



**Integrated reporting and board characteristics: evidence  
from top Australian listed companies**

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## Integrated Reporting and Board Characteristics: Evidence from Top Australian Listed Companies

### Abstract

**Purpose** – Drawing upon agency theory, this study analyses the influence of board characteristics on Integrated Reporting (IR) for the top 50 companies listed on the Australian Securities Exchange (ASX50). Focus is placed on IR at the aggregate level as well as its separate components, namely Future Opportunities and Risks (FOPRI), Governance and Strategy (GOVSTR), Performance (PERF), Overview and Business Model (OBM), and General Preparation and Presentation (GPP).

**Methodology** – A checklist is devised based on the IIRC (International Integrated Reporting Council) framework to track companies' disclosures for the period 1<sup>st</sup> July 2014 to 30<sup>th</sup> June 2017. Regression analysis is used to investigate the determinants (board size, board independence, activity of the board, gender diversity, firm size, profitability, and growth opportunities) of IR and its separate components.

**Findings** – The findings indicate a significant and positive effect of board independence on the aggregate IR index, FOPRI and GPP. A negative and significant association is found between activity of the board and both the aggregate IR index and its separate components, including GOVSTR, PERF and GPP. Additionally, the aggregate IR index is significantly related to firm size, profitability, and growth opportunities.

**Implications and Limitations** – The study has several practical implications. From a managerial perspective, it shows that having more board meetings harms the level of IR. The results can guide regulators, such as the Australian Securities and Investment Commission (ASIC) and the Australian Securities Exchange (ASX), when drafting new regulations/guidelines/listing rules. If regulators aim for a higher level of integration in the reports, they know which 'triggers to pull' to attain their target. Our results can guide regulators to choose the appropriate trigger among various alternatives. For instance, if a higher level of integrated reporting is desired, size instead of profitability should be chosen. Finally, ASX listed companies can use our checklist as a scorecard for their self-assessment. The limited sample of 50 companies over three years is the main limitation of the study. The study suffers from an inherent limitation from the use of content analysis in assessing the level of IR. No checklist to measure the level of IR can be fully exhaustive. Furthermore, we focus on whether an item in the checklist is disclosed, using a dichotomous scale, thus ignoring the quality of information disclosed.

**Originality/Value** – This research is the first to investigate IR by devising a checklist based on IIRC (2013) along with an additional GPP component in the ASX context. Using separate models to examine each component of the aggregate IR index is also unique to this study. The study also brings to the fore the role of gender-diverse boards in promoting IR. It reiterates the debate about imposing a quota for better gender representation on boards.

**Keywords** - Integrated reporting, board characteristics, agency theory, Australian Securities Exchange (ASX).

**JEL Classification:** G29; G30; M14.

## 1. Introduction

Globalisation, financial scandals, and the complex nature of business activities have increased the demand for information. Companies have responded by increasing financial and non-financial disclosures to show transparency and accountability towards stakeholders (Camilleri, 2018). The accounting profession has challenged the traditional financial reporting model claiming that it does not provide sufficient information to stakeholders in assessing the past and future performance of the company (Flower, 2015). Integrated reporting is the latest innovation in the corporate reporting field, overcoming the shortcomings of traditional financial reporting (IIRC, 2013). It includes financial and non-financial information in a single report, but it is more than a combination of financial, environmental, social and governance information (Adams, 2015). 'Integrated thinking', which is at the core of IR, inspires businesses to think about how they can create value for themselves and society (Camilleri, 2018). Integrated thinking allows the company to assess how the different areas of the business are linked to the capitals that the business uses or influences (IIRC, 2013). In this process, several reports are produced (Vitolla *et al.*, 2020).

A wide range of heterogeneous topics which are of relevance to different stakeholders is covered by integrated reporting. 'Materiality' is an important factor when companies face issues determining which non-financial information should be disclosed (Reimsbach *et al.*, 2020). The IIRC gauges whether a matter is material by its impact on its ability to create value, whether in the short, medium or long run (Wu *et al.*, 2018). With regards to this recent debate on materiality within the reporting practices field, the current study explores the influence of board characteristics on a reporting framework which is underpinned by seven guiding principles; namely, materiality, connectivity of information, stakeholder relationships, conciseness, reliability and completeness, consistency and comparability, and strategic focus and future orientation (IIRC, 2021). Through its consideration of materiality, the framework used ensures that the current study results are in relation to integrated reporting practices that are material and relevant to different groups of stakeholders.

Companies can adopt different levels of integration of reporting as management's commitment to integration can occur at different levels. Therefore, the idea of 'one size fits all' in IR is flawed (Busco *et al.*, 2019). Recognising that companies can have different integration levels, we conjecture that companies may pay uneven attention to the various components of an integrated report. Relying on the aggregate IR index may, therefore, leads to spurious conclusions.

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3 This gap in the literature makes it necessary to analyse the different components of the  
4 aggregate IR index. This study examines the determinants of IR among the top 50 listed firms  
5 on the ASX to close this research gap. We mainly explore board characteristics and other  
6 factors contributing to disseminating information among the top 50 listed firms on the ASX.  
7 We try to respond to the lack of empirical research and little evidence on IR (De Villiers *et al.*,  
8 2014; Dumay *et al.*, 2016; Dumay & Dai, 2017). At the same time, we pay particular attention  
9 to the influence exerted by the inclusion of women on boards. The issue of gender diversity is  
10 becoming more prominent as more women are joining the workforce (Rao & Tilt, 2016).  
11 However, gender diversity studies linked to information disclosure are still scarce (Zou *et al.*,  
12 2018).

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14 The advantage of analysing each component of the index is self-evident. One of the  
15 individual components may influence the aggregate IR index more than another, resulting in  
16 misinterpretation of the findings. More importantly, some of the associations between the  
17 aggregate IR index may have been due to only one type of disclosure. This can be completely  
18 unrelated to the other types of disclosures and as such, putting all the components in the same  
19 basket would cause great prejudice to the validity of the results obtained. Hence, by analysing  
20 the separate components individually, we provide a more detailed analysis and overcome the  
21 possible threat to validity that may be present in previous studies.

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23 Our study stands out from past studies by use of an index based on IIRC (2013), with the  
24 addition of an additional component "*general preparation and presentation*". The framework  
25 from IIRC (2013) focuses mostly on the content elements, neglecting how and on what basis  
26 these items are disclosed. Thus, with the inclusion of a "*general preparation and presentation*"  
27 component in the index, we close the gap present in the IIRC framework to have a more detailed  
28 analysis of the integrated reports issued by firms, especially concerning the basis of preparation  
29 and presentation along with general reporting guidance.

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31 This paper contributes to the existing literature by bringing empirical evidence on the  
32 influence of gender-diverse boards on integrated reporting. The findings will assist our  
33 understanding of whether soft regulations are enough to promote a positive association between  
34 female representations on boards and integrated reporting. Our second contribution lies in  
35 devising a checklist to measure the level of integration of companies' reports. While studies on  
36 integrated reporting have increased over the past decade, many of them have used a  
37 dichotomous scale to measure the extent of integrated reporting (Frias-Aceituno *et al.*, 2012;  
38 Vaz *et al.*, 2016). Furthermore, integrated reporting is understood differently by scholars. They  
39 fail to distinguish between King III Report, One Report, and IIRC guidelines. This means that  
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3 there is a critical lack of understanding about the purpose of integrated reporting and its  
4 attributes (Dumay & Dai, 2017). Hence, the current study contributes to the academic literature  
5 by devising a checklist based on the IIRC guidelines. As opposed to other studies, we validate  
6 and carry reliability checks before using our checklist. Thus, our checklist can be applied by  
7 scholars using Australian companies in their sample.  
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11 The current study can help Australian listed firms and their stakeholders acquire an in-  
12 depth knowledge of the factors that impact the level of IR. This study is also useful to regulators  
13 of financial reporting in Australia to reflect on appropriate regulation changes. Lynch (2010)  
14 shows a direct and strong relationship between regulatory pressures and improvement in  
15 sustainability reporting. Moreover, the present study can be relevant for managers since it helps  
16 to further their understanding of circumstances under which IR will be more suitable.  
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21 The rest of the paper is organised as follows. The next section provides a related literature  
22 review. This is followed by the theoretical framework and hypothesis development. Section  
23 four presents the research methods. The results of data analysis are shown in section five. The  
24 penultimate section elaborates on the discussion of the findings. The paper ends with the  
25 conclusions of the study.  
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## 31 32 **2. Literature review**

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34 Disclosing information on environmental and social issues is important for various reasons:  
35 economic uncertainty such as financial crisis, improvements in the financial system and climate  
36 change exposure (Adams, 2015). It applies to the public sector as well as the private sector.  
37 Moreover, the private sector is involved in IR via banks and financial institutions, most often  
38 voluntarily. According to Lodhia (2015), IR was implemented by cooperative banks and  
39 customer-owned banks. Due to new regulations, a centric approach and ethical organisational  
40 structure was adopted. It is interesting to note that firms listed on the ASX do not have an  
41 obligation to publish an integrated report. However, they must disclose any material exposure  
42 to economic, environmental and social sustainability (ESG Reporting Guide for Australian  
43 Companies, 2015). Hence, it becomes interesting to research multiple factors that could  
44 encourage the top listed companies on the ASX in disclosing their Environmental, Social and  
45 Governance (ESG) information.  
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55 According to Eccles and Serafeim (2014), corporate reporting plays two key functions.  
56 The first is an "information function" which enables counterparties, such as investors,  
57 employees, customers, and regulators, to enter into an exchange of goods and services under  
58 specific terms. Companies also benefit from the information function by comparing their  
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performance against peers, thereby informing internal resource allocation decisions. The second is a "transformation function"; the result of a company engaging with stakeholders to get their input on the company's resource allocation decisions. Eccles and Serafeim (2014) also argue that IR is more likely to effectively perform these two functions than separate financial and sustainability reporting.

Moreover, they argue that these two functions vary in terms of how important the role of regulation is. Regulation and standard setting are likely to improve the information function but could as well impede the transformation function. If regulation is too prescriptive and "rules-based," the risk is that IR becomes **merely** a compliance exercise (Eccles & Serafeim, 2014).

According to **the** IIRC (2011), an integrated report should give a concise idea of how a firm gets involved in value creation for the long run. **The** IIRC (2011) further enhances its definition by adding that IR will seek to provide more information on how the company is performing and show how the firm obtains and uses its resources, and identify the link between firm's resources and other forms of capital (Cardamone *et al.*, 2012). In 2013, **the** IIRC defines IR as "an explicit communication on a firm's strategy, governance, performance and prospects that lead to the creation of value over the short, medium and long term and reflects the commercial, social and environmental context within which it operates".

**The** IIRC (2013, p.2) defines integrated thinking as the "active consideration of the relationship between different factors affecting the company's value-creation processes". A **central, although somewhat vague, theme of** IR is that of value creation. The IIRC (2013, p.33) defines value creation as "the procedure that leads to a rise or a fall in the modification of the capitals that are generated by a company's business activities and output". However, some businesses are still confused with this definition. According to a recent report by PWC (2013), value creation is regarded as a vicious circle, which is dependent on a linking series including strategy, stakeholders, key messages, risk, value drivers, impact, and performance.

### **3. Theory and hypothesis development**

#### **3.1 Theoretical Framework**

Lopes and Rodrigues (2007) argue that empirical researchers have investigated accounting disclosure practices and explained the rationales for such practices using various theoretical perspectives. Though several theories have been used to describe voluntary disclosure (Omran & El-Galfy, 2014), the more common ones are agency, stakeholder and legitimacy theories (for

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3 a review, see Watts & Zimmerman, 1990; Gray *et al.*, 1995; Deegan, *et al.*, 2000; Deegan,  
4 2002).

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6 An agency relationship describes the contractual agreement between one party (the  
7 principal) who appoints another party (the agent) to act on its behalf. In the contract, the  
8 principal delegates some of the powers to make decisions to the agent (Jensen & Meckling,  
9 1976). A major issue which arises is to persuade the agent to act in such a way **as** to maximise  
10 the principal's welfare (Godfrey *et al.*, 2010). Agency theory is an essential constituent of  
11 positive accounting theory (Gaffikin, 2007). Information is sited into a clear decision-making  
12 setting (Omran & El-Galfy, 2014) as greater information leads to better decisions.

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14 Agency theory considers several forces at play in organisations that affect how it operates  
15 (Gaffikin, 2008). For instance, the notion of information asymmetry is a key element, which  
16 affects resource allocation. There is information asymmetry when some managers have greater  
17 information than other users (Healy & Palepu, 2001). Therefore, agency theorists believe that  
18 incentives must exist for managers to voluntarily release additional information in their  
19 integrated reports (Dechow & Skinner, 2000; McAnally *et al.*, 2008). IR is presumed to be an  
20 extension of financial reports. Given the importance of stakeholders, they should be provided  
21 with all company ESG information (Hess, 2008).

## 3.2 Hypothesis development

### 3.2.1 Board size and the level of IR

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23 The main task of any board of directors is to supervise how a business is managed, as agency  
24 problems exist in every firm. Agency problems eventually lead to more monitoring costs  
25 (Almazan *et al.*, 2005). For example, **this may entail** hiring additional directors with sufficient  
26 experience to supervise the business. In other words, a larger board size, which is the total  
27 count of executive and non-executive members sitting on the board (Wang & Hussainey, 2013),  
28 will result in a larger amount of information released as a result of better monitoring and control  
29 (García-Sánchez *et al.*, 2011). Amran *et al.* (2014) also claim that board size is a major factor  
30 influencing board effectiveness which can mitigate managerial opportunism, resulting in  
31 higher reporting levels.

32  
33 From another point of view, too many directors on a board may lead to lower efficiency in  
34 fulfilling their duties (Rao *et al.*, 2012). The more people sitting on the board, the more  
35 disruption there is to the effectiveness of communication, coordination and decision making  
36 (Aliyu, 2018) resulting in the inability by management to monitor and control results.  
37 Consequently, the quality of disclosure **may** decrease (Said *et al.*, 2009).

The empirical evidence provided by the literature is mixed, and as such, this study may shed more light on the relationship between board size and reporting practices. Janggu *et al.* (2014) and Ntim and Soobaroyen (2013) find that board size has a significant positive influence on disclosure practices, while Cerbioni and Parbonetti (2007) and Arayssi *et al.* (2016) find a negative relationship between board size and the level of voluntary disclosure. Cheng and Courtenay (2006) and Said *et al.* (2009) find no relationship between the two variables. Thus, our first hypothesis is formulated as follows:

*H<sub>1</sub>: There is a significant positive relationship between the level of IR and board size.*

### 3.2.2 Board independence and the level of IR

A common suggestion by agency theorists is that improved board monitoring quality and reduced agency costs are the results of a higher proportion of independent directors on boards (Mudiyanselage, 2018). Independent directors are more interested in guaranteeing that the firm operates at an optimum level by accomplishing their goals (García-Sánchez *et al.*, 2011). Independent directors are presumed to do their work objectively and transparently, enhancing the amount and type of information disclosed (Ajinkya *et al.*, 2005), since this will directly impact their reputation (Prado-Lorenzo & García-Sánchez, 2010). According to Eng and Mak (2003), independent directors are less aligned to management and encourage firms to disclose more information to outside investors. Haniffa and Cooke (2005) also support the claim that the larger the number of non-executive members on board, the higher the disclosure level.

However, a positive relationship, in some cases, may not hold. Blockholders may elect independent directors to represent their interests. However, these blockholders may obtain the information they require directly from the directors they appoint instead of from public disclosures (Eng & Mak, 2003). A negative relationship between independent directors and reporting practices may also arise if these directors act as a substitute for monitoring via disclosures (Eng & Mak, 2003). Also, while many directors may be outside the company, they may not be truly independent (Barako *et al.*, 2006), which may influence reporting practices.

Empirical evidence between board independence and voluntary disclosure show mixed results. For example, Cheng and Courtenay (2006) and Lim *et al.* (2007) find a positive relationship between board independence and the level of information disclosure. In contrast, Eng and Mak (2003) and Barako *et al.* (2006) show a negative relationship between the two variables. Al-Gamrh *et al.* (2020) indicate that board independence weakens the negative relationship between firm financial and social performance with foreign Arab ownership and deteriorate the relationship between firm financial and social performance and non-Arab



foreign ownership. Other studies (for example, see Ho & Wong, 2001; Haniffa & Cooke, 2002; Habbash, 2016) find no significant relationship. Consequently, the following hypothesis can be established.

*H<sub>2</sub>: There is a significant positive relationship between the level of IR and board independence.*

### 3.2.3 Activity of the board and the level of IR

In line with agency theory, board meetings are the primary channel through which boards carry out their **management** oversight function (Aliyu, 2018). A higher frequency of board meetings reflects sound checking systems (Chen *et al.* 2006). This improves the board's ability to monitor and control reports to reduce agency problems and improve disclosures (Knechel *et al.*, 2007). Such an increase in monitoring by the board reduces information asymmetry and invariably ameliorates the quality disclosures (Chou *et al.*, 2013). In other words, boards need to be active to ensure transparent reporting in annual reports (Torchia & Calabrò, 2016; **Thin** *et al.*, 2020).

When more board meetings are carried out, directors are keener to disclose more information to show stakeholders that they are very much involved in the company's welfare (**Kılıç** *et al.*, 2019). Another way to view this potential positive relationship is by looking in the opposite direction (Adams & Ferreira, 2012). A smaller number of board meetings may lead to a loss of communication between board members and may signal less efficiency (Arayssi, 2016). This may, in turn, harm the firm's performance, and companies may be reluctant to provide more disclosures if the firm's performance is poor (Adams & Ferreira, 2012).

The majority of studies have concluded that boards that carry on meetings regularly are better positioned to control tasks more effectively (Bushman and Smith, 2001; Eng and Mak, 2003), including the provision of quality disclosures (Ahmed & Khan, 2016; Aliyu, 2018). Conversely, Karamanou and Vafeas (2005) find no significant association between the frequency of board meetings and disclosure. As such, the third hypothesis is as follows:

*H<sub>3</sub>: There is a significant negative relationship between the level of IR and activity of the board.*

### 3.2.4 Board gender diversity and the level of IR

In this context, diversity implies differences in the gender of the board of directors. The board diversity encourages the solving of issues at board level and makes directors more effective as leaders. Agency theory suggests that female members can limit the opportunistic and possibly controlling male members' behaviour, who **may** have higher tendencies to secrecy and

withholding information, thus providing better monitoring and disclosure (Ahmed *et al.*, 2017; Kılıç *et al.*, 2019).

Various studies have considered the gender and the nationality of directors as being the attributes of the board (Prado-Lorenzo & García-Sánchez, 2010; Kılıç *et al.*, 2019). Maccoby and Jacklin (1978) claim that gender diversity of the board is more prominent in terms of verbal ability and aggression. They argue that the minority portion in the board (females) will not persuade the majority portion (males) for greater disclosures.

According to Kilic and Kuzey (2016), several countries guarantee a minimum quota on women representation in the board of their listed firms. For instance, Norway has imposed a minimum quota of 40 per cent of women on boards (Carter *et al.*, 2010). Using Australia's continuous disclosure regime, Ahmed *et al.* (2017) provide evidence that female directors on the board improve the frequency and volume of all types of disclosure. They claim that it requires more than one female director to significantly affect disclosure, which is consistent with the critical mass theory. Basuony *et al.* (2018) argue that female directors have an impact that is comparable to the effect of the independent directors.

Furthermore, Amin *et al.* (2020) investigate corporate financial disclosure via Twitter among the top listed 350 companies in the UK and identify the determinants of the extent of social media usage to disclose financial information. They find that gender diversity is positively associated with the extent of Twitter usage as a financial disclosure platform. Hence, in line with the agency theory, it is hypothesised that:

*H<sub>4</sub>: There is a significant positive relationship between the level of IR and gender diversity on the board.*

#### 4. Research method

##### 4.1 The models of the study

In order to test the above hypotheses, the study will employ the following models:

$$\begin{aligned}
 IR_i &= \beta_0 + \beta_1 BSIZE + \beta_2 NONEXE + \beta_3 BMEET + \beta_4 WOMEN + \beta_5 LOS + \beta_6 ROC + \beta_7 GROWTH + e_j & 1 \\
 FOPRI_i &= \beta_0 + \beta_1 BSIZE + \beta_2 NONEXE + \beta_3 BMEET + \beta_4 WOMEN + \beta_5 LOS + \beta_6 ROC + \beta_7 GROWTH + e_j & 1a \\
 GOVSTR_i &= \beta_0 + \beta_1 BSIZE + \beta_2 NONEXE + \beta_3 BMEET + \beta_4 WOMEN + \beta_5 LOS + \beta_6 ROC + \beta_7 GROWTH + e_j & 1b \\
 PERF_i &= \beta_0 + \beta_1 BSIZE + \beta_2 NONEXE + \beta_3 BMEET + \beta_4 WOMEN + \beta_5 LOS + \beta_6 ROC + \beta_7 GROWTH + e_j & 1c \\
 OBM_i &= \beta_0 + \beta_1 BSIZE + \beta_2 NONEXE + \beta_3 BMEET + \beta_4 WOMEN + \beta_5 LOS + \beta_6 ROC + \beta_7 GROWTH + e_j & 1d \\
 GPP_i &= \beta_0 + \beta_1 BSIZE + \beta_2 NONEXE + \beta_3 BMEET + \beta_4 WOMEN + \beta_5 LOS + \beta_6 ROC + \beta_7 GROWTH + e_j & 1e
 \end{aligned}$$

Where:

IR <sub>j</sub>	Overall IR for participant j <sup>th</sup>	
FOPRI <sub>j</sub>	Future Opportunities and Risks for participant j <sup>th</sup>	
GOVSTR <sub>j</sub>	Governance and Strategy for participant j <sup>th</sup>	
PERF <sub>j</sub>	Performance for participant j <sup>th</sup>	
OBM <sub>j</sub>	Overview and Business Model for participant j <sup>th</sup>	
GPP <sub>j</sub>	General Preparation and Presentation for participant j <sup>th</sup>	
β <sub>0</sub>	Constant (Intercept)	
BSIZE	Board size	(H1)
NONEXE	Board independence (percentage of the non-executive directors on the board)	(H2)
BMEET	Activity of the board (number of board meetings)	(H3)
WOMEN	Gender diversity (percentage of women present on the board)	(H4)
LOS	Firm size (log of total sales)	(CV1)
ROC	Profitability (return on capital)	(CV2)
GROWTH	Growth opportunities (market value to book value per share)	(CV3)
e <sub>j</sub>	The difference between the predicted and observed value of the IR for participant j <sup>th</sup> (the error term).	

The expected signs of the coefficients are  $\beta_1 > 0$ ,  $\beta_2 > 0$ ,  $\beta_3 > 0$ ,  $\beta_4 > 0$ ,  $\beta_5 > 0$ , and  $\beta_6 > 0$ , and  $\beta_7 > 0$  respectively.

## 4.2 The sample

The top 50 listed companies on the Australian Securities Exchange (ASX50) are selected for data collection. The time period spans from 1 July 2014 to 30<sup>th</sup> June 2017, as it is during this period that IR started to emerge and replace traditional reporting in Australia. IR brings together material information about an organisation's strategy, governance, performance and prospects in a way that reflects the commercial, social and environmental context within which it operates (Dumay *et al.*, 2016; De Villiers *et al.*, 2017; Menicucci, 2018; Tinh *et al.*, 2020). The sample is motivated by the latest trend reported by KPMG Australia (2017:5), that states that "A quarter of the country's biggest 200 companies are now using the principles of 'integrated reporting' in their annual reports". Thus, the total number of observations is 150 (50\*3 years). Table 1 presents the sample of the study based on industry. The financials and real estate companies (22% and 18% respectively) contribute to 40% (20 out of 50 companies) of the sample. In comparison, one company (2%) represents each sector from information technology, telecommunications services, and consumer discretionary.

Content analysis is used to quantify the extent of IR by firms. It is a technique of organising the data into diverse classes to collect IR information (Krippendorff, 2004; Beretta & Bozzolan, 2004). Annual reports are trustworthy and often used for IR disclosures in many countries (Malafronte *et al.*, 2016). The annual report also is considered as a main source of information in contrast to other types of reporting (Dye, 1985, 1986, 2001). Accordingly, this study concentrates on the companies' integrated reports, which can be obtained from the Australian companies' websites.

INSERT TABLE 1 HERE

#### 4.3 Measurement of the dependent variable – IR

The IR checklist is based on the Integrated Reporting Framework 2013 guidelines, the most recent one (Zhou *et al.*, 2017). The modified IR index contains five (5) information categories (see Appendix 1, for more details). These categories are as follows: (a) Future Opportunities and Risks (5 items). (b) Governance and Strategy (7 items). (c) Performance (6 items). (d) Overview and Business Model (10 items). (e) General Preparation and Presentation (10 items).

The next step is to assign a score for each item of information as a preliminary process to calculate the composite IR disclosure score or index. An important issue here is how to attach values to each item in the IR index. Many previous accounting studies use an unweighted disclosure index for several reasons. The main reason is to reduce subjectivity in determining weights (Botosan, 1997; Ahmed & Curtis, 1999; Core, 2001; Richardson & Welker, 2001; Botosan & Plumlee, 2002; Elsayed & Hoque, 2010). Second, Dhaliwal (1980, p. 387) argues that users, whose opinions are sought in deciding the weights of some items of information, lack self-insight regarding their use of information. Third, assigning scores for disclosed items of information depending on opinions from a user group may be misleading. The level of usefulness assigned to each disclosure item is not absolute; rather, it varies depending on the country, the user, the industry, and the time of the study.

Following previous studies referred to above, we use the unweighted approach to calculate the IR disclosure index. Each item of information (38 items) is scored according to its existence in the annual/integrated reports of the sampled firms. An item scores "1" if it is disclosed and "0" if it is not disclosed. Consequently, the maximum score is 38. The Integrated Reporting Index (IRI), which serves as a proxy for the level of integrated reporting for each company, is the sum of all items disclosed divided by the maximum allowable score (38). More specifically, the IR Index for each company is calculated using the following equation:

$$IRI_i =$$

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4 IRI<sub>i</sub> = the Integrated Reporting Index for the *i*<sup>th</sup> firm

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6  $n_j$  = the number of items expected for the *i*<sup>th</sup> firm, where  $n \leq 38$

7  
8  $X_{ij}$  = 1 if the *j*<sup>th</sup> items are disclosed for firm *i* and 0 otherwise

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11 The total scores (IR) are not weighted, assuming that all disclosure categories have the same  
12 importance. Similarly, an individual index is calculated for each of the 5 categories (a – e)  
13 mentioned above.

14  
15  
16 Given that this IR index is unique to this study, it is primordial to test its validity before  
17 using it in the regression models (Carmines & Zeller, 1990). One way to do so is through the  
18 testing of the IR index's relationship with variables that have been previously related to  
19 disclosure ratings as performed by Lang and Lundhom (1993), Botosan (1997), and Richardson  
20 and Welker (2001). Considering firm profitability and firm size, which are commonly found in  
21 models involving disclosure indexes, tests are run to determine the relationship of the novel IR  
22 index with these variables. The results indicate a highly significant positive relationship  
23 between firm size and the IR index, along with a highly significant negative relationship  
24 between firm profitability and the IR index.

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26  
27 Regarding firm size, a similar result was obtained by Richardson and Welker (2001) for  
28 the validity testing of their disclosure index. This positive association of firm size and  
29 disclosure rating is supported by a plethora of studies (for example, Prencipe, 2004; Prado  
30 Lorenzo *et al.*, 2009; García Sánchez *et al.*, 2011). Agency theory supports larger firms being  
31 more likely to face conflicts of interest with stakeholders. The political cost theory purports  
32 that these firms are under greater scrutiny by governments (Watts and Zimmerman, 1978). As  
33 such, **both** theories support larger firms tending to make more disclosures to reduce these  
34 agency and political costs. Furthermore, larger firms have more resources to invest in their  
35 disclosure practices (Deegan *et al.*, 2000).

36  
37  
38 The negative relationship found between firm profitability and disclosure rating is also  
39 documented in the literature. The rationale behind such a relationship is that profitable firms  
40 will usually be reluctant to report on their good performance so as not to encourage competitors  
41 to enter their market (Prencipe, 2004). Empirical evidence for such a relationship is shown by  
42 studies such as Khanna *et al.* (2004) and Gul and Leung (2004). Moreover, such results are  
43 also backed by impression management theory, whereby firms with poor performance will  
44 disclose more **to** show a better image. Thus, these tests support that the cross-sectional variation  
45 in the annual report disclosure extent of the firms under study is captured by the index

(Richardson and Welker, 2001). To conclude, this study's IR index, based on IIRC (2013), is perfectly valid for use in the current study's econometric models.

#### **4.4 Control variables**

##### **4.4.1 Firm size**

Agency theory provides insights into the accountability relation from an economic point of view and the reasons behind the voluntary reporting of financial and non-financial information (Mir *et al.*, 2015). As agency costs rise, large firms will increase voluntary disclosure to reduce these costs (Watts & Zimmerman, 1978). More disclosure will reduce information asymmetries and allow companies to perform better. On the other hand, small firms cannot provide much information due to the required costs and the limitation of their resources (Deegan *et al.*, 2000). Watts and Zimmerman (1978) state that larger firms will disclose more information to avoid criticism and government intervention, thus reducing political cost. Several studies find a positive relationship between firm size and the level of disclosure (for example, see Deegan & Gordon, 1996; Gray *et al.*, 2001; Oyelere *et al.*, 2003; Marston and Polei, 2004; Gul & Leung, 2004; Prencipe, 2004; Prado Lorenzo *et al.*, 2009; García Sánchez *et al.*, 2011; Giannarakis, 2014; Kansal *et al.* 2014; Habbash, 2016). Studies examining size and environmental disclosures (Gray *et al.*, 1995; Al-Tuwaijri *et al.*, 2004; Freedman & Jaggi, 2005; Gao *et al.*, 2005; Brammer & Pavelin, 2008; Haddock-Fraser & Fraser, 2008) find a positive relationship between these two variables. Lee and Yeo (2016) find a positive relationship between firm size and integrated reporting level. They argue that integrated reporting improves the information environment in complex firms such as firms with high intangible assets, firms with multiple business segments and large firms. Buitendag *et al.* (2017) show that firm size positively affects the quality of the integrated report. As a result, we expect that firm size will influence the level of integrated reporting.

##### **4.4.2 Profitability**

Agency theory demonstrates that managers in profitable companies are more prone to utilise external data for their personal benefit (Watts & Zimmerman, 1978; Deegan *et al.*, 2000; Deegan, 2002). Khanna *et al.* (2004), Gul and Leung (2004), and Giannarakis (2014) report a positive relationship between the level of disclosure and the firm's profitability. Frías-Aceituno *et al.* (2013, 2014) find a positive relationship between firm profitability and the level of integrated reporting. Similarly, Buitendag *et al.* (2017) find that firm profitability positively affects the quality of the integrated report. However, when competition is considered, a

negative relationship can be found between high profitability and corporate disclosure level. For instance, Prencipe (2004) claims that high profits made by a company could encourage competitors to penetrate the market. Despite the logic used in the different theories, most prior studies find no significant relationship between the level of corporate disclosure and profits (Oyelere *et al.* 2003; Marston & Polei, 2004; Frías-Aceituno *et al.*, 2013; Frías-Aceituno *et al.*, 2014; Habbash, 2016).

#### 4.4.3 Growth opportunities

Agency theory predicts that if a firm has the possibilities of expansion then an extensive policy of disclosure can be beneficial (Deegan, 2002). This can be explained by the fact that information asymmetry can negatively impact profitable investment as investors may lack trust (Deegan *et al.*, 2000). According to Marston and Polei (2004), firms with more opportunities to expand reveal more information to stakeholders to reduce information asymmetry and agency costs. This will, in turn, lead to a decrease in the cost of debt and an improvement in the efficiency of investment (Bushman & Smith, 2001). Abbott (1999) claims that firms which have experienced an expansion in investment opportunities will increase their disclosures to match their market performance. In addition, the expansion of new investment opportunities or product markets may adversely impact accounting earnings in the short term. Riahi-Belkaoui (2001) argues that the larger the firm and the higher its growth opportunities, the more informative are its corporate disclosures. Admati and Pfleiderer (2000) point out that revealing too much information can prove costly to firms since competitors will get to know too much about the firm. Thus, the firm may lose competitive advantage or bargaining power in future projects. Prado Lorenzo and García Sánchez (2010) find a positive relationship between growth opportunities and the level of voluntary information disclosed by a firm. However, Debreceny *et al.* (2002) find a negative association between growth opportunities and voluntary disclosure levels.

## 5. Results

### 5.1 Descriptive statistics and correlation

Descriptive statistics and correlation have been analysed before proceeding with the estimation of the model. An overall analysis has been done to show which companies among the ASX50 mostly prepares an integrated report. The results have been represented in the following histogram (see Figure 1). As it can be observed, few companies reach the highest and the lowest levels. AZJ and RIO TINTO are the two firms with the highest score of above 90 per cent.

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3 However, most are around the average, implying that there is scope for improvement in the  
4 future.  
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10 Table 2 shows the descriptive statistics for the dependent variable (IR), its sub-categories, and  
11 independent variables of the study. The mean of the IR index for the top Australian listed firms  
12 is 0.685 (i.e., the ASX50 disclose in average 26 out of 38 information items in their integrated  
13 reports). The maximum IR score is 100 per cent (38 information items). While the minimum  
14 IR score is 23.70 per cent (9 information items). Table 2 also illustrates that Australian firms  
15 disclose more information regarding Future Opportunities and Risks (FOPRI) (mean = 0.904),  
16 followed by General Preparation and Presentation information (GPP; mean = 0.850). On the  
17 other hand, these companies provide much less information regarding their past or future  
18 performance (PERF; mean = 0.485).  
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20  
21 The average board size in Australian listed companies is 9 members, with a maximum of  
22 15 members. The mean of non-executive directors is 81 percent. In contrast, the average  
23 percentage of women on the board is 27 per cent. The activity of the board, as shown in Table  
24 2, varies between 2 and 20 meetings per year, with an average of 10 meetings. The highest  
25 standard deviation is that of return on capital (56.87), and the lowest is that of IR (0.14).  
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38 Table 3 presents the correlation matrix for all the variables of the study. Panel A in Table 3  
39 shows the correlation between the dependent variable (IRI) and its 5 sub-categories. All sub-  
40 categories significantly and highly correlate with the level of IR ( $p < 0.01$ , 2-tailed). GPP  
41 information and OBM information have the highest impact of the level of IR (coefficients =  
42 0.711 and 0.708 respectively), followed by PERF information (coefficient = 0.653) and  
43 GVRSTR information (coefficient = 0.643). FOPRI information has the lowest correlation with  
44 the level of IR (coefficient = 0.347). No high correlation is observed among the sub-categories  
45 of IR, as the highest correlation observed between GOVSTR and OBM is 0.452.  
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49 Panel B in Table 3 shows positive and significant correlation ( $p < 0.05$ , 2-tailed) between  
50 both board independence (NONEXE) and firm size (LOS) and the level of IR (0.197, 0.214  
51 respectively). NONEXE has a positive and significant correlation with most of the sub-  
52 categories of information, including FOPRI, COVSTR, and OBM. (0.280 at  $p < 0.01$ , 0.236 at  
53  $p < 0.05$ , and 0.188 at  $p < 0.10$  respectively). LOS is positively **correlated** with GOVSTR (0.262  
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at  $p < 0.01$ ) and OBM 0.178 at  $p < 0.10$ ). Board size (BSIZE) has a positive and significant correlation with Performance information (PERF) at  $p < 0.05$  (0.219). Board activity (BMEET) has negative correlation with both GOVRST and PERF at  $p < 0.10$  (-0.163, -0.186 respectively); however, it has a positive correlation with OBM (0.165 at  $p < 0.10$ ). Board diversity (WOMEN) has significant correlation with both GPP and GOVSTR information (-0.209 at  $p < 0.05$ , 0.181 at  $p < 0.10$  respectively). On the other hand, the profitability of the firm (ROC) and growth opportunities (GROWTH) have no relationship with the level of IR and its sub-categories. Panel C in Table 3 shows that the highest correlation among the independent variables is -0.61 (between ROC and GROWTH). Thus, we have no multicollinearity issues in the current study.

INSERT TABLE 3 HERE

Before deciding upon which method is more appropriate for the current study (i.e., the fixed or the random model), the Hausman test was carried out. The results (not reported here) show that the probability ( $p = 0.4253$ ) is more than 5 per cent, which implies that the fixed effect model is not applicable here. We therefore opted for the random effect model.

## 5.2 Regression results

Table 4 shows that all models except the Future Opportunities and Risk (Model 1a; FOPRI) are statistically significant. In the aggregate model (Model 1; the overall IR), the coefficient estimate of both board independence (NONEXE) and firm size (LOS) is positive and statistically significant at the 0.01 level (0.210 and 0.361 respectively), suggesting that both firms with high level of board independence and high volume of sales are reporting more information in their integrated reports. Table 4 shows a negative and significant association between the overall IR and several independent variables, including activity of the board (BMEET), firm's profitability (ROC), and firm's growth opportunities (GROWTH) at the 0.01 level (-0.230, -0.257 and -0.221 respectively). However, for both the aggregate and individual IR models, we find no significant relationship between board size (BSIZE), gender diversity on the board (WOMEN) and IR disclosure. As shown in Table 4, the adjusted  $R^2$  for Model 1 is 0.382, implying that the effect of independent variables can explain 38.2 per cent of the changes in the level of IR. The F statistic (9.745) is significant at the 0.01 level. Therefore, this implies that all the independent variables can jointly influence the dependent variables (IR). The Durbin Watson statistic (1.938) is in a suitable range showing that there is no presence of autocorrelation among the error terms of the variables.

Table 4 also summarises the results for individual IR models (Models 1a – 1e), namely Future Opportunities and Risks (Model 1a; FOPRI), Governance and Strategy (Model 1b; GOVSTR), Performance (Model 1c; PERF), Overview and Business Model (Model 1d; OBM), and General Preparation and Presentation (Model 1e; GPP). As shown in Model 1a, only NONEXE has a positive and significant relationship with FOPRI (0.249 at the 0.01 level). However, the power (adjusted  $R^2 = 0.036$ ) of the model is not significant (F-value = 1.532,  $p = 0.166$ ).

Model 1b reveals that firm size (LOS) has a positive and significant (0.335 at the 0.01 level) impact on the release of governance and strategy information (GOVSTR). On the other hand, both BMEET and ROC significantly and negatively affect GOVSTR (-0.199 at the 0.05 level and -0.123 at the 0.10 level respectively). The remaining independent variables have no significant relationship with GOVSTR. The power (adjusted  $R^2 = 0.217$ ) of the model is significant (F-value = 4.909) at the 0.01 level.

Model 1c shows that firm size (LOS) has a positive and significant (0.215 at the 0.01 level) effect on publishing performance information (PERF) by Australian listed firms. Conversely, both BMEET, ROC and GROWTH have a significant but negative impact on releasing such information (-0.205 at the 0.05 level, -0.273 at the 0.0 level and -0.296 at the 0.05 level respectively). Other independent variables have no significant impact on the level of PERF. The power (adjusted  $R^2 = 0.185$ ) of the model is significant (F-value = 4.210) at the 0.01 level.

The results under Model 1d (OBM) reveal that Firm size (LOS) has a positive and significant (0.218 at 0.05 level) relationship with the level of OBM information released by Australian listed firms. While ROC has a significant and negative relationship with OBM information (-0.136 at the 0.01 level), no significant relationship is found between other independent variables and OBM. However, the power (adjusted  $R^2 = 0.147$ ) of the model is significant (F-value = 3.431) at the 0.01 level.

Model 1e shows that, at the 0.05 level, both NONEXE and LOS have a positive and significant (coefficients = 0.183 and 0.226 respectively) association with the level of GPP information released by Australian listed firms. Both BMEET and ROC have a significant and negative effect on releasing GPP information (-0.196 at the 0.10 level -0.226 at the 0.05 level respectively). The power (adjusted  $R^2 = 0.173$ ) of the model is significant (F-value = 3.956) at the 0.01 level.

**INSERT TABLE 4 HERE**

Table 5 displays the results of robustness tests. Panel A and Panel B seek to assess the robustness of the results obtained by the main regression models. Models 2, 2a, 2b, 2c, 2d, and 2e are run without the profitability variable, and models 3, 3a, 3b, 3c, 3d, and 3e are run without the growth variable. In the main IR model (Model 1), NONEXE is found to be positively and significantly related to IR at the 1% level, and both robustness tests support this result. As for BMEET, it was found to be negatively and significantly associated with IR at the 1% level in the main IR model and the model where GROWTH is omitted (Model 3). BMEET is found to be negatively and significantly related to IR at the 5% level in the model where ROC is omitted (Model 2). While there is some variation concerning the degree of significance, the main models' results are largely consistent with those obtained by the robustness tests in terms of sign and overall significance. Hence, it can be concluded that the main models are robust.

INSERT TABLE 5 HERE

## 6. Discussion

The following discussion is based on the results of models that were shown to be structurally valid through robustness checks. To assess the robustness of regression models, removing regressors and examining how the regression coefficients that are core to the study behave is common practice in empirical studies (Lu and White, 2014). The robustness check results displayed above in Table 5 provide empirical evidence of the structural validity of the current study's models, since the omission of variables such as profitability and size resulted in no variation worthy of attention in the regression coefficients of board characteristic variables that are core to the current study.

As shown in Table 4, both board size and board gender diversity have no significant relationship with the aggregate level of IR (coefficients = 0.033 and -0.108 respectively). The results under individual models of IR also confirm no significant association between these two independent variables (BSIZE and WOMEN) and any component of IR. Therefore, the first hypothesis (*H1: There is a significant positive relationship between the level of IR and board size*) and the fourth hypothesis (*H4: There is a significant positive relationship between the level of IR and gender diversity on the board*) are rejected.

This means that Australian listed firm disclose IR irrespective of the size of the board and/or gender diversity. However, this is based on only 150 observations (50 companies over three years), and thus the results may deviate if a larger sample of companies is considered in future research. These results align with Karamanou and Vafeas (2005) and Cheng and

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3 Courtenay (2006). An explanation is that a large board size could imply many conflicts between  
4 the directors. As a result, there may be a divergence of opinion as regards IR. Furthermore,  
5 from the descriptive statistics (Table 2), it can be noticed that the average board size is 9 with  
6 the same median and a low standard deviation of 1.5, which means that board size follows a  
7 norm rather than an exception in Australian listed companies. Consequently, board size cannot  
8 explain the level of IR disclosure.  
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13 Companies having more women on the board are not pre-disposed to a higher level of IR.  
14 Maccoby and Jacklin (1978) argue that male-female differences are more prominent in terms  
15 of verbal ability and aggression. Being the minority gender in the boardroom, women may not  
16 be able to convince their male counterparts to make greater disclosures. Alternatively, it may  
17 also imply that linking women with 'softer' issues, such as disclosure, may not be true (Rao and  
18 Tilt, 2016). Many countries have placed a minimum quota on women representation (Kilic &  
19 Kuzey, 2016). As the average proportion of women on the board is around 27 per cent,  
20 regulators could consider having a minimum quota to enable women to have their say on the  
21 board. For instance, Norway has imposed a minimum quota of 40 per cent of women on boards  
22 (Carter *et al.*, 2010).  
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31 The level of board independence (NONEXE) has a positive and significant relationship  
32 with the aggregate IR level. Table 4 (Model 1a and Model 1e) supports this result as board  
33 independence significantly and positively influences the amount of information released by  
34 Australian listed firms regarding future opportunities and risks and general preparation and  
35 presentation. Thus, our second hypothesis (*H2: There is a significant positive relationship*  
36 *between the level of IR and board independence*) is accepted. This result is consistent with  
37 several studies (Karamanou & Vafeas, 2005; Cheng & Courtenay, 2006; Prado-Lorenzo *et al.*,  
38 2009). It suggests that independent directors can reduce agency conflicts between owners and  
39 managers, thus encouraging board members to increase the extent of IR disclosure (Muttakin  
40 *et al.*, 2015).  
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48 Table 4 also reveals a negative relationship between board activity (BMEET) and the  
49 aggregate IR level in Australian listed firms. The result has also been confirmed by individual  
50 models of IR (Model 1b, 1c and 1e) as BMEET has a negative and significant impact on most  
51 IR components, including GOVSTR, PERFE and GPP information. Consequently, the third  
52 hypothesis (*H3: There is a significant negative relationship between the level of IR and activity*  
53 *of the board*) is accepted. This result is consistent with Vafeas (1999), which states that more  
54 meetings held are a sign of non-efficacy by the company.  
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Consistent with agency theory, Table 4 (Model 1 and Models 1b-1e) reveals that the size of the firm, measured by the log of sales (LOS), is positively and significantly associated with the overall IR level. Furthermore, LOS positively and significantly affects the amount of information released under each of the IR components, namely GOVSTR, OBM and GPP. It implies that the larger the company, the greater the level of IR information provided. This result concurs with several previous studies (Oyelere *et al.*, 2003; Marston & Polei, 2004; Gul & Leung, 2004; Prencipe, 2004; Giannarakis, 2014; Habbash, 2016).

As shown in Table 4, ROC has a significant and negative effect on most of the components of IR, including GOVSTR, PERF, OBM, and GPP. This result is in contradiction with Agency theory. More disclosure by highly profitable firms will make them incur additional costs, such as political costs (Deegan *et al.*, 2000; Deegan, 2002). Other possible reasons could be to prevent rival firms from entering the market. When a highly profitable firm discloses much information, other firms can take advantage of such information. Other firms may be tempted to enter the market to reap similar returns. Therefore, highly profitable firms may try to conceal information to deter competition. This result of the study is consistent with Prencipe (2004).

Finally, Table 4 shows that business growth opportunities (GROWTH) have a significant and negative impact on IR's level among the top 50 listed companies in Australia (ASX50). However, Table 4 shows that only PERF information is affected by the level of GROWTH in Australian listed firms. It implies that firms which have scope to grow will reduce their level of IR.

This result contradicts the prediction of the Agency theory. Our study is in line with several previous studies (Debreceeny *et al.*, 2002; Prado Lorenzo & García Sánchez, 2010; Frias-Acetuno, 2012). **Firms** may abstain from revealing much information because they do not want competitors to take undue advantage. If there are business growth opportunities in a particular industry, it means the business is prospering. Therefore, this will induce new entrants to join the industry, increasing the level of rivalry. To avoid this situation, firms will reveal less information (Cardamone *et al.*, 2012; Menicucci, 2018).

## 7. Conclusion

Drawing upon agency theory, this paper's primary objective is to analyse the influence of board characteristics on integrated reporting. As an innovative step, this research runs separate regression models to investigate how board characteristics affect the disclosure practices for each of the five components of IR. Based on our main findings, no link has been found between IR and its separate components, with board size and gender diversity. However, both board

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3 independence and firm size have a positive and significant relationship with IR disclosure level.  
4 A negative association has been observed between profitability, board activity, growth  
5 opportunities and the level of IR disclosure.  
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8 From a theoretical perspective, our results support agency theory. The positive link  
9 between board independence and the IR level implies that independent directors are concerned  
10 about their reputation and favour IR disclosure. At the same time, it also shows that these non-  
11 executive directors can convince the board to cater for the information needs of stakeholders.  
12 Our findings also show that independent directors prefer specific categories of disclosure,  
13 including future opportunities and risks and general preparation and presentation information.  
14 These directors are less concerned about the firm's financial performance, catering for the  
15 requirements of a broader group of stakeholders. Such directors thus favour future risks and  
16 opportunities and how information is presented to users of accounting information.  
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24 Our research has several practical implications. The study shows that having more board  
25 meetings harms the level of IR disclosure. Vafeas (1999) argues that board meetings are mostly  
26 routine without much genuine exchange/discussion. Lipton and Lorsh (1992) echo this view,  
27 claiming that meetings take time away from monitoring management. Therefore, management  
28 has to decide on the optimum number of meetings that would yield positive results as these  
29 meetings involve costs in terms of travel, refreshment, and other board activities (Vafeas,  
30 1999).  
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36 Another important academic implication also stems from this research. Studies  
37 investigating the determinants of the level of IR should aim to provide more insight on which  
38 component of IR is responsible for associations found, similar to this study. The aggregate IR  
39 level covers a very broad range of information and simply relating factors to an aggregate IR  
40 index is insufficient. Policymakers and regulators will also find this study of great use to aid  
41 them in formulating policies and regulations to target specific components of the aggregate IR  
42 level that are not being properly disclosed voluntarily. While the pressure is undoubtedly on  
43 corporations to comply with institutionally established regulatory requirements, the same  
44 applies to regulators in achieving high standards of corporate governance, including audit and  
45 disclosure (Abraham *et al.*, 2008).  
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53 Our findings can be useful to regulators, such as the Australian Securities and Investment  
54 Commission (ASIC) and the Australian Securities Exchange (ASX) in drafting new  
55 regulations/guidelines/listing rules. If regulators target a higher level of integration in the  
56 reports, they know which 'triggers to pull' to attain their target. For instance, our study shows  
57 that board independence has a significant and positive effect on the extent of integrated  
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3 reporting. Thus, regulators can issue guidelines to increase board independence to achieve their  
4 objective. Similarly, an attempt to enhance the level of integrated reporting should target  
5 companies' size, as shown by our study. As De Villiers and Van Staden (2006) claim, bigger  
6 companies are keen to maintain their corporate image as they are more in the spotlight of public  
7 opinion. Therefore, choosing the proper trigger will enable the objective of the regulator to be  
8 met. Our results can guide regulators to choose the appropriate trigger among various  
9 alternatives. For instance, if a higher level of integrated reporting is desired, size instead of  
10 profitability should be chosen.  
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13 The insignificant relationship between board gender diversity and integrated reporting  
14 questions the effectiveness of soft regulations to improve the level of integrated reporting.  
15 Regulators can therefore consider imposing a quota on gender diversity to improve the extent  
16 of integrated reporting. The recent study by Tapver *et al.* (2020) covering several countries,  
17 including Australia, shows that countries that have imposed gender quotas have experienced a  
18 higher level of CSR reporting. However, the intended result can only be achieved if women  
19 nominated on boards are knowledgeable about IR. Only then can women influence strategic  
20 decisions.  
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23 The main limitation of the current study is the limited sample of 50 companies. Future  
24 studies could target a larger sample, which would enable researchers to consider the industry  
25 type in their analysis. The number of factors that can affect the IR level is numerous, and  
26 consequently, not all factors have been considered in this study. Another limitation is that the  
27 study is conducted only at the firm level. The study uses content analysis using a checklist to  
28 measure the level of integrated reporting, but no checklist can be fully exhaustive. This presents  
29 an inherent limitation in the use of content analysis. Furthermore, we use a dichotomous scale  
30 to measure whether an item in the checklist is disclosed, ignoring the quality of the information  
31 disclosed.  
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34 Future research could extend this analysis to investigate determinants at the country level.  
35 For instance, geographical and political factors could be examined. **In the light of the finding  
36 that profitability impacts negatively on the level of IR, future research could investigate the  
37 other side of the relationship; that is, whether the level of IR can influence the profitability of  
38 firms. As our findings fail to find any relationship between board size and board gender  
39 diversity with the level of IR, future research could focus on the characteristics of board  
40 members, such as experience, qualifications, and membership of professional organisations  
41 among others, thus departing from the idea that board members are homogeneous. The  
42 consequence of adopting integrated reporting is an interesting theme which can be researched**  
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3 in the future. For example, researchers could examine the consequences of the level of IR on a  
4 firm's cost of capital. Future research could also investigate the development of a  
5 dialogue/debate regarding integrated reporting (Kılıç *et al.*, 2019). Finally, research may also  
6 investigate which type of corporate reporting (sustainability reporting or integrated reporting)  
7 is more valuable for investors.  
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## Appendix 1: IR Index

### (a) Future Opportunities and Risks

What are the specific risks and opportunities that affect the organization's ability to create value over the short, medium and long term, and how is the organization dealing with them? What challenges and uncertainties is the organization likely to encounter in pursuing its strategy, and what are the potential implications for its business model and future performance?

1. Anticipated changes
2. Organization's expectations, aspirations and intentions
3. Implication for future performance
4. Risks
5. Opportunities

### (b) Governance and Strategy

What is the organization's governance structure, and how does it support the organization's ability to create value in the short, medium, and long term? Where does the organization want to go and how does it intend to get there?

6. Governance structure
7. Governance and strategy
8. Remuneration and performance
9. Strategic objectives
10. Links between strategy and other elements
11. Competitive advantage
12. Stakeholder consultations

### (c) Performance

To what extent has the organization achieved its strategic objectives for the period and what are its outcomes in terms of effects on the capitals?

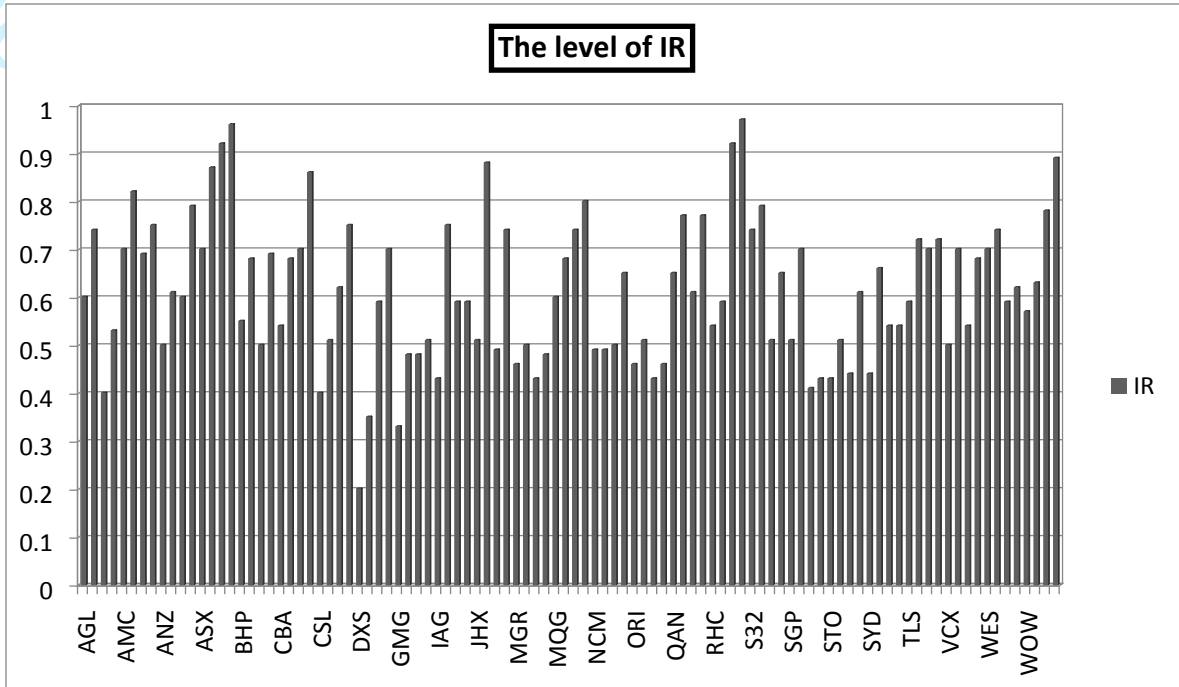
13. KPIs against strategy
14. Explanation of KPIs
15. Stakeholder relationship
16. Past, current, and future performance
17. Financial implications of other capitals
18. Supply chain performance

### (d) Overview and Business Model

What does the organization do and what are the circumstances under which it operates? What are the organization's key inputs, value-adding activities, and outputs by which it aims to create value over the short, medium, and long term?

1	
2	
3	19. Mission and vision
4	
5	20. Key quantitative information
6	
7	21. Business overview
8	
9	22. Operation context
10	
11	23. Summary statistics
12	
13	24. Factors affecting external environment
14	
15	25. Business model description (input, act, output, and outcomes)
16	
17	26. Links between business model and others
18	
19	27. Stakeholder dependencies
20	
21	28. Key business activities
22	
23	<b>(e) General Preparation and Presentation</b>
24	To what extent has the organization achieved its strategic objectives for the period and what are its
25	outcomes in terms of effects on the capitals?
26	
27	29. Materiality determination process
28	
29	30. Reporting boundary
30	
31	31. Significant frameworks and methods
32	
33	32. Disclosure of material matters
34	
35	33. Disclosures about the capitals
36	
37	34. Complexity, interdependencies and trade-off
38	
39	35. Time frames for short, medium and long term
40	
41	36. Aggregation and disaggregation
42	
43	37. Financial Statement
44	
45	38. Sustainability report
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Figure 1: IR for the ASX50



Journal of Applied Accounting Research

**Table 1: Sample profile**

<b>Sector</b>	<b>Number</b>	<b>%</b>
Utilities	2	0.04
Materials	4	0.08
Energy	5	0.10
Metals & Mining	5	0.10
Financials	11	0.22
Real Estate	9	0.18
Information Technology	1	0.02
Telecommunications Services	1	0.02
Consumer Staples	3	0.06
Health Care	3	0.06
Consumer Discretionary	1	0.02
Industrials	5	0.10
<b>Total</b>	<b>50</b>	<b>100</b>

**Table 2: Descriptive statistics**

<b>Variables</b>	<b>Mean</b>	<b>Median</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Std. Dev.</b>
<b>IR</b>	0.685	0.658	0.237	1.000	0.146
<b>FOPRI</b>	0.904	1.000	0.000	1.000	0.169
<b>GOVSTR</b>	0.500	0.511	0.000	1.000	0.247
<b>PERF</b>	0.485	0.500	0.167	1.000	0.198
<b>OBM</b>	0.651	0.700	0.100	1.000	0.185
<b>GPP</b>	0.850	0.800	0.300	1.000	0.288
<b>BSIZE</b>	9.000	9.000	6.000	15.000	1.524
<b>NONEXE</b>	0.813	0.822	0.556	100.00	9.537
<b>BMEET</b>	10.000	10.000	2.000	20.000	3.058
<b>WOMEN</b>	0.270	0.273	0.091	0.625	0.103
<b>LOS</b>	21.840	21.530	17.315	26.597	1.886
<b>ROC</b>	13.480	7.635	-18.760	564.420	56.877
<b>GROWTH</b>	2.137	1.645	-23.910	13.780	4.601
<b>Observations</b>	<b>150</b>	<b>150</b>	<b>150</b>	<b>150</b>	<b>150</b>

**Legend:**

IR: Overall Integrated Reporting Index; FOPRI: Future Opportunities and Risks information; GOVSTR: Governance and Strategy information; PERF: Performance information; OBM: Overview and Business Model; GPP: General Preparation and Presentation; BSIZE: Board Size; NONEXE: Board Independence BMEET: Board Activity; WOMEN: Board Diversity; LOS: Firm Size LOS; ROC: Profitability; GROWTH: Growth Opportunities.

Table 3: Correlation matrix

Panel A: Correlation matrix for IR and its sub-categories							
Variables	IR	FOPRI	GOVSTR	PERF	OBM	GPP	
IR	1.000						
FOPRI	0.347***	1.000					
GOVSTR	0.643***	0.240**	1.000				
PERF	0.653***	0.107	0.408***	1.000			
OBM	0.708***	0.177*	0.452***	0.388***	1.000		
GPP	0.711***	0.070	0.107	0.316***	0.236**	1.000	
Panel B: Correlation matrix for independent variables and IR and its sub-categories							
variables	IR	FOPRI	GOVSTR	PERF	OBM	GPP	
BSIZE	0.109	-0.055	0.121	0.219**	-0.036	0.085	
NONEXE	0.197**	0.280***	0.236**	-0.085	0.188*	0.069	
BMEET	-0.099	0.037	-0.163*	-0.186*	0.165*	-0.134	
WOMEN	-0.101	-0.004	0.181*	-0.156	-0.045	-0.209**	
LOS	0.214**	0.135	0.262***	0.102	0.178*	0.058	
ROC	-0.055	0.041	0.053	-0.063	-0.085	-0.069	
GROWTH	-0.113	-0.081	-0.068	-0.157	0.042	-0.114	
Panel C: Correlation matrix for independent variables							
variables	BSIZE	NONEXE	BMEET	WOMEN	LOS	ROC	GROWTH
BSIZE	1.000						
NONEXE	-0.163*	1.000					
BMEET	-0.061	0.061	1.000				
WOMEN	-0.187*	0.078	0.193**	1.000			
LOS	0.119	0.168*	0.355***	0.119	1.000		
ROC	-0.005	0.074	-0.209**	-0.010	-0.153	1.000	
GROWTH	-0.082	-0.106	0.102	0.093	0.078	-0.610***	1.000

**Legend:**

IR: Overall Integrated Reporting Index; FOPRI: Future Opportunities and Risks information; GOVSTR: Governance and Strategy information; PERF: Performance information; OBM: Overview and Business Model; GPP: General Preparation and Presentation; BSIZE: Board Size; NONEXE: Board Independence BMEET: Board Activity; WOMEN: Board Diversity; LOS: Firm Size LOS; ROC: Profitability; GROWTH: Growth Opportunities.

\*\*\*: Correlation is significant at the 0.01 level (2-tailed).

\*\*: Correlation is significant at the 0.05 level (2-tailed).

\*: Correlation is significant at the 0.10 level (2-tailed).



**Table 5: Robustness Tests**

*Panel A: The robustness test for models 2, 2a, 2b, 2c, 2d, and 2e*

Variables	IR (Model 2)		FOPRI (Model 2a)		GOVSTR (Model 2b)		PERF (Model 2c)		OBM (Model 2d)		GPP (Model 2e)	
	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat
Constant	-0.112	-0.659	0.461**	2.106	-0.655**	-2.450	0.023	0.099	0.093	0.439	-0.194	-0.528
BSIZE	0.004	0.458	0.006	0.458	0.008	0.542	0.010	0.735	-0.010	-0.821	0.009	0.454
NONEXE	0.003***	2.675	0.004**	2.622	0.003	1.450	0.001	0.033	0.003	1.552	0.006**	2.040
BMEET	-0.010**	-2.150	-0.007	-1.128	-0.016**	-2.192	-0.012*	-1.960	0.002	0.305	-0.016*	-1.668
WOMEN	-0.002	-1.095	-0.001	-0.310	0.002	0.700	-0.001	-0.590	-0.002	-1.072	-0.005	-1.485
LOS	0.029***	4.229	0.006	0.639	0.045***	4.194	0.025***	2.690	0.022***	2.633	0.036**	2.473
ROC	-	-	-	-	-	-	-	-	-	-	-	-
GROWTH	-0.003	-0.659	-0.002	-0.464	-0.003	-0.530	-0.006	-1.170	-0.001	-0.065	-0.003	-0.431
Adjusted R <sup>2</sup>	0.273		0.046		0.198		0.065		0.120		0.113	
F-value	7.205***		1.799		5.070***		2.139*		3.260***		3.102***	
Durbin-Watson Stat.	1.940		1.987		1.966		1.955		1.983		1.911	

**Panel B: The robustness test for models 3, 3a, 3b, 3c, 3d, and 3e**

Variables	IR (Model 3)		FOPRI (Model 3a)		GOVSTR (Model 3b)		PERF (Model 3c)		OBM (Model 3d)		GPP (Model 3e)	
	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat	$\beta$	<i>t</i> -Stat
Constant	-0.065	-0.417	0.445**	2.014	-0.600**	-2.320	0.093	0.437	0.140	0.670	-0.141	-0.397
BSIZE	0.004	0.432	0.006	0.485	0.007	0.500	0.008	0.648	-0.010	-0.871	0.010	0.487
NONEXE	0.003***	2.846	0.004***	2.672	0.003	1.417	0.001	0.071	0.002	1.486	0.006**	2.179
BMEET	-0.011***	-2.694	-0.007	-1.113	-0.016**	-2.361	-0.014**	-2.417	0.001	0.143	-0.019**	-1.994
WOMEN	-0.002	-1.185	-0.001	-0.339	0.001	0.607	-0.001	-0.540	-0.002	-1.068	-0.004	-1.457
LOS	0.028***	4.532	0.006	0.644	0.044***	4.274	0.023***	2.668	0.021**	2.582	0.034**	2.424
ROC	-0.001***	-3.231	0.001	0.341	-0.001	-1.465	-0.001***	-3.251	-0.001*	-1.687	-0.001**	-2.264
GROWTH	-	-	-	-	-	-	-	-	-	-	-	-
Adjusted R <sup>2</sup>	<b>0.370</b>		<b>0.045</b>		<b>0.216</b>		<b>0.150</b>		<b>0.151</b>		<b>0.167</b>	
F-value	<b>10.692***</b>		<b>1.778</b>		<b>5.551***</b>		<b>3.901***</b>		<b>3.934***</b>		<b>4.317***</b>	
Durbin-Watson Stat.	<b>1.897</b>		<b>1.980</b>		<b>1.938</b>		<b>1.912</b>		<b>1.956</b>		<b>1.879</b>	

**Legend:**

IR: Overall Integrated Reporting Index; FOPRI: Future Opportunities and Risks information; GOVSTR: Governance and Strategy information; PERF: Performance information; OBM: Overview and Business Model; GPP: General Preparation and Presentation; BSIZE: Board Size; NONEXE: Board Independence BMEET: Board Activity; WOMEN: Board Diversity; LOS: Firm Size LOS; ROC: Profitability; GROWTH: Growth Opportunities.

\*\*\*: significant at the 0.01 level (2-tailed).

\*\* : significant at the 0.05 level (2-tailed).

\* : significant at the 0.10 level (2-tailed).

## **Responses to Reviewers and Associate Editor's Comments & Recommendations**

**Manuscript ID:** JAAR-04-2020-0077

**Title:** *"Integrated reporting and board characteristics: evidence from top Australian listed companies"*

Dear Prof. Othmar, Editor-in-Chief of *Journal of Applied Accounting Research (JAAR)*,

We highly appreciate the detailed and valuable comments of the referees on our manuscript. The suggestions are quite helpful for us and we have incorporated them in the revised and amended paper. We have tried our best to revise it and we hope these efforts will up to your expectations. On behalf of my co-authors, I would like to clarify some of the points raised by the reviewers. We hope the Reviewers and the Associate Editor will be satisfied with our responses to the 'comments' and the revisions made in the manuscript. Some detailed revisions were made with **red colour** in the manuscript.

### **Reviewer: 1**

Recommendation: **Accept**

#### **Comments:**

I have reviewed the manuscript after the first round of the review process. The Authors have made an attempt to implement all the suggestions received by the reviewers, and eventually acknowledge as limitations and further research ideas the comments that were not fully implemented in this manuscript. I think the manuscript has greatly benefited from the revision process: the research motivation and contribution are clearer; the methodology has benefited from robustness test; the implications are presented in the conclusions. I still cannot see an abstract of the paper.

#### **Response:**

**Thank you for your valuable comments and feedback. The Abstract was added to the main manuscript and it was inserted into the abstract platform in the journal webpage.**

### **Additional Questions:**

1. Originality: Does the paper contain new and significant information adequate to justify publication?

The paper is interesting and provides a contribution to previous literature. The contribution is now more clearly stated in the Introduction. The Authors mention two main contributions: investigating the influence of gender-diverse boards on integrated reporting and a checklist to measure the level of integration of companies' reports.

#### **Response:**

**Thank you for your valuable observation.**

1  
2  
3  
4 2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the  
5 relevant literature in the field and cite an appropriate range of literature sources? Is any  
6 significant work ignored?  
7

8 The paper has a clear theoretical framework built on agency theory. The literature review  
9 section has incorporated a number of recent papers that were previously missing. The paper is  
10 now better positioned in the existing literature debate.  
11

12  
13 **Response:**

14 Thank you for your valuable feedback. We also updated our literature to add more research  
15 papers published in JAAR.  
16  
17

18  
19 3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or  
20 other ideas? Has the research or equivalent intellectual work on which the paper is based  
21 been well designed? Are the methods employed appropriate?  
22

23 The methodology is overall clear. Robustness tests have made this section more robust.  
24

25  
26 **Response:**

27 Thank you for valuable comments and kind feedback.  
28  
29

30  
31 4. Results: Are results presented clearly and analysed appropriately? Do the conclusions  
32 adequately tie together the other elements of the paper?  
33

34 Results are clear and discussed in detail. In the revised paper, results are also discussed in line  
35 with previous studies in the field.  
36

37  
38 **Response:**

39 Thank you for valuable observation.  
40  
41

42 5. Implications for research, practice and/or society: Does the paper identify clearly any  
43 implications for research, practice and/or society? Does the paper bridge the gap between  
44 theory and practice? How can the research be used in practice (economic and commercial  
45 impact), in teaching, to influence public policy, in research (contributing to the body of  
46 knowledge)? What is the impact upon society (influencing public attitudes, affecting quality  
47 of life)? Are these implications consistent with the findings and conclusions of the paper?  
48

49 Research implications and limitations of the study are clearly presented in the Conclusions  
50 section of the revised manuscript.  
51

52  
53 **Response:**

54 Thank you for your kind comments and feedback.  
55  
56

57  
58 6. Quality of Communication: Does the paper clearly express its case, measured against the  
59 technical language of the field and the expected knowledge of the journal's readership? Has  
60

1  
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4 attention been paid to the clarity of expression and readability, such as sentence structure,  
5 jargon use, acronyms, etc.?  
6

7 The paper is overall clear and has a good structure.  
8

9 **Response:**

10 Thank you for your kind feedback. The paper also was sent for proof editing.  
11  
12

13  
14 **Reviewer: 2**

15  
16 Recommendation: **Accept**  
17

18  
19 **Comments:**

20 Compared to the draft I did reviewed this version is substantially better. I will strongly  
21 recommend the following:  
22

23 - Improve the clarity of the abstract by highlighting the main contribution of the paper.  
24

25  
26 **Response:**

27 The originality/contributions are now highlighted in the abstract.  
28

29 - Be more specific about the relation of this paper to the recent debate on materiality with  
30 regards to sustainability reporting.  
31

32  
33 **Response:**

34 The following part has been added to the introduction (see page 2):  
35

36 “A wide range of heterogeneous topics which are of relevance to different stakeholders are  
37 covered by integrated reporting. ‘Materiality’ is the determining factor| when companies face  
38 issues in determining which non-financial information should be disclosed (Reimsbach *et al.*,  
39 2020). The IIRC gauges whether a matter is material by its impact of the company’s ability to  
40 create value, whether in the short, medium or long run (Wu *et al.*, 2018). With regards to this  
41 recent debate on materiality within the reporting practices field, the current study explores the  
42 influence of board characteristics on a reporting framework which is underpinned by seven  
43 guiding principles, namely, materiality, connectivity of information, stakeholder  
44 relationships, conciseness, reliability and completeness, consistency and comparability, and  
45 strategic focus and future orientation (IIRC, 2021). Through its consideration of materiality,  
46 the framework used ensures that the results of the current study are in relation to integrated  
47 reporting practices that are material and relevant to different groups of stakeholders.”  
48  
49

50  
51 - A discussion around the possible research avenue that could be implied by the findings of  
52 this paper.  
53

54  
55 **Response:**

56 We have added this part to Conclusion Section of the manuscript (see page 22):  
57  
58  
59  
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“In the light of the finding that profitability impacts negatively on the level of IR, future research can investigate the other side of the relationship i.e. whether the level of IR can influence the profitability of firms. As our findings fail to find any relationship between board size and board gender diversity with the level of IR, future research can focus on the characteristics of board members such as experience, qualifications, membership of professional organisations among others, thus, departing from the idea that board members/women are homogeneous.”

**Minor Comment:**

- The paper would gain in the scope in citing related papers published in JAAR.

**Response:**

The paper was amended to cite more related papers published in JAAR including:

- Cardamone, P., Carnevale, C., and Giunta, F. (2012). "The value relevance of social reporting: Evidence from listed Italian companies." *Journal of Applied Accounting Research*, Vol. 13 No. 3, pp. 255–269.
- Kılıç, M., Uyar, A., and Kuzey, C. (2019), "The impact of institutional ethics and accountability on voluntary assurance for integrated reporting", *Journal of Applied Accounting Research*, Vol. 21 No. 1, pp. 1-18. <https://doi.org/10.1108/JAAR-04-2019-0064>.
- Menicucci, E. (2018), "Exploring forward-looking information in integrated reporting: A multi-dimensional analysis", *Journal of Applied Accounting Research*, Vol. 19 No. 1, pp. 102-121. <https://doi.org/10.1108/JAAR-01-2016-0007>.
- Thinh Gia Hoang, Trang Kieu Vu, Ha Tuyet Nguyen and Hiep Ngoc Luu, (2020). "Mandatory integrated reporting disclosure and corporate misreporting," *Journal of Applied Accounting Research*, Vol. 21 No. 3, pp. 363-382.

We cited the above papers in related sections in the text of the manuscript (for example see, pages 2, 10, 19, 22). The full citations of these papers were also added to the reference list (see pages 25, 30, 31, 32).

**Additional Questions:**

1. Originality: Does the paper contain new and significant information adequate to justify publication?

The paper contributes to the emerging literature on Integrated reporting and governance.

**Response:**

Thank you for your motivated comments.

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?

No. the paper adequately addresses the comments raised in my review report.

**Response:**

Thank you for your valuable feedback.

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?

The methodology is sound and is suitable to answer the research question.

**Response:**

Thank you for your motivated comments and valuable observation.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?

Absolutely

**Response:**

Thank you for your kind observation.

5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?

The paper identifies clearly the findings implications for research, practice and/or society.

**Response:**

Thank you for your valuable comments and feedback.

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.?

The paper is well written. I will urge the authors to cite relevant papers published in the Journal of Applied Accounting Research. Not only the paper will gain in scope but also it will sharpen the incremental contribution of the paper.

**Response:**

Thank you for your valuable suggestion and comments.

The paper was amended to cite more related papers published in JAAR including:

- Cardamone, P., Carnevale, C., and Giunta, F. (2012). "The value relevance of social reporting: Evidence from listed Italian companies." *Journal of Applied Accounting Research*, Vol. 13 No. 3, pp. 255–269.
- Kılıç, M., Uyar, A., and Kuzey, C. (2019), "The impact of institutional ethics and accountability on voluntary assurance for integrated reporting", *Journal of Applied Accounting Research*, Vol. 21 No. 1, pp. 1-18. <https://doi.org/10.1108/JAAR-04-2019-0064>.
- Menicucci, E. (2018), "Exploring forward-looking information in integrated reporting: A multi-dimensional analysis", *Journal of Applied Accounting Research*, Vol. 19 No. 1, pp. 102-121. <https://doi.org/10.1108/JAAR-01-2016-0007>.
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We cited the above papers in related sections in the text of the manuscript (for example see, pages 2, 10, 19, 22). The full citations of these papers were also added to the reference list (see pages 25, 30, 31, 32).

### **Associated Editor's Recommendation**

Dear Authors,

Thank you for addressing the reviewers' comments. Both reviewers are satisfied with your revisions and have minor comments. In addition to the reviewers' comments, I have the following issues that need to be addressed:

1. The abstract is missing.

**Response:**

Thank you for your valuable observation.

Abstract inserted into the abstract platform in the journal webpage and it was added to the main manuscript as well.

2. The introduction needs to be improved. The research question is not clearly stated.

**Response:**

The introduction has been written again highlighting the research question (see pages 2-4).

3. Authors do not provide information about their sample in the introduction.

**Response:**

The sample is ASX 50, mentioned in the introduction.



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4 4. There is no need to report Table 4. A discussion of the findings in the text is sufficient.  
5

6 **Response:**

7 Thank you for valuable suggestion.  
8

9 The paper was amended accordingly. Table numbers also were updated (for example see,  
10 pages 16 - 19).  
11  
12  
13

14 5. Detailed notes should be added to all tables. t-stats are missing from all tables and only.  
15

16 **Response:**

17 Thank you for your valuable suggestion.  
18

19 Tables (3, 4 and 5) were amended accordingly.  
20  
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23 6. The paper should be edited before resubmission.  
24

25 **Response:**

26 Thank you for your valuable suggestion.  
27

28 We acted accordingly. The paper was edited by an Australian professor of accounting. The  
29 language corrections were made in red colour.  
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