical studies have investigated the correlation between the frequency of board meetings and corporate disclosure but have reported inconsistent results. For instance, the authors of [16] found that a higher number of board meetings was related to companies’ levels of integrated thinking and reporting. This was because directors who attended a large number of board meetings were more likely to execute their responsibilities in the shareholders’ best interests. Similarly, the authors of [69] showed that a higher frequency of board meetings was more likely to disseminate more human capital information in IR. In terms of IR quality, the authors of [4,32,44] indicated that a higher frequency of board meetings led to improved IR quality and that high-quality IR disclosure indicated better-governed companies. In contrast, the authors of [17] provided evidence of an inverse impact of the frequency of board meetings on the IR disclosure level. Other research found an insignificant relationship between the frequency of board meetings and the adoption of IR [5,52,58]. Although there are mixed results on the board meetings–IR practice relationship, this study posits that the number of board meetings substantially influences the IR quantity and quality. Thus, the following hypothesis is proposed:

**Hypothesis (H4).** Ceteris paribus, the frequency of board meetings is positively and significantly associated with the quantity and quality of IR practice.

3.1.5. Board Multiple Directorships and IR Practice

Multiple directorships occur when directors of one company hold membership positions on more than one board or committee of other companies [70,71]. This enables directors to provide richer information than single-company directorships [71]. Researchers have argued that multiple directorships are seen as significant determinants of the efficiency of a company’s non-financial initiatives [72]. Theoretically, the reputation hypothesis, which originates from resource dependency theory, postulates that multiple directorships secure vital resources for the company [22] since they are a channel for companies to communicate with the external environment [73]. As the authors of [74] argue, board members with multiple directorships encourage engagement in CSR activities. In contrast, the busyness hypothesis under agency theory posits that directors with multiple memberships become too busy to devote sufficient time to each company and cannot monitor managers adequately, leading to high agency costs [59,75]. The author of [49] suggests that these directors negatively affect environmental disclosure because they have less time to monitor managers.

Although the issue of multiple directorships has long been a subject of debate in the CG literature [74], only a few empirical studies have focused on its impact on financial and non-financial disclosure. In this regard, the authors of [76] demonstrated that the more board members with multiple directorships there were, the greater the corporate environmental disclosures. Similarly, the authors of [74], in Australian companies, and [77], in Chinese companies, reported that multiple directorships were related to a greater degree of CSR disclosure. The positive relationship may be due to directors’ wide and interlocking experience and channels through which companies communicate with the external environment [73]. The authors of [78], in Nigeria, and [70], in Australia, showed that more
directors serving on multiple boards improved sustainability reporting. Concerning IR disclosure, the authors of [36] suggested that board overlaps were positively associated with IR disclosure. However, other studies have suggested that boards with multiple directorships harm the voluntary disclosure level [79]—due to their busyness, directors are unable to monitor the companies effectively. Studies by [80,81] showed no correlation between members who served on multiple boards and non-financial disclosure. In Malaysia, directors are permitted to hold a maximum of five directorships under the Main Market Listing Requirements (MMLRs) rules (Chapter 15, part B, Paragraph No 15.06) [82]. However, it is still uncertain whether multiple directorships are beneficial to the board’s approach to IR strategy.

Considering the contradictory theoretical arguments and empirical findings, this study argues that the “reputation hypothesis” may be more relevant to IR disclosure, as IR requires more expert financial and non-financial advice and the supervision of ongoing progress in IR initiatives. Consequently, this study predicts that companies with a higher proportion of multiple directorships in Malaysia will be more inclined to increase IR disclosure. Consequently, the following hypothesis is proposed:

Hypothesis (H5). Ceteris paribus, multiple directorships of board members are positively and significantly associated with the quantity and quality of IR practice.

3.1.6. Board Remuneration and IR Practice

Board remuneration is an effective internal governance monitoring mechanism [83]. Higher remuneration allows companies concerned about their reputation and image in the community to attract highly qualified and more prestigious board directors who may influence decisions in favor of disclosure [84,85]. Listed companies in Malaysia are required to disclose the remuneration of each director, including salaries, fees, annual bonuses, benefits-in-kind, allowances, and other emoluments [39]. Further, the MMLRs (Paragraph 7.23) stipulate that non-executive directors’ remuneration shall not be based on a percentage of profits or turnover or commission [82]. Based on the perspective of agency theory, the authors of [86] argue that higher director remuneration may strengthen monitoring and mitigate agency problems between shareholders and management, therefore improving company disclosure. In addition, the authors of [67] assert that board remuneration helps to promote sustainable environmental initiatives and improve corporate environmental performance.

Some empirical research examining the effect of board remuneration on non-financial disclosure provides mixed results. Some studies have shown that director remuneration is positively correlated with the voluntary disclosure level [87], environmental performance [67], CSR reporting [88] and sustainability disclosure [68]. This is because the board’s remuneration is an indicator of a powerful monitoring tool. The authors of [44] found that higher levels of directors’ remuneration were related to increased IR disclosure. In contrast, other studies have found no relationship between board remuneration and socially responsible practices [84], indicating that directors’ remuneration does not contribute to publishing CSR reports. Further, the author of [49] documents an insignificant relationship between the remuneration of non-executive directors and environmental performance.

We conclude that non-executive directors’ remuneration can be perceived as one of the remedies suggested by agency theory to solve agency problems and ensure strong monitoring. Building on the results of prior studies and consistent with agency theory, the current study suggests that well-rewarded directors perform better in enhancing IR disclosure. The following hypothesis is, therefore, proposed:

Hypothesis (H6). Ceteris paribus, non-executive directors’ remuneration is positively and significantly associated with the quantity and quality of IR practice.
3.2. The Effect of a Sustainability Committee on the Board-IR Relationship

The sustainability committee (also called the CSR committee) is a sub-committee of the board of directors that oversees the implementation of the company’s CSR and sustainability agenda, which affects the company’s disclosure [89,90]. This committee has several important responsibilities, such as identifying the sustainability strategy for the company [24], reviewing and monitoring sustainability performance [91], analyzing environmental and social needs, strengthening stakeholder relations management [25], disseminating sustainability reports [31], improving the extent of sustainability disclosures [92] and explaining the company’s CSR commitment to stakeholders [93]. The presence of a sustainability committee represents a governance monitoring mechanism capable of affecting the quality of corporate environmental disclosure [94]. The sustainability committee is responsible for monitoring and controlling the company’s sustainable behavior [95]. The authors of [29] argue that the presence of a sustainability committee affects sustainability information disclosure decisions.

Although extensive research has provided evidence that a sustainability committee enhances reporting and CSR performance [23,25,27] and increases the demand for sustainability assurance [28,29], little research has examined the relationship between the presence of a sustainability committee and IR practice. For instance, the authors of [33] found that a sustainability committee’s presence increased the quantity and quality of IR practice, suggesting that the committee provided advice to directors on implementing the CSR/sustainability disclosure strategy. The authors of [31] provided evidence for a positive correlation between the sustainability committee’s presence and a company’s engagement in IR-related practice, indicating that the committee recognizes stakeholder pressure and represents the board’s commitment to sustainable development [67]. The authors of [1,4,32] showed that companies that had sustainability committees published higher-quality IR due to their ability to act and decide on sustainable performance.

In Malaysia, the sustainability reporting guide issued by Bursa Malaysia encourages listed companies to establish a sustainability committee, suggesting that it is “responsible for identifying, evaluating, monitoring, and managing economic, environmental and social (EES) risks and opportunities” [96] (p.43). However, it is not known whether the presence of the sustainability committee in company leadership affects IR reporting. In addition, it is still uncertain whether the relationship between the board of directors and IR strategy is influenced by the presence of the sustainability committee. Based on the extensive research discussed above, and the argument of agency theory that emphasizes the positive role of the sustainability committee in enhancing IR practice, this study makes an interesting contribution by examining the direct impact of a sustainability committee on IR practice and its influence on the board–IR practice relationship in the Malaysian market. Thus, it predicts that a sustainability committee effectively enhances the quantity and quality of IR practice; the board characteristics–IR practice link is more pronounced with the sustainability committee’s presence. Therefore, the following hypothesis is proposed.

Hypothesis (H7). Ceteris paribus, the board of directors’ characteristics are more effective in boosting IR quantity and quality in companies with sustainability committees than those without them.  

4. Research Methodology
4.1. Sample and Data

Our sample comprised all listed companies in Bursa Malaysia which applied an IR strategy during the years from 2017 to 2020, covering 13 sectors. The period of study started in 2017, the year of publication of the revision of MCCG 2017, which recommended that large companies adopt and implement IR strategy based on the IIRF [39]. The reason for the inclusion of the financial sector in the sample was that this sector has a large number of companies that have adopted IR in Malaysia. In addition, there is no specific regulation or requirement to adopt IR in financial or non-financial companies [97,98]. The final sample comprised unbalanced panel data with 374 firm-year observations. Data concerning board
characteristics and other governance variables was hand-collected from annual reports. Company characteristics data were obtained from Thomson Reuters DataStream. A manual content analysis of companies’ annual reports was employed to measure IR disclosure quantity and quality.

4.2. Measurement of Variables

4.2.1. Dependent Variables

The dependent variables used in this study were IR disclosure quantity (IRD_Quan) and quality (IRD_Qual). Content analysis was used to measure IR disclosure. This technique has been widely used in IR disclosure research, e.g., [4,17,99–101]. A checklist containing 100 items was constructed based on the IIRF, and divided into four sub-categories: background, form, content, and assurance and reliability. The categories and items were selected based on prior research, e.g., [50,69,102–106].

The quantity of IR information refers to the extent to which the information disclosed matches the IR disclosure index [107]. IRD_Quan was measured on a binary scale (an unweighted scoring method) that assumed a value of “1” if the company disclosed the IR item in its annual report and “0” otherwise [17,99,107]. The scores were then aggregated to obtain the total score of each category of IR. The company’s overall IR disclosure quantity was calculated by dividing the actual number of IR items disclosed in a company’s annual report by the maximum number of items in the IR checklist (100 items). Each company’s total IR disclosure quantity was thus represented by a percentage ranging from 0 to 100.

To measure IRD_Qual, the assurance and reliability category (3 items) and background category (7 items) were evaluated with a binary variable taking the value of “1” if the company disclosed the IR item in its annual report and “0” otherwise. Thus, these categories could assume a maximum score of 10 [4,100,104]. Concerning the content category (87 items) and form (3 items) categories, the scores were assessed on a 0–3 scale, with a value of “3” if qualitative and quantitative IR items were disclosed, “2” if qualitative information with a specific explanation was disclosed, “1” if the narrative or general qualitative information was disclosed, and “0” if the item was not disclosed [107]. Then, we calculated the maximum scores for these categories by dividing the actual number of IR items disclosed in the annual reports by the total number of items in the IR index (i.e., 3 × 90 = 270) [107]. Thus, the IRD_Qual score was computed as the sum of the maximum score in each of the categories (10 + 270 = 280).

Our study carried out validity and reliability tests to confirm the robustness of the IR disclosure index. Experts’ opinions were taken from IR academics on the index to confirm the validity of the measure. We used common tests, internal consistency, and test-retest techniques to assess the reliability of the IR checklist [97]. To test the internal consistency, Cronbach’s coefficient alpha test was assessed; the findings for IRD_Quan over the four years was 0.9093 and for IRD_Qual 0.9106, indicating good internal consistency. These coefficient values were considered to be acceptable as they were above the recommended value of 0.80 [108]. The data collection was carried out by a single coder, consistent with previous research [109–111]. The current study selected 20% of records from the study sample’s initial scoring and repeated the scoring three months later. The repeated IR score was almost the same as the primary measurements; thus, the IR disclosure scores obtained using content analysis data were highly reliable.

4.2.2. Independent Variables

The independent variables were the board’s characteristics. Board size (BSIZE) was measured by the total number of directors on the board during a single year [2,4,17,112]. Board independence (BINDEP) was calculated as the number of independent directors on the board divided by the total number of directors [16,35,37,44,52]. Board gender diversity (BGEND) was measured by the number of female directors on the board divided by the total number of directors [4,41,51,66,113]. Board meetings (BMEET) was calculated by the number of meetings held during the period [16,44,114]. Multiple directorships (BMULD)
was computed as the number of directors holding multiple directorships divided by the
total number of directors on the board [70,78]. Non-executive directors’ remuneration
(NEDREM) was measured as a natural logarithm of the total remuneration paid to non-
executive directors during the year, including salaries, fees, annual bonuses, benefits-in-
kind, allowances, and other emoluments as reported in annual reports [83,85,115].

4.2.3. Control Variables

Following previous work, this study included control variables to improve the goodness-
of-fit for the regression models. The natural logarithm of the company’s total assets
indicated company size (CSIZE) [4,114]; large-sized companies are likely to disclose more
IR information [34,37,52]. Return on assets (ROA) was another control variable, computed
using net income divided by the company’s total assets [52,116]; profitable companies in-
crease the amount of IR-related information disclosed [2]. Following the work of [116,117],
this study measured company leverage (LEV) as the ratio of total liabilities to the com-
pany’s total assets; highly leveraged companies have a greater tendency to engage in IR
practice [44]. We included ownership concentration (OWNCON) as the percentage of
shares owned by the top five largest shareholders [117,118]. Audit firm size (AFSIZE)
was a dummy variable that took a score of “1” if the audit firm was BIG4, and “0” other-
wise [37,54]. Finally, the presence of a sustainability committee (SUSTCOM) was measured
as a dummy variable that took the value “1” if the company had a sustainability or CSR
committee and “0” otherwise [4,100]. All the research variables are defined in Table 1.

Table 1. Definition and measurement of research variables.

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Variable Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variables</td>
<td></td>
</tr>
<tr>
<td>IRD_Quan</td>
<td>Ratio of IR information disclosure quantity</td>
</tr>
<tr>
<td>IRD_Qual</td>
<td>Score of IR information disclosure quality</td>
</tr>
<tr>
<td>Independent variables</td>
<td></td>
</tr>
<tr>
<td>BSIZE</td>
<td>Total number of directors on the board</td>
</tr>
<tr>
<td>BINDEP</td>
<td>Proportion of independent directors on the board</td>
</tr>
<tr>
<td>BGEND</td>
<td>Proportion of female directors on the board</td>
</tr>
<tr>
<td>BMEET</td>
<td>Frequency of board meetings</td>
</tr>
<tr>
<td>BMULD</td>
<td>Proportion of directors holding multiple directorships on the board</td>
</tr>
<tr>
<td>NEDREM</td>
<td>Natural logarithm of non-executive directors’ remuneration</td>
</tr>
<tr>
<td>Control variables</td>
<td></td>
</tr>
<tr>
<td>CSIZE</td>
<td>Natural logarithm of the company’s total assets</td>
</tr>
<tr>
<td>ROA</td>
<td>Ratio of the net income divided by the company’s total assets</td>
</tr>
<tr>
<td>LEV</td>
<td>Ratio of the total liabilities to the company’s total assets</td>
</tr>
<tr>
<td>OWNCON</td>
<td>Percentage of shares owned by the top five largest shareholders</td>
</tr>
<tr>
<td>AFSIZE</td>
<td>Dummy = “1” if the company is audited by BIG4 and “0” otherwise</td>
</tr>
<tr>
<td>SUSTCOM</td>
<td>Dummy = “1” if the company has a sustainability or CSR committee and “0” otherwise</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>Dummies for each of the thirteen industries</td>
</tr>
<tr>
<td>YEAR</td>
<td>Dummies for the years 2017–2020, inclusive</td>
</tr>
</tbody>
</table>

4.3. Research Model Specification

To test the effects of board characteristics on IR disclosure, this study used multivariate
OLS regression, following prior studies, e.g., [1,4,17,119]. The two regression models were
as follows:

Model 1: \[ \text{IRD}_{\text{Quan}}_{it} = \beta_0 + \beta_1 \text{BSIZE}_{it} + \beta_2 \text{BINDEP}_{it} + \beta_3 \text{BGEND}_{it} + \beta_4 \text{BMEET}_{it} + \beta_5 \text{BMULD}_{it} + \beta_6 \text{NEDREM}_{it} + \beta_7 \text{CSIZE}_{it} + \beta_8 \text{ROA}_{it} + \beta_9 \text{LEV}_{it} + \beta_{10} \text{OWNCON}_{it} + \beta_{11} \text{AFSIZE}_{it} + \beta_{12} \text{SUSTCOM}_{it} + \text{YEAR DUMMIES} + \text{INDUSTRY DUMMIES} + \varepsilon_{it} \]
Model 2: \[ \text{IRD}_\text{Qual}_{it} = \beta_0 + \beta_1 \text{BSIZE}_{it} + \beta_2 \text{BINDEP}_{it} + \beta_3 \text{BGEND}_{it} + \beta_4 \text{BMEET}_{it} + \beta_5 \text{BMULD}_{it} + \beta_6 \text{NEDREM}_{it} + \beta_7 \text{CSIZE}_{it} + \beta_8 \text{ROA}_{it} + \beta_9 \text{LEV}_{it} + \beta_{10} \text{OWNCON}_{it} + \beta_{11} \text{AFSIZE}_{it} + \beta_{12} \text{SUSTCOM}_{it} + \text{YEAR DUMMIES} + \text{INDUSTRY DUMMIES} + \varepsilon_{it} \]

Before running the multiple regression analysis, diagnostic tests were performed on the data (such as multicollinearity, heteroscedasticity, and autocorrelation) to avoid misleading findings and to ensure that the data was compatible. To solve the outlier problem, all continuous variables were winsorized at the top and bottom 1%. To check for heteroscedasticity, the Breusch–Pagan/Cook–Weisberg test was performed, and the result indicated that this issue was not present. The Durbin–Watson test was applied to investigate the autocorrelation of the error terms and the findings showed that there was no autocorrelation in the model. Therefore, this study used OLS because it was a suitable approach that could provide more reliable estimations and unbiased standard errors.

5. Empirical Results and Discussion

5.1. Descriptive Statistics

Table 2 presents the descriptive statistics analysis of all the research variables during the period 2017–2020. The average (median) of the dependent variable represented by the IR disclosure quantity (IRD_Quan) was 64.714 (66%), indicating a fairly high level among the reports analysed, with a minimum value of 24 and a maximum of 86. The average IR disclosure quality score (IRD_Qual) was 53.963, indicating that IRD_Qual was slightly lower than IRD_Quan. This could be because IR adoption is still voluntary in the Malaysian market. This average for Malaysian companies was higher than that indicated for developing countries [37,101] and lower than in the multinational studies in developed countries [4,100]. Regarding board characteristics, the mean (median) value of board size (BSIZE) was approximately 8.505 (8 directors), with a minimum and maximum value of 4 and 14 members, respectively. This result was similar to previous Malaysian studies [53], which reported that the mean BSIZE was 8.764 and 8.94 directors for samples of 89 and 78 listed companies, respectively. The mean composition of the board independence (BINDEP) was nearly 53%, with minimum and maximum values of 25 and 90, respectively. This indicated that more than half of the sampled Malaysian listed companies were broadly in agreement with the SCM’s recommendations, which emphasised that at least half of the board members must be independent [39]. This result was slightly higher than in prior studies by [53,54,109], with mean BINDEP of 44.62, 44.90 and 47.33% obtained. In addition, the mean value of the percentage of female board members (BGEND) was 23.7%. This indicated a fairly low level compared to MCCG 2017, which mandated that large companies were required to have at least 30% of female directors. This result was nevertheless consistent with that of [112] of 20.49%.

Table 2. Descriptive statistics of research variables.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Median</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRD_Quan</td>
<td>64.714</td>
<td>13.012</td>
<td>24.000</td>
<td>66.000</td>
<td>86.000</td>
</tr>
<tr>
<td>IRD_Qual</td>
<td>53.963</td>
<td>9.840</td>
<td>20.714</td>
<td>54.643</td>
<td>69.643</td>
</tr>
<tr>
<td>BSIZE</td>
<td>8.505</td>
<td>1.977</td>
<td>4.000</td>
<td>8.000</td>
<td>14.000</td>
</tr>
<tr>
<td>BINDEP</td>
<td>0.530</td>
<td>0.131</td>
<td>0.250</td>
<td>0.500</td>
<td>0.900</td>
</tr>
<tr>
<td>BGEND</td>
<td>0.237</td>
<td>0.127</td>
<td>0.000</td>
<td>0.222</td>
<td>0.667</td>
</tr>
<tr>
<td>BMEET</td>
<td>7.992</td>
<td>4.172</td>
<td>2.000</td>
<td>7.000</td>
<td>26.000</td>
</tr>
<tr>
<td>BMULD</td>
<td>0.708</td>
<td>0.233</td>
<td>0.000</td>
<td>0.721</td>
<td>1.000</td>
</tr>
<tr>
<td>NEDREM (RM)</td>
<td>2,685,001</td>
<td>5,741,393</td>
<td>80,500</td>
<td>1,333,962</td>
<td>70,092,000</td>
</tr>
<tr>
<td>NEDREM (Ln)</td>
<td>14.141</td>
<td>1.059</td>
<td>11.296</td>
<td>14.104</td>
<td>18.065</td>
</tr>
<tr>
<td>CSIZE</td>
<td>39,213,032</td>
<td>114,604,269</td>
<td>61,532</td>
<td>6,202,237</td>
<td>856,859,514</td>
</tr>
<tr>
<td>ROA</td>
<td>5.211</td>
<td>8.275</td>
<td>−35.230</td>
<td>3.975</td>
<td>46.100</td>
</tr>
<tr>
<td>LEV</td>
<td>51.642</td>
<td>22.580</td>
<td>7.682</td>
<td>47.373</td>
<td>118.154</td>
</tr>
<tr>
<td>OWNCON</td>
<td>62.512</td>
<td>16.638</td>
<td>19.510</td>
<td>65.100</td>
<td>88.680</td>
</tr>
<tr>
<td>AFSIZE</td>
<td>0.826</td>
<td>0.127</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>SUSTCOM</td>
<td>0.725</td>
<td>0.447</td>
<td>0.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Note: Table 1 presents the research variable definitions. Number of observations = 374.
The average board meeting (BMEET) value was 7.992 with a median of 7 meetings a year. The mean value for the proportion of multiple directorships (BMULD) was 70.8%. Finally, the mean (median) for non-executive directors’ remuneration (NEDREM) was RM2,685,001 (RM1,333,962). However, the average value of \[ \ln \text{NEDREM} \] was 14.141, with a range of 11.296 to 18.065.

For the control variables, the mean of company size (CSIZE), measured by the natural logarithm of total assets, was 15.765. The mean (median) value of the return of assets (ROA) was 5.211% (3.975%), suggesting that our sample companies demonstrated normal performance. The mean (median) value of company leverage (LEV) was 51.642% (47.373%). Furthermore, the mean (median) value of ownership concentration (OWNCON) was 62.512% (65.10%), indicating that Malaysian companies were more concentrated and monitored by the top five shareholders. About 72.5% of Malaysian companies have a CSR or sustainability committee (SUSTCOM). Lastly, 82.60% of the companies were audited by BIG4 auditors (AFSIZE).

5.2. Correlation Matrix

The Pearson correlation matrix results are shown in Table 3. The coefficient values indicated that multicollinearity was not a major issue. This was because the largest significant correlation coefficient among the independent variables was 0.490 and fell below 0.80; if exceeded, this suggests multicollinearity in a study [120]. The value of IRD_Qual (0.990) was highly and significantly correlated with IRD_Quan since IRD_Qual is an alternative measurement of IR. The results in Table 3 show that the highest value of the variance inflation factors (VIF) was 3.228 for NEDREM, and the lowest value was 1.347 for ownership concentration. When VIF values exceed 10, this indicates multicollinearity problems [121].

Table 3. Pearson correlation matrix results.

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
<th>(12)</th>
<th>(13)</th>
<th>(14)</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) IRD_Quan</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) IRD_Quan</td>
<td>0.990***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.522</td>
</tr>
<tr>
<td>(3) BMULD</td>
<td>0.298***</td>
<td>0.311***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) BSIZE</td>
<td>0.223***</td>
<td>0.225***</td>
<td>-0.214**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.605</td>
</tr>
<tr>
<td>(5) BINDEP</td>
<td>0.516***</td>
<td>0.522***</td>
<td>0.002</td>
<td>0.225***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.445</td>
</tr>
<tr>
<td>(6) BMEET</td>
<td>0.385***</td>
<td>0.384***</td>
<td>0.214***</td>
<td>0.326***</td>
<td>0.217***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.147</td>
</tr>
<tr>
<td>(7) NEDREM</td>
<td>0.062</td>
<td>0.064</td>
<td>0.056</td>
<td>0.069</td>
<td>0.063</td>
<td>0.065</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.356</td>
</tr>
<tr>
<td>(8) ROA</td>
<td>0.460***</td>
<td>0.477***</td>
<td>0.306***</td>
<td>0.350***</td>
<td>0.260***</td>
<td>0.573***</td>
<td>0.189***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.228</td>
</tr>
<tr>
<td>(9) LEV</td>
<td>0.490***</td>
<td>0.496***</td>
<td>0.244***</td>
<td>0.228***</td>
<td>0.261***</td>
<td>0.571***</td>
<td>0.267***</td>
<td>0.742***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.184</td>
</tr>
<tr>
<td>(10) OWNCON</td>
<td>-0.066</td>
<td>-0.059</td>
<td>-0.016</td>
<td>-0.128**</td>
<td>-0.106**</td>
<td>-0.260***</td>
<td>-0.120**</td>
<td>-0.152**</td>
<td>-0.192**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.079</td>
</tr>
<tr>
<td>(11) AFSIZE</td>
<td>0.109***</td>
<td>0.109***</td>
<td>0.040</td>
<td>0.116**</td>
<td>0.244***</td>
<td>0.010</td>
<td>0.011</td>
<td>0.166***</td>
<td>0.186***</td>
<td>0.024</td>
<td>-0.040</td>
<td>1.000</td>
<td></td>
<td>1.347</td>
<td></td>
</tr>
<tr>
<td>(12) SUSTCOM</td>
<td>0.203***</td>
<td>0.198***</td>
<td>0.256***</td>
<td>0.082</td>
<td>0.257***</td>
<td>0.223***</td>
<td>0.141***</td>
<td>0.415***</td>
<td>0.307***</td>
<td>0.006</td>
<td>0.154***</td>
<td>0.307***</td>
<td>1.000</td>
<td>1.731</td>
<td></td>
</tr>
<tr>
<td>(13) CSIZE</td>
<td>0.065*</td>
<td>0.108**</td>
<td>0.031</td>
<td>-0.011</td>
<td>0.104**</td>
<td>-0.030</td>
<td>-0.101*</td>
<td>0.032**</td>
<td>0.096*</td>
<td>0.037</td>
<td>-0.206***</td>
<td>0.108**</td>
<td>0.175***</td>
<td>1.000</td>
<td>1.449</td>
</tr>
</tbody>
</table>

Note(s): ***, **, * denotes significance at 1%, 5%, and 10% levels respectively. Table 1 presents research variable definitions.

5.3. Multivariate Analysis Results and Discussion

5.3.1. The Relationship between Board Characteristics and IR Practice

Table 4 presents the OLS regression results. Model (1) investigated the impact of board characteristics on IR disclosure quantity, while Model (2) examined their effect on IR disclosure quality. Both OLS regression models were highly statistically significant (with \( p \)-value = 0.000), with R-square of 54.7% for IRD_Quan and 54.4% for IRD_Qual, respectively, indicating their validity.
Table 4. OLS regression results.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 (IRD_Quan)</th>
<th>Model 2 (IRD_Qual)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coef.</td>
<td>t-Value</td>
</tr>
<tr>
<td>BSIZE</td>
<td>1.163</td>
<td>3.86</td>
</tr>
<tr>
<td>BINDEP</td>
<td>19.028</td>
<td>4.13</td>
</tr>
<tr>
<td>BGEND</td>
<td>19.586</td>
<td>4.36</td>
</tr>
<tr>
<td>BMULD</td>
<td>0.52</td>
<td>3.04</td>
</tr>
<tr>
<td>NEDREM</td>
<td>−3.32</td>
<td>−1.40</td>
</tr>
<tr>
<td>CSIZE</td>
<td>2.872</td>
<td>3.48</td>
</tr>
<tr>
<td>ROA</td>
<td>0.039</td>
<td>0.54</td>
</tr>
<tr>
<td>LEV</td>
<td>0.102</td>
<td>3.31</td>
</tr>
<tr>
<td>OWNCON</td>
<td>0.050</td>
<td>1.51</td>
</tr>
<tr>
<td>AFSIZE</td>
<td>−1.557</td>
<td>−0.94</td>
</tr>
<tr>
<td>SUSTCOM</td>
<td>2.887</td>
<td>2.26</td>
</tr>
<tr>
<td>Constant</td>
<td>−34.52</td>
<td>−3.89</td>
</tr>
</tbody>
</table>

Year & industry dummies included
Observations: 374
R2: 0.519
F-test: 15.695
Prob > F: 0.000***

Note(s): ***, **, * denotes significance at 1%, 5%, and 10% levels respectively. Table 1 presents research variable definitions.

Table 4 shows that BSIZE was positively and significantly associated with higher IR disclosure quantity and quality at the 1% level. This finding implies that Malaysian companies with larger board sizes contributed to enhancing the disclosure of IR information. A possible explanation for the positive relationship is that larger boards have more diversity of expertise, which may help in preparing IR [5]. Thus, the first hypothesis (H1) is accepted. This finding is in accordance with the assumption of resource dependency theory that larger boards reflect access to more resources [22], which in turn strengthens the company’s capabilities for implementing IR strategy, the latest form of reporting. In addition, it is consistent with a recent empirical study by [16] that reported a significant positive relationship between board size and IR reporting in companies across 18 European countries. It is also similar to findings reported by [52,98], which showed that board size had a positive and significant association with IR reporting in European companies, and Thai companies, respectively. The findings are in line with studies which documented that boards with more directors could lead to higher IR quality [4,35,41]. The consistency of findings confirms the claim that board size is one of the main determinants of board effectiveness.

The results reported in Table 4 show that BINDEP was positively and significantly associated with engagement in IR-related practice at the 1% level. This suggests that having more independent directors increased the quantity and quality of IR disclosure in Malaysian companies significantly. Thus, the second hypothesis (H2) is accepted. This result supports the agency and resource dependency theories and is in line with prior research that has documented a positive association between independent directors and IR practices [17,37,52] from Australian, Vietnamese, and European markets, respectively. Our result is also in line with recent IR disclosure-related research [4,35,58] that investigated the relationship between independent directors and IR quality in 134 international firms, Nigerian listed oil and gas firms, and European companies, respectively. These studies reported that the greater the number of independent directors on the board, the higher the IR quality. This significant result may indicate that independent directors in Malaysian listed companies do pay enough attention to the importance of implementing IR and its quality by activating the role of board monitoring and supervision. This is because they can convince the board to cater to the information needs of stakeholders. In addition, independent directors favor IR disclosure if they are concerned about their reputation [17].

The results shown in Table 4 indicate that BGEND was positively and significantly related to IRD_Quan and IRD_Qual at the 1% level; this implies that Malaysian companies with a higher presence of female directors were more willing to recognise the value and relevance of IR disclosure. Thus, the third hypothesis (H3) is accepted. These findings are
consistent with the assumption of agency and resource dependency theories, supporting the board’s two major roles (monitoring and supervising). Our results are similar to those documented in previous studies such as [5,34,66,122], which reported a positive relationship between board diversity and IR strategy using an international sample, French companies, the largest 500 companies in the world based on Fortune magazine, and top 100 entities listed on the Johannesburg Stock Exchange (JSE). The results were also similar to those reported by [2] in South Africa, [65] using 110 selected global organizations, [4] on 134 international firms, and a study by [100] which used a sample of 125 international firms. All these recent studies indicate that the presence of females on the board increases IR quality, suggesting that gender diversity is an important factor in adopting the integrated reporting strategy. Notably, the percentage of female directors in Malaysian companies is in the minority (23.9%), but their presence significantly influences IR disclosure. One possible explanation may be that females’ participation in the corporate decision-making process is one of the strategic priorities supported by SCM to strengthen the effectiveness of CG practices among Malaysian listed companies [53,123]. This is because female directors provide greater insight and closer monitoring. Consequently, females in positions of power are viewed favourably in a country like Malaysia. Thus, female representation on the board is a determining factor in the level and quality of IR disclosure.

The results in Table 4 for Models 1 and 2 indicate that BMEET was positively and significantly associated with the level and quality of IR-related information disclosure at the 1% level. This result implies that companies having more board meetings could improve their IR disclosure quantity and quality. Thus, our fourth hypothesis (H4) is accepted. This empirical evidence is aligned with agency theory, which argues that a higher frequency of board meetings improves the board’s monitoring functions, favouring the dissemination of more financial and non-financial information [4,21]. Further, this empirical finding is in line with study results reported by [4] that showed a positive relationship between the board activity and integrated reporting quality in 134 international firms. The result is also consistent with a recent empirical study by [16] that reported a significant positive relationship between board meetings and IR reporting in companies across 18 European countries. Furthermore, the findings are in line with those reported by [44], who concluded that boards that hold frequent meetings are associated with higher IR disclosure in JSE. These findings may indicate that more frequent meetings of the corporate board in Malaysia may allow better communication between directors and signal greater efficiency toward adopting the IR strategy.

The results in Table 4 show that BMULD was insignificantly associated with engagement in IR-related practice. This implies that BMULD does not matter in the context of IR disclosure. Contrary to our expectation, this indicates that companies with a higher proportion of multiple directorships were not necessarily inclined to disclose IR information. A plausible explanation for this insignificant relationship is that board members with multiple directorships in Malaysian companies cannot play a supervising role in influencing IR disclosure because they do not have the power to apply these practices in their companies. Therefore, the fifth hypothesis (H5) is rejected. This result is inconsistent with the assumptions of agency and resource dependency theories. The evidence is also inconsistent with [36], which indicated that the more board members there were with multiple directorships, the more IR disclosure occurred. Thus, this study concludes that board multiple directorships are not one of the determinants of IR disclosure.

The results of the regression analysis indicated that NEDREM was positively and significantly related to IRD quantity and IRD quality at the 1% level. This implies that non-executive directors’ remuneration is significantly associated with higher engagement in IR-related practice. Therefore, the sixth hypothesis (H6) is accepted. Our result supports the agency theory assumption, which emphasises the role of the non-executive directors in improving management monitoring, indicating that investing in highly qualified external directors would bring better monitoring of executive directors’ actions, hence improving disclosure practices. These results are in line with those of previous studies that found a
positive relationship [68,88]. The results are also in line with the findings reported by [85], who documented a positive relationship between NEDREM and financial reporting quality in Malaysia (proxied by earnings management). These consistent findings suggest that board remuneration in the Malaysian market may indicate high governance monitoring that helps in enhancing corporate disclosure.

Regarding the control variables, the regression result revealed that CSIZE had a positive and significant relationship with IR-related information disclosure, suggesting large companies may have a higher motivation to engage in IR information disclosure. This result is similar to the findings of previous studies [4,34,37,52]. However, the results demonstrated that profitable companies (ROA) discouraged the disclosure of IR-related information, confirming the result of [33]. Further, the regression findings showed that LEV was positively and significantly related to the level and quality of IR-related practice, indicating highly leveraged companies engaged less in IR practice. This result is consistent with prior studies [16,44]. The findings indicate that OWNCON was insignificantly related to IR-related practice, in contradiction to [1,33]. Furthermore, AFSIZE was insignificantly associated with the level and quality of IR-related practice, which was also inconsistent with prior studies [37,38,124]. Finally, the statistical analysis indicated that companies with a CSR or sustainability committee were more inclined to engage in IR-related practice, which is in line with previous studies, e.g., [1,4,31–33].

In summary, the findings indicated that companies could enhance their IR disclosure through having a larger board, increasing the number of independent directors on the board, encouraging the representation of female directors, holding a higher number of board meetings, and implementing appropriate remuneration for non-executive directors. This suggests that the corporate board plays a crucial role in controlling the disclosure activities, enhancing transparency in the company’s activities, and improving the quality of the disclosed financial and non-financial information. This is consistent with the argument of agency and resource dependency theories that the board can act as an essential monitoring mechanism and source of knowledge and expertise for creating value and achieving sustainable advantage.

5.3.2. The Effect of a Sustainability Committee on Board-IR Relationship

To assess the moderating role of a sustainability committee on the board–IR disclosure relationship, the current study reclassified the sample into two subsamples: companies having a sustainability committee and companies without one. Table 5 presents the subsample regression results. The results showed that board characteristics in companies which had sustainability committees were more likely to engage in IR strategy than those with no sustainability committee. Therefore, the seventh hypothesis (H7) is accepted.

<table>
<thead>
<tr>
<th>Variables</th>
<th>CSR/Sustainability Committee</th>
<th>No CSR/Sustainability Committee</th>
<th>CSR/Sustainability Committee</th>
<th>No CSR/Sustainability Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coef.</td>
<td>t-Value</td>
<td>Coef.</td>
<td>t-Value</td>
<td>Coef.</td>
</tr>
<tr>
<td>BSIZE</td>
<td>1.27 ***</td>
<td>3.49</td>
<td>0.550</td>
<td>0.66</td>
</tr>
<tr>
<td>RINEPD</td>
<td>20.61 ***</td>
<td>3.79</td>
<td>0.072</td>
<td>0.62</td>
</tr>
<tr>
<td>RGEND</td>
<td>13.608 **</td>
<td>2.56</td>
<td>27.156 ***</td>
<td>3.26</td>
</tr>
<tr>
<td>BMSTD</td>
<td>0.733 ***</td>
<td>3.10</td>
<td>0.084</td>
<td>0.448</td>
</tr>
<tr>
<td>BMUDEL</td>
<td>-2.120</td>
<td>-0.72</td>
<td>-2.071</td>
<td>-0.048</td>
</tr>
<tr>
<td>NEDREM</td>
<td>3.866 ***</td>
<td>4.31</td>
<td>-0.066</td>
<td>-0.27</td>
</tr>
<tr>
<td>CSIZE</td>
<td>0.586</td>
<td>0.95</td>
<td>4.727 ***</td>
<td>5.30</td>
</tr>
<tr>
<td>ROA</td>
<td>-0.029</td>
<td>-0.35</td>
<td>-0.041</td>
<td>-0.37</td>
</tr>
<tr>
<td>LEV</td>
<td>0.075 *</td>
<td>1.83</td>
<td>0.095</td>
<td>1.21</td>
</tr>
<tr>
<td>OWNCON</td>
<td>0.059</td>
<td>1.54</td>
<td>0.020</td>
<td>0.11</td>
</tr>
<tr>
<td>APISIZE</td>
<td>-1.431</td>
<td>-0.82</td>
<td>-1.859</td>
<td>-0.50</td>
</tr>
<tr>
<td>Constant</td>
<td>-28.327 **</td>
<td>-2.50</td>
<td>-16.208</td>
<td>-0.76</td>
</tr>
</tbody>
</table>

Industry dummies Included: Observed 271, Included 105, F-stat 18.268, Prob > F 0.000 ***. R2 1.27 ***. Note(s): ***, **, * denotes significance at 1%, 5%, and 10% levels respectively. Table 1 presents research variables definitions.
6. Additional Robustness Tests

6.1. Alternative Regression Estimations

Following [125], this study excluded the control variables and re-ran the empirical regression models to ensure that the inclusion of the control variables had no significant impact on the regression results. Interestingly, our findings revealed that this was the case: the control variables had no influence on the main results. Thus, all the research variables were robust, as shown in Table 6.

Table 6. OLS regression results.

<table>
<thead>
<tr>
<th>Variables</th>
<th>OLS without Control Variables</th>
<th>OLS with Robust For Alternative Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1 (IRD_Quan)</td>
<td>Model 2 (IRD_Quan)</td>
</tr>
<tr>
<td>BSIZE</td>
<td>1.442 *** (0.330)</td>
<td>1.161 *** (0.254)</td>
</tr>
<tr>
<td>BMEET</td>
<td>0.411 ** (0.168)</td>
<td>0.261 ** (0.128)</td>
</tr>
<tr>
<td>BMIULD</td>
<td>−1.321 (2.402)</td>
<td>−1.066 (1.782)</td>
</tr>
<tr>
<td>NEDREM</td>
<td>3.008 *** (0.787)</td>
<td>2.409 *** (0.626)</td>
</tr>
<tr>
<td>BEFF</td>
<td>2.497 *** (0.552)</td>
<td>2.039 *** (0.430)</td>
</tr>
<tr>
<td>FSIZE</td>
<td>1.862 *** (0.505)</td>
<td>1.475 *** (0.385)</td>
</tr>
<tr>
<td>ROA</td>
<td>0.039 (0.069)</td>
<td>0.044 (0.053)</td>
</tr>
<tr>
<td>LEV</td>
<td>0.102 *** (0.032)</td>
<td>0.073 *** (0.024)</td>
</tr>
<tr>
<td>OWNCON</td>
<td>0.050 (0.033)</td>
<td>0.037 (0.026)</td>
</tr>
<tr>
<td>AFSIZE</td>
<td>−1.357 (1.551)</td>
<td>−1.669 (1.195)</td>
</tr>
<tr>
<td>SUSTCOM</td>
<td>2.887 ** (1.255)</td>
<td>2.528 *** (0.959)</td>
</tr>
<tr>
<td>Constant</td>
<td>−3.804 (9.359)</td>
<td>0.532 (7.342)</td>
</tr>
</tbody>
</table>

Year & industry dummies: - - Included - - Included - - Included - - Included
Observations: 374 - 374 - 374 - 374 - 374 - 374
F-test: 34.736 - 34.736 - 34.736 - 34.736 - 34.736 - 34.736
Prob > F: 0.000 *** - 0.000 *** - 0.000 *** - 0.000 *** - 0.000 *** - 0.000 ***

Note(s): Standard errors in parentheses, ***, **, * denotes significance at 1%, 5%, and 10% levels respectively. Table 1 presents research variable definitions.

In addition, we re-ran the OLS regression using robust standard errors, consistent with prior literature on IR practice [126]. The results in Table 6 show that the effects of all the variables remained unchanged from those reported in Table 5, indicating that board characteristics were positively associated with IR practice. These findings suggest that our results are robust.

6.2. Regression Results for Alternative Measurements

To test the sensitivity of the empirical regression results, an additional test was employed using an alternative measure of board characteristics. This study re-estimated the data measurement for the board characteristics by measuring board effectiveness (BODEFFE), which refers to the composite score of the board characteristics. This follows previous studies [127–129] and measures the quality of the board by the score of the five individual board variables used in this study. Scores ranged from “0” to “6”, with the higher score indicating higher board quality. The regression results reported in Table 6 for all variables remained unchanged, indicating that the main results were robust to an alternative measure of corporate board attributes.
6.3. Regression Results after Dropping Financial Companies

The study dropped financial companies from the sample and repeated the analyses using the remaining observations, in line with previous studies [130,131]. The results presented in Table 7 are largely consistent with the main findings, suggesting that our results are robust and were not affected by dropping financial companies from our sample.

Table 7. OLS regression results after dropping financial companies.

| Variables | Model 1 (IRD_Quan) | | | | Model 2 (IRD_Qual) |
|-----------|--------------------|-----------------|-----------------|--------------------|
|           | Coef. | t-Value | p-Value | Coef. | t-Value | p-Value |
| BSIZE     | 0.643 ** | 2.01 | 0.045 | 0.509 ** | 2.13 | 0.034 |
| BINDEP    | 11.645 ** | 2.41 | 0.016 | 8.538 ** | 2.37 | 0.018 |
| BGEND     | 21.092 *** | 4.42 | 0.000 | 16.892 *** | 4.74 | 0.000 |
| BMEET     | 0.352 * | 1.78 | 0.076 | 0.185 | 1.25 | 0.212 |
| BMULD     | −3.879 ** | −1.68 | 0.099 | −2.813 | −1.64 | 0.103 |
| NEDREM    | 3.583 *** | 4.16 | 0.000 | 3.010 *** | 4.68 | 0.000 |
| CSIZE     | 3.146 *** | 5.89 | 0.000 | 2.338 *** | 5.91 | 0.000 |
| ROA       | 0.020 | 0.29 | 0.772 | 0.028 | 0.54 | 0.586 |
| LEV       | 0.109 *** | 3.71 | 0.000 | 0.077 *** | 3.54 | 0.000 |
| OWNCON    | 0.079 * | 2.38 | 0.018 | 0.056 ** | 2.28 | 0.023 |
| AFSIZE    | −2.823 * | −1.81 | 0.071 | −2.646 ** | −2.28 | 0.024 |
| SUSTCOM   | 2.191 * | 1.70 | 0.090 | 2.118 ** | 2.21 | 0.028 |
| Constant  | −58.468 *** | −6.40 | 0.000 | −42.312 *** | −6.21 | 0.000 |

| Year & industry dummies | Included | | | Included |
|-------------------------|---------|-----------------|---------|
| Observations            | 326     | 326             |
| R2                      | 0.623   | 0.628           |
| F-test                  | 19.001  | 19.445          |
| Prob > F                | 0.000 *** | 0.000 *** |

Notes: ***, **, * denotes significance at 1%, 5%, and 10% levels respectively. Table 1 presents research variables definitions.

7. Conclusions

The current study examined the role of board characteristics in enhancing IR disclosure. It also investigated whether the presence of a sustainability committee affects the board-IR relationship. We used 374 company-year observations for Malaysian-listed companies over 2017–2020. Our results indicated that larger boards were associated with a higher level and quality of IR-related information disclosure in the Malaysian market. Independent directors also had a positive and significant relationship with companies’ IR strategy practices. The presence and percentage of female directors on the board were associated with a higher level and quality of IR. Further, board meetings were also positively and significantly related to IR in the Malaysian market. Lastly, non-executive directors’ remuneration was positively and significantly associated with corporate IR level and quality. However, board multiple directorships were insignificantly associated with engagement in IR-related practice and failed to improve IR disclosure. Overall, the results show that the board characteristics are one of the determinants of IR disclosure in Malaysia. The reason may be that the board of directors is the main internal governance monitoring mechanism as it is responsible for protecting the stakeholders’ interests by preventing opportunistic management behavior and reducing information asymmetry; it enhances the company’s transparency, thus improving the voluntary disclosure of information in IR. These results agree with the expectations of the agency and resource dependency theories as well as recent empirical studies. Our evidence is robust in controlling for alternative measures and alternative regression models.

This study has several important theoretical and practical implications, mainly for policymakers, regulatory bodies, investors, company managers, and researchers interested in the role of boards in disseminating and improving IR disclosure practices. In terms of
theoretical implications, the study’s findings provide fruitful insights into how corporate board-related theories might be turned into practice concerning IR disclosure. In this context, this study supports the validity of the agency and resource dependency theories, suggesting that the corporate board plays an essential role in enhancing the level and quality of IR disclosure in the Malaysian market. Moving to practical implication, our evidence may be useful for regulatory bodies and policymakers, such as the Securities Commission Malaysia and Bursa Malaysia, in introducing and formulating initiatives and regulations that provide more support for increasing the board’s effectiveness in improving their engagement in IR disclosure. Furthermore, they may issue and regulate new guidelines for establishing the compulsory formation of CSR or sustainability committees in all Malaysian companies, given the positive moderating effect on the board characteristics–IR disclosure relationship. Additionally, our findings can provide company managers with a better understanding of the significant influences of the board characteristics on adopting IR strategy, thus helping companies restructure their boards to encourage better monitoring and support for the dissemination of high-quality IR. Moreover, our results may encourage investors to invest in companies with a highly effective board of directors because this effectiveness leads to more engagement in IR disclosure. Finally, our study is of interest to scholars who might perform extensive research on the effectiveness of the board characteristics–IR disclosure relationship in other geographical contexts.

The study has several limitations, which creates opportunities for further IR disclosure-related research. First, the sample was restricted to a single Asian country, Malaysia. Thus, future research could explore the corporate board characteristics–IR practices relationship across other Asian and developing countries to enable comparison of the results. Secondly, our study focused on a restricted number of board characteristics. Therefore, future scholars might consider other characteristics, such as the directors’ age, tenure, education, political experience, academic affiliation, nationality and so on. Another fruitful avenue for research is how board characteristics may affect integrated capital reporting. Thirdly, this study was limited to analysing the moderating impact of the presence of a sustainability/CSR committee on the board characteristics–IR disclosure relationship. Thus, future research could investigate how other committees (e.g., audit and risk management committees) might directly or indirectly affect board characteristics and IR-related disclosure.

**Author Contributions:** Conceptualization, B.A.A.G. and S.A.Q.; methodology, S.A.Q.; validation, B.A.A.G. and S.A.Q.; formal analysis, B.A.A.G. and S.A.Q.; resources, S.A.Q.; data curation, S.A.Q.; writing—original draft preparation, S.A.Q. and B.A.A.G.; writing—review and editing, B.A.A.G., S.C., Z.A., A.A.H. and S.A.Q.; supervision, S.C. and Z.A.; project administration, S.C. and Z.A.; funding support, A.A.H. All authors have read and agreed to the published version of the manuscript.

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