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Examining the extent of and drivers for materiality assessment disclosures in sustainability reports

Abstract

Purpose: This paper evaluates the extent of materiality assessment disclosures in sustainability reports and their determinants. The study examines the disclosure practices of listed companies based in the member states of the Cooperation Council for the Arab States of the Gulf, colloquially referred to as the Gulf Cooperation Council (GCC).

Design/methodology: Firstly, the materiality assessment disclosures were scored through a content analysis of sustainability reports published by listed GCC companies during a five-year period from 2013 to 2017. Secondly, a fixed effect ordered logic regression was used to examine the determinants of materiality assessment disclosures.

Findings: While sustainability reporting rates improved across the sample period, a significant majority of listed GCC companies do not engage in sustainability reporting. The use of internationally recognised standards has also declined. While reporters provide more information on their materiality assessment, the number of sustainability reports that offer information on how the reporter identifies material issues has declined. These trends potentially indicate the existence of managerial capture. Materiality assessment disclosure scores are positively influenced by higher financial performance (Return on Assets), lower leverage and better corporate governance. However, company size and market-to-book ratio do not influence materiality assessment disclosures.

Practical implications: The findings may prove useful to managers responsible for preparing sustainability reports who can benefit from the examples of materiality assessment disclosures. An evaluation of the materiality assessment should be included in the scope of assurance engagements and practitioners can use the examples of best practice when evaluating sustainability reports. Stock exchanges may consider developing improved corporate governance guidelines as these will lead to materiality assessment disclosures.

Social implications: The findings may assist in improving sustainability reporting quality, through better materiality assessment disclosures. This will allow corporate stakeholders to evaluate the reporting entities underlying processes, which leads to transparency and corporate accountability. Improved corporate sustainability reporting supports the GCC commitment to implement the United Nations Sustainable Development Goals (SDGs) and transition to sustainable development.

Originality: This study addresses the call for greater research examining materiality within a sustainability reporting context. This is the first paper to examine sustainability reporting quality in the GCC region, focusing particularly on materiality assessment disclosures.

Key terms: materiality assessment; sustainability reporting; corporate governance; managerial capture; Gulf Cooperation Council (GCC)

Article classification: Research paper

1. Introduction

Organisations play a key role in supporting societies' ambition of sustainable development (Bebbington, 2001; Gray, 2010). To demonstrate their commitment to sustainability, organisations undertake sustainability reporting, in which they provide stakeholders with information on the social, environmental and economic impact of their operations¹ (Global Reporting Initiative, n.d.). While sustainability reporting is now a global norm (KPMG, 2017), critics complain that sustainability reporting is subject to managerial capture (O'Dwyer, 2003; Owen et al., 1997; Owen et al., 2000), whereby reporters primarily discuss positive performance (good news) while providing little to no information on negative performance (bad news) (Zaman et al., 2020). Such poor quality sustainability reports act as a façade hiding corporate hypocrisy (Cho et al., 2015; Howard et al., 2019; Maroun, 2018) and thereby preventing sustainability reporting from achieving its goal of promoting transparency and corporate sustainability accountability (Adams, 2004, 2015; Adams & Larrinaga-González, 2007; Deegan & Gordon, 1996; Gray, 2010).

To reduce the likelihood of managerial capture and improve the quality of sustainability reporting, international standard setters, such as the Global Reporting Initiative (GRI), recommend that reporters should undertake a materiality assessment to identify issues that are material to the reporting entity and its stakeholders (Global Reporting Initiative, n.d.). This would ensure that material issues are identified, and reporters publish high-quality sustainability reports. In sustainability reporting, materiality is the principle that determines which relevant topics are sufficiently important that it is essential to report on them (Global Reporting Initiative, 2016, p. 10). A materiality assessment is a process of identifying economic, social and environmental issues that are material to the company and its stakeholders (Global Reporting Initiative, 2015; Jones et al., 2016; Lydenberg, 2012). Importantly, standard setters and practitioners recommend that reporters disclose their materiality assessment within their sustainability reports - that is, provide information on how they undertook their materiality assessment (Global Reporting Initiative, 2013, 2016). This would allow report users to understand and evaluate the process used by the reporter in identifying material issues and why some material issues are discussed in the sustainability report while others are not. Report users could also compare the process against the requirements of international standards and disclosures made by other companies to evaluate whether the reporter is following best

¹ Some organisations opt to publish stand-alone sustainability reports while others prefer to include information on their sustainability performance in a single annual report. For the purpose of this study the term 'sustainability report' is used for sustainability information, whether contained within a single annual report or a separate sustainability report.

practices.² This would reduce the likelihood of managerial capture and improve the quality of sustainability reports. Ultimately, this will lead to improved stakeholder confidence in published sustainability reports and promote greater corporate transparency and accountability. However, studies examining materiality within a sustainability reporting context remain scarce (Unerman & Zappettini, 2014). Researchers have commented on the conceptualisation of materiality in non-financial reporting (Eccles et al., 2012; Fasan & Mio, 2017; Lydenberg, 2012; Mio & Fasan, 2013). For example, Eccles et al. (2012) evaluate US companies' climate change-related disclosures in response to new reporting requirements issued by the US Securities and Exchange Commission (effective since February 2010). Disappointed by the quality of these disclosures, Eccles et al. (2012) suggest that regulators and standard setters need to introduce sector-specific guidance on which sustainability indicators are material and should be reported. Others have focused their attention on how the materiality assessment should be undertaken. For example, Calabrese et al. (2015) offer insights into the use of analytical tools for evaluating customer feedback on sustainability reports. Similarly, Calabrese et al. (2016) suggest the use of an analytical model to help reporters evaluate stakeholder perceptions on the relative importance (i.e. material versus not material) of GRI aspects and indicators³. Hsu et al. (2013), using a case study methodology, develop a materiality assessment model, based on stakeholder perceptions. Farooq and De Villiers (2019b) interview sustainability reporting managers and present insights into five stages of the institutionalisation of sustainability reporting (including the materiality assessment process) within reporting organisations. However, none of these studies evaluate the extent of reporter's materiality assessment disclosures i.e. the information provided by the reporter on how they undertook their materiality assessment. Exceptions include Jones et al. (2016), who critique the materiality assessment disclosures contained within the 2015 sustainability reports published by the top 10 UK retail companies. However, this study does not provide a comparative analysis of the extent of materiality assessment disclosures across time, nor does it explore the determinants of materiality assessment disclosures. Beske et al. (2020) examine the extent of

² This argument rests on the assumption that users have a basic understanding of sustainability reporting. However, the same assumption is made in financial reporting, where users are assumed to have a reasonable understanding of business, economics and accounting to be able to understand the information provided in a set of financial statements. As sustainability reporting becomes more widespread it is reasonable to assume that users' understanding of such reports (and their related standards) will also improve. Additionally, it is worth noting that there is a risk that a reporter's materiality assessment claims/disclosure are not reliable; i.e. what is disclosed does not reflect what was done. However, the same risk exists in financial reporting and is addressed (with some success) through the annual financial audit. Similarly, the growth of sustainability assurance (i.e. external assurance of sustainability reports) is designed to improve the reliability of sustainability reports (Farooq and De Villiers, 2017, 2018).

³ In their study Calabrese *et al.* (2016) engaged with internal stakeholders/managers to identify and prioritise material issues.

materiality assessment disclosures in a sample of German listed companies using a binary scoring index. They find that reporters disclose limited information on their materiality assessment. Using legitimacy theory, they argue that a materiality analysis can be strategically misused to define sustainability report content without considering the interests of stakeholders. They argue that managers must acknowledge the importance of materiality assessment disclosures, as failure to do so would call into question the overall reliability of the information presented. However, the study is limited to analysing the extent of materiality assessment disclosures. They recommend that future researchers move beyond a binary index to allow for a more granular analysis of disclosures.

Furthermore, while research into the sustainability disclosure practices of reporters based in developed countries has improved in recent years, there remains a need for greater research focusing on developing countries in the Middle East and Africa (Amran & Haniffa, 2011; Beske et al., 2020; Gerged et al., 2018; Zaman et al., 2018). The Gulf Cooperation Council (GCC) of the Middle East comprises of the states of Qatar, Oman, Kuwait, Bahrain, the Kingdom of Saudi Arabia (KSA) and the United Arab Emirates (UAE). Three reasons support greater academic effort targeting the disclosure practices of companies based in this region. First, the economic, political and social importance of the GCC region must be recognised. The region has a significant global environmental footprint with implications for global warming and climate change (WWF, 2012). Second, the GCC states have indicated their commitment to the UN SDGs, e.g. the KSA's 'Vision for 2030' which incorporates the UN SDGs. Academic research focusing on this region has the potential to assist regulators, reporters and practitioners in improving sustainability reporting so that can produce high-quality sustainability reporting that promotes transparency and corporate accountability). Third, while sustainability reporting rates in developed countries have increased dramatically in recent years (KPMG, 2015, 2017), developing countries (in comparison to developed western states) are still relatively new to sustainability reporting. Consequently, researchers will be able to identify greater variations in disclosure quality when examining sustainability reports published by companies based in these countries.

The few studies that have explored sustainability reporting amongst Middle Eastern nations tend to focus on how much information is provided (Gerged et al., 2018). However, with the introduction of GRI G4 in 2013, the emphasis has now shifted from providing more information (as a trait of better-quality sustainability reports) to providing better disclosure only on material issues (Global Reporting Initiative, 2013). Therefore, this study seeks to address these gaps in the literature by addressing two research questions: (i) what is the extent

of material assessment disclosures and (ii) what corporate characteristics (including corporate financial performance, corporate leverage, corporate governance and company size) influence materiality assessment disclosures scores?

To evaluate the extent of materiality assessment disclosures, a content analysis of sustainability reports was carried out over a sample of 704 listed GCC companies for a five-year period (2013 to 2017). The determinants of materiality assessment disclosures were examined using a fixed effect order logic regression analysis.

The study finds that while sustainability reporting rates in the GCC have increased, a significant majority did not engage in sustainability reporting. For example, in 2017, 60% of listed GCC companies did not engage in sustainability reporting. There is a decline in the use of the GRI guidelines, with only 8.2% of sustainability reports referring to internationally recognised standards. The number of sustainability reports containing information on the reporter's materiality assessment declined from 10.2% in 2013 to 8.6% in 2017. However, despite this downward trend, materiality assessment disclosures improved in the region with the average materiality assessment disclosure score moving from 2.39 in 2013 to 3.08 in 2017. Nevertheless, overall findings reveal that listed GCC companies fail to inform their stakeholders on the process they use for identifying material issues for inclusion within the sustainability report. Arguably, by not providing this information, reporters are able to avoid outside scrutiny over their underlying reporting processes and can maintain their control over the sustainability reporting agenda, leaving the reporting process open to managerial capture.

Despite this general lack of transparency, there are GCC listed companies that voluntarily disclose information on their materiality assessment. Regression analysis was used to find out what corporate characteristics influence companies disclosing information on their materiality assessment. Our regression results show that high financial performance (i.e. high Return on Assets), lower corporate leverage, and better corporate governance (including board independence) significantly increase corporate materiality assessment disclosure scores. However, we found that company size and market-to-book ratio is not associated with materiality assessment disclosures.

The study fills a gap in the literature by contributing to research on sustainability reporting quality, focusing specifically on materiality assessment disclosures. First, we uncover the relevant antecedents of materiality assessment disclosure scores that, despite their significance in determining materiality assessment disclosures, were absent in prior studies. These determinants are derived from the sustainability reporting/social and environmental accounting literature as well as the broader corporate governance literature. Second, given the dearth of

studies examining sustainability reporting in the Middle East, this study offers a novel context and assists in building our understanding of disclosures practices in the GCC region.

These findings may prove useful to practitioners responsible for preparing and assuring sustainability reports – the sustainability reporting managers and sustainability assurance providers. Sustainability reporting managers can benefit from the examples of best practice in materiality assessment disclosures which can assist in improving the quality of their disclosures. From a sustainability assurance perspective, an evaluation of a reporter's materiality assessment should be included within the scope of sustainability assurance engagements. The examples of materiality assessment disclosures will assist assurance practitioners in evaluating corporate sustainability reports.

The findings of this study have policy implications. Stock exchanges should consider introducing tougher corporate governance requirements, as we found corporate governance quality (board structures and use of international reporting standards) improves materiality assessment disclosures. Improved materiality assessment disclosures have societal implications as it allows corporate stakeholders to understand and evaluate the process used by sustainability reporters in identifying material issues for reporting. Ultimately corporate stakeholders will benefit from the likely reduction in managerial capture, improved sustainability report quality and increased corporate transparency and accountability. These developments have implications for the GCC states in supporting their goal of implementing the UN SDGs and transitioning to a more sustainable growth path.

The remainder of this paper consists of a literature review (section two), theoretical framework (section three), research method (section four), findings and analysis (section five), discussion (section six) and conclusion (section seven).

2 Literature review

Materiality is a well-known and central concept in the accounting world (Fasan & Mio, 2017; Mio & Fasan, 2013). Accountants use materiality to guide them in preparing financial statements and financial auditors rely on materiality in planning and performing their audit. However, there is no universally agreed upon definition for materiality⁴ (Eccles & Krzus, 2014; Edgley, 2014). According to the International Accounting Standards Board (IASB), a sub-board of the International Financial Reporting Standards Foundation (IFRS Foundation),

⁴ As Edgley (2014) remarks, the lack of a definition does not prevent the term from achieving what it sets out to achieve. Eccles and Krzus (2014) point out that the U.S. courts intentionally avoid providing any definition for materiality, as they do for fraud. Instead what is material and what is immaterial is decided on a case by case basis by considering both quantitative and qualitative information. Importantly, the process of determining materiality must be made with complete clarity.

“information is material if omitting it or misstating it could influence decisions that ... users of ... financial reports make on the basis of those reports, which provide financial information about a specific reporting entity” (IASB, 2018, p. 15). The International Standards on Auditing (ISAs), published by the International Audit and Assurance Standards Board (IAASB), describe materiality as “misstatements including omissions, are considered to be material if they, individually or in the aggregate, could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements” (IAASB, 2009, p. 314).

Thus, materiality acts as a threshold below which an item is considered immaterial (i.e. does not influence the economic decisions of financial report users) and above which an item is considered material (i.e. does influence the economic decisions of financial report users) (Eccles & Krzus, 2014). As information can be material in nature and/or magnitude, accountants must consider both qualitative and quantitative factors when making their assessments. The IASB, in its 2018 Conceptual Framework, also states that materiality is an “entity-specific” concept (IASB, 2018, p. 14), and therefore it cannot prescribe a single threshold for materiality for use by all reporting entities; that is, what is material for one entity may not be material for another.

2.1 Materiality in sustainability reporting

As is the case in the accounting world, there is no consensus on the definition of materiality within sustainability reporting (Jones et al., 2016; KPMG, 2014). However, this is where the similarity ends, as materiality in accounting represents a relatively narrow short-term financial perspective drawn from a set of historical financial statements and underlying accounting records (AccountAbility, 2013; Global Reporting Initiative, 2013), whereas materiality in sustainability reporting draws on a broader range of stakeholders, incorporates both backward and forward-looking dimensions, and integrates with the organisation’s overall strategy (AccountAbility, 2013).

Responding to criticisms of promoting a tick-the-box approach to sustainability reporting (Moneva et al., 2006), the GRI launched its G4 guidelines in 2013. The new guidelines emphasised the importance of materiality and were designed to ensure that sustainability reports are relevant to the information needs of stakeholders (Global Reporting Initiative, 2013). In defining materiality, the GRI explains that “the report should cover aspects that: reflect the organization’s significant economic, environmental and social impacts; or substantively influence the assessments and decisions of stakeholders” (Global Reporting Initiative, 2016, p. 6). In 2016 the GRI launched a set of standards to replace G4⁵ (applicable

⁵ The GRI G4 guidelines were applicable from 2015 until mid-2018 (GRI, 2013).

from 1 July 2018). However, the principles outlined in G4 have been retained. Principles around sustainability report content (what to report on) include (1) stakeholder inclusiveness (identifying and responding to stakeholders' interests); (2) sustainability context (reporting on sustainability performance in relation to the broader local, regional and global sustainability context); (3) materiality (ensuring disclosure on issues⁶ significant to the reporter and its stakeholders); and (4) completeness (ensuring coverage of all material) (Global Reporting Initiative, 2016).

2.2 Materiality assessment process

Materiality is often presented as a binary concept; an issue is either material (reported on) or immaterial (not reported on) (Eccles & Krzus, 2014). However, undertaking a materiality assessment is highly complex and inherently subjective. The principle of materiality in AccountAbility, 2018 AP1100 states that “Materiality relates to identifying and prioritising the most relevant sustainability topics, taking into account the effect each topic has on an organisation and its stakeholders. A material topic is a topic that will substantively influence and impact the assessments, decisions, actions and performance of an organisation and/or its stakeholders in the short, medium and/or long term” (AccountAbility, 2018, p. 20). For the purpose of this study, the term ‘materiality assessment’ is used. Such an assessment requires reporters to consider a range of internal and external sources of information, and by engaging with a wide range of stakeholders, to identify and evaluate material issues for reporting (AccountAbility, 2008, 2011; Global Reporting Initiative, 2016). The materiality assessment process is described in AccountAbility (2018) as determining the relevance and significance of an issue to an organisation and its stakeholder.

KPMG (2014, p. 4) provides a seven-step approach to conducting a materiality assessment:

1. Define scope and purpose: “Define what materiality means for your organization and be clear about your objectives and audience.”
2. Identify potential topics: “Create a long-list of potential material topics.”
3. Categorize topics: “Refine the long-list of potential material topics by clustering them into categories.”
4. Gather information on impact and importance: “Explore each material topic in detail to understand its relevance to the business and stakeholders.”

⁶ The GRI prefer to use the term *aspect* within their guidelines and list 4 types of economic aspects, 12 types of environmental aspects and 4 sub-categories of social aspects (each sub-category then comprises of different types of aspects).

5. Prioritize: “Prioritise material topics based on the strategic importance to the business, importance to stakeholders and the social, economic and environmental impact of each topic in the value chain.”
6. Engage management: “Test the results of your materiality assessment with key internal audiences to validate the outcome.”
7. Seek stakeholder feedback: “Follow up with stakeholders to get feedback on the material topics reported.”

The G4 guidelines explain that this process involves four steps (Global Reporting Initiative, 2013). Step one, identification, involves identifying material issues and is achieved by applying the principles of sustainability context and stakeholder inclusiveness. Step two, prioritization, requires the ranking of issues to assess which are the most significant and is achieved by applying the principles of materiality and stakeholder inclusiveness. Step three, validation, involves validating the results of step three and is achieved by applying the principles of completeness and stakeholder inclusiveness. Finally, step four, review, involves undertaking a post-publication review of the sustainability report with the aim of assessing whether the principles of stakeholder inclusiveness and stakeholder engagement were applied and how to refine step one in the next reporting cycle. Although this four-step process does not feature in the new GRI standards, much of the content (especially the principles) is still the same. The GRI notes that a reporter may identify numerous material issues. However, “[n]ot all material topics are of equal importance, and the emphasis within a report is expected to reflect their relative priority” (Global Reporting Initiative, 2016).

The actual responsibility for carrying out a materiality assessment is up to the reporting entity. Specifically, it is the fiduciary duty of the board of directors (boards) to undertake a materiality assessment (Eccles & Krzus, 2014). Furthermore, materiality is a social construct, or as Eccles and Krzus (2014) describe it, materiality is a “firm-specific construct” (Eccles & Krzus, 2014, p. 121). Thus, an issue is deemed to be material for the company and its stakeholders if the board believes the issue to be material. However, Eccles and Krzus (2014) further argue that boards should engage with stakeholders as these stakeholders hold influence over the reporter and because there is a moral obligation on companies to provide information to society.

However, there is considerable variation in the way organisations undertake their materiality assessment (Farooq & De Villiers, 2019b; Jones et al., 2016). This is because sustainability reporting is still voluntary in most jurisdictions and reporters can choose whether to follow the requirements of international sustainability reporting standards. As a result, reporters can decide which stakeholders to engage with, how to engage with these stakeholders, the

importance assigned to different stakeholders and ultimately which issues are perceived to be material (Adams & Frost, 2006; Kaur & Lodhia, 2018; Owen et al., 2001; Unerman, 2007; Unerman, 2008).

Importantly, reporters are encouraged to provide information on how they undertook their materiality assessment within their sustainability report. For example, the GRI states, "... the reporting organization shall include an explanation of how the Materiality principle was applied to identify material topics, including any assumptions made" (GRI, 2016, p. 34). Similarly, (KPMG, 2014, p. 8) states, "[c]ompanies should make clear the process they have used to assess materiality, how they have involved stakeholders in this process, and how they have used the materiality assessment to inform," Disclosure on the prioritisation of the material issues identified often takes the form of what is referred to as a materiality matrix (Jones et al., 2016). This matrix is often a two-dimensional graph that is used to rank material issues based on, for example, the importance of the issue to the reporter (high vs low) and importance of the issue to the stakeholder (high vs low). Given that a materiality assessment is an inherently subjective exercise and given that ultimately the board decides what issues are material, disclosing information on the materiality assessment can allow users to assess whether the process adopted conforms to best practice and why certain issues were not reported on (Bellantuono et al., 2016; Beske et al., 2020).

Despite the increasing emphasis placed by standard setters on materiality, research shows that reporters do not perform well in this area (KPMG, 2013). For example, in a 2013 KPMG survey, the world's largest 250 companies scored only 66 out of 100 for their disclosure on materiality. Similar results were noted by Jones et al. (2016) who examined the disclosure practices of the top 10 UK retailers to evaluate how and to what extent these companies were providing information on their materiality assessment process. They found that disclosure of materiality assessment within sustainability reports was limited and the description of the materiality assessment provided revealed that these reporters were adopting a variety of different approaches to undertaking a materiality assessment. On stakeholder engagement, De Villiers et al. (2014) analysed 23 sustainability reports published by Australian local councils in 2009 and 2010 to assess the level and extent of disclosure over stakeholder engagement by the reporter. Very little information was provided on stakeholder engagement. Importantly, while reporters disclosed the issues or challenges, they faced in identifying and selecting stakeholders, "... not one local council provided any information about the method of stakeholder identification and selection" (p. 67).

3. Theoretical framework

Accounting can be described as an exercise aimed at promoting transparency and organisational accountability (Bebbington, 2001). Sustainability accounting practices, such as sustainability reporting, are designed to provide information on organisations sustainability performance to a broader range of stakeholders (Deegan, 2013; Gray, 2006; Hopwood et al., 2010; Ong et al., 2016; Unerman & Chapman, 2014) and in doing so would “assist in liberating and empowering the wider society” (O’Dwyer, 2003, p. 524). However, critics argue that instead of promoting transparency and organisational accountability leading to change, sustainability reporting (and sustainability accounting technologies in general) is subject to managerial capture (Owen et al., 1997; Owen et al., 2000) and is used to preserve the status quo (O’Dwyer, 2003). A similar theoretical lens is used by Michelin et al., (2015) who examine the quality of sustainability reports published by listed UK companies.

Managerial capture, in the context of sustainability accounting, is described as a phenomenon whereby organisational managers control the discourse over what sustainability is and direct the conversation in a manner that promotes their interest while frustrating efforts to achieve radical change (Farooq & De Villiers, 2019b; O’Dwyer, 2003). Managers control the reporting process with the aim of using their sustainability reports to present a positive image of the organisation, thereby maintaining the status quo and avoiding any real transparency and corporate accountability. Researchers who examine the quality of sustainability reports find that most sustainability reports resemble public relations or marketing documents which present the reporting entities’ achievements (the good news/positive performance) while providing little to no information on material issues - thereby conveniently excluding any discussion over material bad news (the negative performance/impacts) (Unerman & Chapman, 2014). Researchers conclude that these poor-quality sustainability reports fail to promote transparency and accountability (Bebbington & Gray, 2001; Gray, 1996, 2006, 2010). Instead, managers use sustainability reports as a corporate veil, concealing the true impact of their business operations (Hopwood, 2009). In this way, sustainability reports mislead organisational stakeholders (Deegan & Rankin, 1996) and are harmful to societal goals of promoting sustainable development (Deegan, 2002).

The recommendations of standard setters (such as the GRI) for materiality assessment disclosure potentially offers a way to address the issue of managerial capture and promote high-quality sustainability reporting. It does so by allowing stakeholders to evaluate for themselves the process used by the reporter in identifying material issues and compare it with the requirements of international sustainability reporting standards. This opens the company’s

sustainability reporting processes to outside scrutiny and provides stakeholders with an opportunity to critique the materiality assessment to ensure it conforms to international best practice. While not a panacea for managerial capture, this does have the potential to reduce the issue and lead to higher quality sustainability reporting.

3.1 Determinants of materiality assessment disclosures

Despite growing emphasis from global standard setters for companies to adopt materiality in their sustainability reports to improve sustainability reporting quality, the level of transparency in sustainability reporting reports among GCC countries remains low (KPMG, 2017). This low level of transparency in a contextual setting where sustainability reporting is voluntary, highlights the need to identify the corporate characteristics that lead some companies to disclose information on their materiality assessment. In this regard, Gerwanski et al. (2019) examine the determinants of materiality assessment disclosure quality in integrated reporting in a sample of European and South African companies. They find that corporate governance quality (gender diversity and assurance) and the learning affect positively influence materiality assessment score/quality. However, integrated report readability, listing status and earnings management do not have influence materiality assessment disclosures. In a review of 178 articles on sustainability reporting, Hahn and Kühnen (2013) found that the most frequently investigated determinants of the extent and quality of sustainability reporting are: corporate financial performance, corporate leverage, corporate governance quality and corporate size. Therefore, we use these characteristics to draw the study's hypotheses.

3.1.1 Corporate financial performance and materiality disclosure

Prior literature linking corporate financial performance with sustainability reporting quality has largely failed to find any conclusive results (Hahn & Kühnen, 2013). For instance, some researchers argue that poor financial performance (e.g. low profitability) makes it difficult for companies to engage in costly and potentially risky and extensive high quality/transparent sustainability reporting (Cormier & Magnan, 2003; Stanny & Ely, 2008). Others, however, point out that sustainability reporting, subject to managerial capture, assists companies in securing legitimacy amongst both stakeholders and providers of capital (creditors) (Haniffa & Cooke, 2005). Thus, empirical research on financial performance as a determinant of the extent and quality of sustainability reporting provides mixed results (Hahn & Kühnen, 2013).

However, Khan et al. (2016) find that a significant number of these studies fail to consider materiality in their analysis. Building on these insights, we argue that managers working in companies with better financial performance, reflecting better management practices, potentially have less need for undertaking managerial capture. Hence, managers of high

performing companies will enhance their non-financial information flows by incorporating materiality assessment disclosures into their sustainability reports. In line with Hahn and Kühnen (2013), we selected two measures of corporate financial performance: profitability (Return on Assets), and market performance (market-to-book ratio). We expect a significant positive association of corporate profitability and market performance with materiality assessment disclosure scores. Taken altogether we aim to test the following hypothesis:

H1: Corporate financial performance influences the extent of materiality assessment disclosure amongst GCC listed companies.

3.1.2 Corporate leverage and materiality assessment disclosure

Researchers have examined the relationship between corporate leverage and the extent of voluntary sustainability reporting. The findings in this literature show mixed results with some researchers documenting a positive relationship (Barako et al., 2006; De Beelde & Tuybens, 2015), while others finding a negative relationship (Brammer & Pavelin, 2006; Cormier & Magnan, 2003) or no relationship (Clarkson et al., 2011; Kent & Monem, 2008; Stanny & Ely, 2008) between these two variables. Researchers offer differing explanations for these results. Researchers that note a positive relationship explain that companies with higher leverage will undertake greater disclosures to reduce information asymmetry and lower the cost of capital (Jensen & Meckling, 1976). Further, companies with higher gearing levels are more likely to provide higher levels of sustainability disclosures in an attempt to negotiate better credit terms. Also, high leverage companies need to demonstrate compliance with debt covenants and will do so by providing more information (Lim et al., 2020). Finally, Haniffa and Cooke (2005), using a legitimacy lens, argue that by providing sustainability information, companies can secure legitimacy from creditors and shareholders. Studies which find a negative relationship or no relationship argue that higher leverage companies are financially burdened and therefore cannot afford the cost of sustainability reporting or the reputational and legal costs associated with disclosing potentially damaging information (Cormier & Magnan, 2003; Stanny & Ely, 2008).

However, there is a dearth of studies examining the relationship between leverage and sustainability reporting quality (Hahn & Kühnen, 2013). For example, Clarkson et al. (2008), using a sample of 191 US companies found a significant positive association between leverage and environmental disclosure quality. However, (Brammer & Pavelin, 2006) using a sample of 447 UK companies found that a higher level of leverage decreases the quality of environmental disclosures. Thus, this study proposes the following hypothesis:

H2: Corporate leverage influences the extent of materiality assessment disclosure amongst GCC listed companies.

3.1.3 Corporate governance and materiality disclosure

The impact of good corporate governance on the quality of financial reporting has been well documented in the literature. In this manner, researchers have identified a number of factors that are associated with disclosure quality including: the board of directors (Bananuka, Night, et al., 2019; Bananuka, Tumwebaze, et al., 2019; Nalukenge, 2020), audit committee (Bananuka, Kadaali, et al., 2019; Bananuka et al., 2018), and corporate governance quality (Nalukenge et al., 2018). Extending this work, academics have also explored the impact of good governance on sustainability reporting quality (Zaman, Nadeem, et al., 2020). Researchers have found that corporate governance is a significant determinant of the extent of sustainability reporting (Jain & Jamali, 2016) and has the power and capacity to influence organisational decisions relating to materiality assessment disclosures. Despite its significance and importance, the influence of corporate governance structures on the quality and extent of sustainability reporting has received relatively little academic attention (Hahn & Kühnen, 2013). The limited work in this area indicates that the presence of independent directors on corporate boards has an influence the quality and extent of sustainability reporting. Independent or non-executive directors are appointed to represent a broader group of stakeholders and therefore put pressure on boards to adopt corporate sustainability (Ibrahim & Angelidis, 1995). However, the impact of independent directors on the extent and quality of sustainability reporting provides mixed results. For example, while Prado-Lorenzo et al. (2009) find that independent directors influence the nature and extent of sustainability reporting, others argue that non-executive directors do not have a significant influence on sustainability reporting (Fuente et al., 2017; Haniffa & Cooke, 2005).

In the context of materiality assessment disclosures, we expect that companies with better corporate governance will engage in better sustainability reporting, that is, provide more extensive disclosures on their materiality assessment. Such companies are characterised by effective monitoring of management by the board and are likely to exhibit lower instances of managerial capture. For instance, prior literature indicates that high board monitoring leads to lower managerial entrenchment and high corporate transparency (Jain and Zaman, 2020; Zaman et al., 2018). Conversely, managers in companies characterised by poor corporate governance are more likely to engage in managerial capture and thus withhold or limit their materiality assessment disclosures, thereby maintaining the status quo and avoiding any real transparency and corporate accountability. We followed the prior literature and measured

corporate governance via two measures: (i) corporate governance quality score and (ii) board independence (Hahn & Kühnen, 2013). We expect that low corporate governance quality and a low number of independent directors may increase managerial capture and reduce the extent of materiality assessment disclosures.

H3: Corporate governance is associated with the extent of materiality assessment disclosures amongst GCC listed companies.

3.1.4 Company size and materiality disclosure

In terms of corporate size, researchers have found that larger companies (size measured using a range of financial indicators including total assets and revenue) are more visible and their practices attract greater stakeholder attention (Fortanier et al., 2011; Gallo & Christensen, 2011). Thus, larger companies are more likely to increase the extent and quality of their sustainability reporting than smaller ones. It can also be argued that larger companies have the financial resources necessary to undertake expensive sustainability reporting. Larger companies can also absorb potential costs associated with information transparency (i.e. reputational and legal costs and risks) (Cormier & Magnan, 2003; Haniffa & Cooke, 2005; Kent & Monem, 2008). However, Hahn and Kühnen (2013) note that empirical results in this area are mixed.

However, the size of a reporter poses a unique challenge when drawing causal inferences with materiality assessment disclosures. Prior studies have found that company size does not influence the extent of sustainability reporting quality (Ettredge et al., 2011; Vormedal & Ruud, 2009). However, large companies do attract greater media and regulatory scrutiny and therefore it is plausible to assume that managers in large companies, attempting to protect corporate reputation and to avoid regulatory costs, potentially engage in greater managerial capture and thereby avoid disclosing information on their materiality assessment (Zaman et al., 2018). However, it can also be argued that large companies are accountable to a diverse group of stakeholders to whom they need to justify their reporting decisions, such as, why certain issues were deemed material while others were not. By providing information on their materiality assessment, companies can address stakeholder suspicions around a lack of transparency (Global Reporting Initiative, 2013; KPMG, 2015, 2017). Based on these arguments, we predict that company size is an important determinant for the extent of materiality assessment disclosures.

H4: Corporate size influences the extent of materiality assessment disclosures amongst GCC listed companies.

4. Research method

This section presents the research method used to address the research questions and discusses the method used to collect and analyse the data.

4.1 The Gulf Cooperation Council

The study examines the sustainability reports published by listed GCC companies. The GCC comprises “Arab Muslim majority” countries (Gerged et al., 2018, p. 573). The combined population of the region was approximately 54 million in 2016 (GCC-STAT, n.d.). The GCC states are one of the largest oil and gas exporters in the world (Statista, n.d.). Income from these exports drives the GCC economies, which are ranked amongst the world’s richest nations (World Factbook, n.d.). This wealth translates into a high demand for carbon-intensive goods and services. The largest economy in the GCC is that of KSA with a GDP of 654 billion USD in 2015 (The World Bank, n.d.). This is followed by the UAE (USD 358 billion), Qatar (USD 162 billion), Kuwait (USD 115 billion), Oman (USD 69 billion) and Bahrain (USD 31 billion). In terms of GDP per capita, Qatar leads the GCC with a GDP per capita in 2017 of USD 124,500, followed by the UAE (USD 67,700), Kuwait (USD 66,200), KSA (USD 54,800), Bahrain (USD 48,500) and Oman (USD 45,200) (The World Bank, n.d.).

Research shows that a culture of corporate secrecy is attributed to the Middle East (Leigh, 2011). The lack of corporate transparency is attributed to macro/societal and micro/organisational level characteristics. At a macro-level institutional, “the long period of Ottoman dominance of the region that led to the establishment of a secretive and arbitrary bureaucracy unchecked by any democratically representative institutions may have contributed to this lack of transparency (Leigh, 2011, p. 154). [Further], state-run companies and family-owned businesses (including large conglomerates) are lacking in transparency (Leigh, 2011). In addition, financial markets and corporate governance arrangements remain underdeveloped (Jamali, Jain, Samara, Zoghbi, 2020).

The governments of the GCC have expressed their commitment to achieving the UN SDGs. For example, the KSA’s Voluntary National Review to the 2018 United Nations High-Level Political Forum on Sustainable Development is the Kingdom’s first attempt to conduct a comprehensive review of the status of the SDGs, their alignment with ‘Vision for 2030’, and the actions taken by national entities including the government sector, the private sector, and non-government organizations to fulfil the 2030 Agenda for Sustainable Development. Despite this, there remains a dearth of literature examining sustainability reporting practices in the GCC.

4.2 Sample selection and data collection

To address the research objectives, we focused on listed companies because these are more likely to engage in sustainability reporting and publish their sustainability reports, which could be accessed from their websites. Our sample includes companies from all industries⁷. To identify listed GCC companies we visited the websites of stock exchanges based in the six GCC states. Of these six GCC states, the UAE consists of seven states of which two have stock exchanges of their own – Abu Dhabi and Dubai. Thus, a total of seven stock exchanges were identified, including: Tadawul (KSA), Muscat Securities Market (Oman), Bahrain Bourse (Bahrain), Qatar Stock Exchange (Qatar), Boursa Kuwait (Kuwait), Dubai Financial Market (Dubai) and Abu Dhabi Securities Exchange (Abu Dhabi). From the websites of these seven stock exchanges, we developed a list of 704 companies. These 704 companies' sustainability reporting practices were analysed over a five-year period, yielding a total of 3,520 firm-year observations.

Subsequently, the websites of each company were visited to identify sustainability reports published during the five years from 2013 to 2017. Our sample starts in 2013 due to the availability of annual reports for GCC listed companies. These reports are identified by different names such as: sustainability report, corporate responsibility or corporate social responsibility report and social and environmental report. If a sustainability report was not published, then the company's annual report was analysed to identify potential sustainability disclosures made therein (De Villiers & Marques, 2016). This was done by reading the table of contents and by conducting a word search (keywords included sustainability, corporate social responsibility, social responsibility or environmental responsibility, Environment, Social and Governance (ESG), corporate philanthropy, charity, and corporate donation). Of note, for robustness, all of the reports in PDF format (except for a few which were in JPEG format) were imported to NVivo software for a word query based on a pre-defined search string and found qualitatively similar results.

As a result of this exercise, we found that 52% of listed GCC companies issued either a set of audited financial statements or a brief annual report (i.e. containing the board and CEO's statements, minutes of the annual general meeting and audited financial statements) and 16% provided no report. Thus, only 32% of the listed companies published a sustainability report. These consisted of stand-alone sustainability reports (4%) and sustainability information contained within a single annual report (28%). Hence, a total of 1,147 sustainability reports

⁷ Our industry classification is based on Standard Industry Classification (SIC) available at <https://siccode.com/>

(out of 3,520 reports) published during the five years from 2013 to 2017 were identified (Table 1).

Insert Table 1 about here

We acknowledge two limitations to our data collection. First, sustainability reports published by companies delisted before 2017 were not included in the analysis. Second, we assumed that all companies identified in 2017 had been listed since 2013 and therefore should have been publishing a sustainability report in each of the five years from 2013 to 2017. Despite these limitations, we believe that this study does achieve its objectives of providing an overview of the comprehensiveness of materiality assessment disclosures provided by these companies during the period of analysis.

4.3 Data analysis

The identified sustainability reports were analysed using the technique of content analysis (Krippendorff, 2004). This technique has been extensively used in literature to analyse published sustainability reports (Belal, 2002; Bradley & Botchway, 2018; Haque & Deegan, 2010; Islam & Deegan, 2008). Guthrie et al. (2004, p. 287) define content analysis “[a]s a technique for gathering data, it involves codifying qualitative and quantitative information into pre-defined categories to derive patterns in the presentation and reporting of information. The content analysis seeks to analyse published information systematically, objectively and reliably.” This makes content analysis a particularly effective tool for analysing large sets of data, thereby facilitating both a comparative and longitudinal analysis.

Content analysis can be used to count the frequency of occurrence of certain disclosure items (Kamal & Deegan, 2013) or to assess the extent of occurrence of certain disclosure items by counting words or sentences (Hackston & Milne, 1996) or to evaluate disclosure by scoring disclosure items against a scoring index (De Villiers & Van Staden, 2006). This study uses content analysis to evaluate disclosure by scoring materiality assessment disclosures from zero (no information provided) to five (comprehensive disclosure).

Score 0: A score of zero is allocated to those reporters who do not refer to a materiality assessment. In such cases, sustainability report users: (1) are not made aware of the concept of materiality assessment (the underlying process which determines the content of sustainability reports); (2) do not know if a materiality assessment was undertaken; and (3) if a materiality assessment was undertaken, do not know whether the process adopted meets the requirements of internationally recognised standards and agreed-upon best practice in sustainability reporting (see Appendix A1 for example).

Score 1: A score of one is allocated to those reporters who claim to have undertaken a materiality assessment but do not provide any information on the steps undertaken in their assessment. These reporters score a point because they at least create an awareness of the concept of a materiality assessment (a process underlying the sustainability report) amongst report users and potentially open themselves up to demands for more comprehensive reporting in the future. However, the remaining two limitations discussed for zero score reporters remain unaddressed (see Appendix A1 for example).

Score 2: A score of two is allocated to those reporters who provide limited information on how the materiality assessment was undertaken. The term ‘limited’ refers to reports that offer a brief commentary on some (or all) of the steps undertaken by the reporter in identifying material issues. However, no materiality matrix is provided to sustainability report users. A consequence of providing limited disclosure is that sustainability report users lack a clear and comprehensive understanding of how the reporter undertook the materiality assessment to prepare its sustainability report in that given year, and whether the process adopted meets internationally recognised standards. The lack of a materiality matrix means that users are unable to understand how (i.e. the basis or criteria used) issues, once identified, were prioritized into the material and non-material (i.e. excluded from the sustainability report) issues.

In scoring disclosures, we do not use any single benchmark (e.g. the GRI). We recognise that while the GRI outlines a four-step approach, other experts such as KPMG present a seven-step model (see Section 2.2). These differences represent variations in practice, which are to be expected given that materiality - and how it should be reviewed; i.e. a materiality assessment - is a relatively new and evolving concept in the field of sustainability reporting. Instead, we focus on evaluating the comprehensiveness of materiality assessment disclosures provided by the reporters and assessing to what extent these disclosures satisfy the information needs of sustainability report users (see Appendix A1 for example).

Score 3: A score of three is allocated to those reporters who provide limited information on their materiality assessment. However, in comparison to the previous group of reporters, these companies include a materiality matrix in their disclosure. The matrix provides a visual summary of the prioritisation of issues (and the criteria used) by the reporter (Global Reporting Initiative, 2015). Thus, while sustainability report users lack a detailed and comprehensive understanding of the materiality assessment, they can assess how identified issues were prioritised into material and non-material disclosures (see Appendix A1 for example).

Score 4: A score of four is allocated to those reporters who provide a comprehensive disclosure on their materiality assessment but fail to provide a materiality matrix. The term

“comprehensive disclosure” refers to providing a clear and complete presentation of the materiality assessment. The disclosure provided should allow users to understand the various steps adopted by the reporter and to evaluate whether these steps are suitable and meet the requirements of internationally recognised standards and agreed-upon best practice in sustainability reporting (see Appendix A1 for example).

Score 5: A score of five is allocated to those reporters who provide comprehensive disclosure on their materiality assessment as well as providing users with a materiality matrix⁸. Table 2 provides a summary of the scores (see Appendix A1 for example).

Insert Table 2 about here

We recognize the subjectivity inherent in differentiating between limited and comprehensive disclosures. We addressed this by providing examples of disclosures with scores from one to five as presented in Appendix A. This allows the reader to gain a better understanding of how limited disclosure compares against comprehensive disclosure. Also, our approach is based on the recommendations of Beske et al. (2020) who argue in favour of using ranking indexing to analyse materiality assessment disclosure quality. Further, we argue that reporters have a range of standards and frameworks to assist them in undertaking a materiality assessment and that our index is broadly based on the recommendations of the GRI which is the most popular sustainability reporting standards used across the world (KPMG, 2017).

The identified sustainability reports were analysed to evaluate the comprehensiveness of materiality assessment disclosures. To do this, we first identified materiality assessment disclosures provided in the sustainability reports. This was done by searching for keywords appearing in the PDF file (e.g. material, materiality, materiality assessment, materiality exercise, materiality process, materiality approach, materiality analysis, materiality determination, stakeholder engagement, materiality matrix, and so on.) and manual reading of JPEG format sustainability reports. If none of these words appeared in the search, the sustainability report was reviewed to identify potential sections that would provide disclosure on the reporter’s materiality assessment. The identified disclosures were then scored, and the Excel worksheet was updated. If no reference was made to materiality assessment, then the reporter was allocated a score of zero. A score of one to five was allocated based on the judged disclosure over materiality.

⁸ There is a risk that some reporters may claim to have undertaken a comprehensive assessment but, may have only undertaken a loose informal assessment. However, with increasing trends in sustainability assurance (Farooq and De Villiers, 2018, 2019b; KPMG, 2017), this risk is mitigated (to an extent) if an external sustainability assurance provider reviews or verifies the reporter’s claims and disclosures on how the materiality assessment was undertaken.

To maintain the reliability of the coding process, one of the authors recorded the results of two randomly chosen reports on a separate Excel sheet. Thereafter, the lead author of the study independently repeated the same process. We then applied the K-alpha test to check the coding reliability (Hayes & Krippendorff, 2007; Krippendorff, 2018). The K-alpha score was 0.87 which is well above the recommended score of 0.80 (Krippendorff, 2018). Further discussion between the authors clarified the disagreement and the agreed coding/score were carried out on the remaining reports. This ensured that there was a consensus amongst the research team on the scores allocated (De Villiers & Alexander, 2014). Of note, the coding/scoring of sustainability reports containing materiality assessment disclosures was undertaken by one researcher and the work was checked by the other two researchers. The detailed examples of disclosure scores are provided in Appendix A of this study.

4.3.1 Determinants of materiality disclosure

To estimate the company-level characteristics on materiality disclosure, we estimated Equation 1 using fixed-effect ordered logit regression. Fixed effects ordered logit model allows researchers with panel data and an ordinal dependent variable (i.e. materiality assessment disclosure is 0 to 5) to control time-invariant unobserved heterogeneity (Baetschmann et al., 2015). We also used the Poisson regression as an alternative estimation because of the nature of our dependent variables (with count 0 to 5).

$$Materiality\ Disc_{i,t} = \varphi_0 + \sum_{j=1}^n \theta_j X_{j,i,t} + \sum_{k=1}^m \delta_k C_{k,i,t} + \varepsilon_{i,t} \quad (\text{Equation 1})$$

Where i represents the company and t represents time (year); $Materiality\ Disc_{i,t}$ represents the materiality assessment disclosure score for “ i ” company at year “ t ” year (which is manually developed in this study); $X_{j,i,t}$ represents the four sets of independent variables for a company i at year t ; (i) Corporate Financial Performance measured Return on Asset (ROA) and market-to-book value (MTB), (ii) Corporate Leverage measured as total debt to total equity, (iii) Corporate Governance Quality captured as the number of independent board directors and Thomson Reuters Eikon CG quality score and (iv) Company Size captured as the natural logarithm of total asset. $C_{k,i,t}$ represents the macroeconomic level control variables to limit the countries' effect. These variables are taken from World Bank Governance Indicators Database and include Voice and Accountability Index, Regulatory Quality, GDP and GDP growth (see Appendix A2 for variables details).

5. Findings and analysis

This section presents the findings from the study. The analysis is organised into three parts. The first provides an overview of sustainability reporting rates among listed GCC companies. The second evaluates the comprehensiveness of materiality assessment disclosures. The third provides examples of materiality assessment disclosures scored from one to five.

5.1 Overview of sustainability reporting rates

At a regional level, the analysis reveals an increasing trend in sustainability reporting over the five years. The study found that 40% of listed GCC companies engaged in sustainability reporting in 2017 (compared to 25% in 2013). This trend reflects regional regulatory efforts to promote sustainability. For instance, the launch of the Middle East Sustainable Investment Forum (MESIF)⁹ by the Qatar Stock Exchange in 2017, the introduction of ‘The Pearl Rating System’ for Estidama¹⁰ by the Abu Dhabi government with the aim of addressing sustainability challenges in construction projects, and KSA’s commitment to implementing UN sustainable development goals¹¹ have encouraged companies operating in the region to demonstrate their efforts towards promoting sustainability through the publication of sustainability reports.

The results reported in Table 3 indicate the highest sustainability reporting rates were observed in Bahrain and Qatar, where 52% of listed companies published a sustainability report in 2017 (up from 39% and 41% in 2013 respectively). This was followed by KSA, where disclosure rates were 43% in 2017 (up from 31% in 2013). The success of Bahrain and Qatar is led by government initiatives for sustainability development. For instance, the Bahrain government is engaged in efforts to wean the economy away from oil exports – making it a regional pioneer in economic diversification. Due to these diversification initiatives, the oil and gas sector in Bahrain accounted for 19% of GDP in 2017 compared with 43.6% in 2000¹². Similarly, the Qatar Stock Exchange is working to promote responsible investment (e.g. Middle East Sustainable Investment Forum), prompting listed companies to report sustainability information. The lowest sustainability reporting rates were observed in Oman, Kuwait, Dubai and Abu Dhabi, where only 34%, 36%, 36% and 37% of listed companies published a sustainability report in 2017 (up from 22%, 16%, 20% and 26% respectively in 2013) (See Table 3). The lower rates of disclosures are not surprising as sustainability reporting remains a largely voluntary exercise. Thus, while disclosure rates have improved over time, a

⁹ <https://sustainabilityexcellence.com/sustainability-excellence-launches-the-middle-east-sustainable-investment-forum/>

¹⁰ Estidama is Arabic for sustainability: https://www.upc.gov.ae/-/media/files/upc/media/prdm/prrs_v1.ashx.

¹¹ https://sustainabledevelopment.un.org/content/documents/20230SDGs_English_Report972018_FINAL.pdf

¹² https://www.cidob.org/en/publications/publication_series/notes_internacionales/n1_189/bahrain_s_economy_oil_prices_economic_diversification_saudi_support_and_political_uncertainties

significant majority of listed entities in the GCC fail to provide their stakeholders with information on their sustainability performance.

Insert Table 3 about here

The highest sustainability reporting rates were observed for companies operating in the transportation and public utilities sector (see Table 4), which accounted for 66% of the sustainability reports published in 2017 (up from 59% in 2013). This was followed by the finance, insurance and real estate sector, where disclosure rates rose from 28% in 2013 to 42% in 2017. Services and manufacturing companies accounted for 38% and 36% of sustainability reports published in 2017, while the lowest disclosure rates in 2017 were observed to be in the retail trade, mining and construction sectors with 17%, 26% and 29% of companies publishing a sustainability report, respectively.

Insert table 4 about here

5.2 GRI adoption rates

At a regional level, the analysis indicates a decline in GRI adoption rates from 12% of sustainability reporters referring to the GRI in 2013 to just 8% in 2017. At a country level, the highest adoption rates were found among listed companies in Qatar, with 16.7% of sustainability reporters making some reference to the GRI in 2017 (Panel A of Table 5). The lowest adoption rates were amongst listed companies in Kuwait at 3.1%. GRI adoption rates increased in Bahrain, Qatar and KSA while Abu Dhabi, Dubai, Kuwait and Oman experienced a decline during the five years of analysis.

Insert Table 5 about here

5.3 Materiality assessment disclosure rates and scores

At a regional level, the analysis indicates a decline in the number of sustainability reports containing information on materiality assessment (from 10.2% in 2013 to 8.6% in 2017) among the listed GCC companies). At a country level, the analysis shows that the highest disclosure rates were among listed companies in Qatar (12.5% in 2017) while the lowest disclosure rates were observed among listed companies based in Kuwait (3.1% in 2017) (Panel B of Table 5).

In terms of materiality assessment scores, the analysis shows that at a regional level a slight improvement in the comprehensiveness of materiality assessment disclosures was noted, with materiality assessment scores increasing from 2.39 in 2013 to 3.08 in 2017. At a country level, listed companies based in Abu Dhabi and Oman both scored 4.33 in 2017, moving up from 2.33 and 2.5 respectively in 2013 (Panel C of Table 5). Sustainability reporters based in Qatar, Bahrain and Kuwait scored 3.67, 3 and 3 respectively in 2017 (up from 2, 2 and 2.5 respectively

in 2013). In comparison, the lowest scores were awarded to listed companies based in Dubai and KSA, where the average materiality assessment scores in 2017 were 2.67 (2.33 in 2015) and 2.5 (2.35 in 2013).

5.4 Determinants of materiality assessment disclosure

Table 6 presents the descriptive statistics of the variables included in our study. Our dependent variable's mean value (1.486) is on the lower side, indicating poor quality of materiality assessment disclosure across our sample companies. The companies in our sample have a decent size with a mean value of 22.5. In terms of performance variables, the results show above average (62.7%) debt in the capital structure with an average profit (Return on Assets) of 12.9%. With an average MTB of 1.660, 23.4% of our sample companies lack independent board structures. This trend can be attributed to the prevalence of kinship type culture in the Middle East. However, overall, we found on average CG quality disclosure across our sample period is 62 %. The macro-control variables indicate a lack of voice freedom (15.4%) with above-average regulatory quality (68%) and lower economic growth (2.9%).

Insert Table 6 about here

Table 7 results report the pairwise correlation coefficient for explanatory variables and control variables. The results of the Pearson coefficient are well below the threshold, at 0.80, indicating no issue of multicollinearity¹³ among explanatory and control variables.

Insert Table 7 about here

Table 8 reports the regression results for Equation 1. The fixed effect ordered logic regression results without and with control variables are presented in Model (1) and (2) respectively. Model (3) uses the regression results of Equation 1 based on an alternative estimation technique, the Poisson regression. From the corporate financial performance variables in Model (2), we found that companies generating high profitability (ROA: $\beta = 0.121$, $p < 0.01$) are significantly positively associated with materiality assessment disclosure score. We fail to find any association between market-to-book ratio (MTB: $\beta = 0.0979$, $p > 0.10$) and materiality assessment disclosure scores, indicating corporate market performance does not correlate with materiality assessment disclosures¹⁴. Overall, these results provide partial support to H1 - that

¹³ Multicollinearity refers when two or more explanatory variables in multiple regression are highly correlated with each other. In such cases i.e. presence of multicollinearity, the result showing the effect of explanatory variables on dependent variables will be biased.

¹⁴ We have also used an alternative measure of corporate market performance, i.e. Tobin-Q. Following Jain and Zaman, (2020), we measured Tobin-Q as Market value of equity + book value of equity – deferred tax / book value of assets. The statistically insignificant result of Tobin-Q confirms our earlier conjecture that market performance does not matters in terms of Materiality Assessment Disclosure Score (results available upon request).

better corporate financial performance (i.e. Return on Assets) influences the extent of materiality assessment disclosure amongst GCC listed companies. This may indicate a reduction in instances of managerial capture which then increases the extent of materiality assessment disclosures. In terms of H2, we find that corporate leverage is significantly negatively (Leverage: $\beta = -0.755$, $p < 0.01$) associated with materiality assessment disclosure scores. These results suggest the possibility of the presence of managerial capture and suggest that managers in companies with higher gearing publish low-quality sustainability reports that avoid materiality assessment disclosure. From the corporate governance perspective, our results show that more independent directors on corporate boards are significantly and positively (Board independence: $\beta = 0.0434$, $p < 0.01$) related to materiality assessment disclosure scores. These results suggest that independent directors are effective in monitoring management and may also keep a check on managerial capture – which potentially increases the extent of materiality assessment disclosures. We also find that the overall corporate governance quality is significantly and positively (Governance Quality: $\beta = 0.0586$, $p < 0.01$) associated with materiality assessment disclosure scores. Taken together, these results provide strong support to H3 and indicate that companies with better corporate governance are more transparent potentially indicating lower levels of managerial capture. For H4, we fail to find any support. Our result shows that company size does not (Company size: $\beta = 0.0144$, $p > 0.10$) influence the extent of materiality assessment disclosures. In contrast to our hypothesized contentions, this finding is consistent with prior studies that found no relationship between company size and the extent and quality of sustainability reporting (Ettredge et al., 2011; Vormedal & Ruud, 2009).

Insert Table 8 about here

From the perspective of our control variables, the results show that companies in countries with a high voice and accountability score are significantly positively associated (Voice and Accountability Index: $\beta = 0.0127$, $p < 0.05$) with the extent of materiality assessment disclosures. This finding implies countries with secretive societies are characterised by relatively weaker corporate governance mechanisms which result in a lack of transparency and poor materiality assessment disclosures. We also found that companies based in high GDP economies (ln.GDP) are significantly negatively associated (ln.GDP: $\beta = -2.612$, $p < 0.01$) with the extent of materiality assessment disclosures. This is likely to be because GCC economies are heavily dependent on the oil and gas companies for their GDP. This is in line with our earlier analysis for the industry levels that depicts a large portion of environmentally sensitive industries exhibits low sustainability reporting. We also find no association of regulatory

quality and GDP growth with materiality assessment disclosures which highlights the complexities of the GCC economies in relation to transparency and corporate accountability and needs further scholarly attention.

We also test the robustness of these results by using an alternative estimation technique, the Poisson regression. The Poisson regression results presented in the Model (3) are qualitatively similar to our fixed effect ordered logit model.

6. Discussion

This study attempts to answer two research questions: (i) what is the extent of material assessment disclosures and (ii) what corporate characteristics (including corporate financial performance, corporate leverage, corporate governance and company size) influence materiality assessment disclosures scores? To answer these research questions, a content analysis of sustainability reports over the five years from 2013 and 2017 was carried out to evaluate the extent of materiality assessment disclosures. The determinants of materiality assessment disclosure were examined using regression analysis.

Our findings reveal that sustainability reporting rates have improved in the GCC region, increasing from 25% in 2013 to 40% in 2017. The improvement in disclosure rates can be attributed to the efforts of the GCC states toward transitioning to a more sustainable growth path. These efforts are in line with the recommendations of international institutions such as the World Bank and United Nations which have encouraged the GCC states to prioritise sustainable development and reduce their dependency on hydrocarbon revenues at a time declining energy prices (Barbuscia & Khalid, 2019). However, we note that more effort is required as 60% (in 2017) of listed companies do not provide their stakeholders with information on their sustainability performance. These findings are in line with the KPMG survey (KPMG, 2017, p. 11) which found sustainability reporting rates are “traditionally low.” The failure of a majority of companies to publish a sustainability report is a potential indication of the presence of managerial capture which requires government attention.

At a country level, listed companies in Qatar led the GCC with 52% of listed companies engaged in sustainability reporting while listed companies in Oman lagged, with only 34% providing their stakeholders with information on their sustainability performance. This is of concern as Oman’s economy “is particularly vulnerable to oil price swings” (Barbuscia & Khalid, 2019). In comparison, Qatar’s higher score can be attributed to the Qatari government’s initiatives and its active participation in the Kyoto Protocol (Raouf, 2008).

At an industry level, the highest sustainability reporting rates were found among listed companies operating in the transportation and public utilities industry (an average of 59% over the sample period) while the lowest disclosure rates were observed in mining companies (12%). Further, 21% of companies operating in environmentally sensitive industries such as manufacturing, construction and mining, provide stakeholders information on their sustainability performance over the five-year period of analysis. These figures are well below the global average reported in the KPMG 2017 survey which found that 76% of environmentally sensitive industries¹⁵ engaged in sustainability reporting. The low disclosure rates in the environmentally sensitive sectors are surprising given that a significant body of sustainability reporting literature is convinced that companies with a high environmental footprint are more likely to disclose information on their sustainability performance (Haufler, 2010; Mirza & Zimmer, 2001). These findings potentially indicate that managers in these companies take advantage of voluntary reporting and avoid corporate accountability. In terms of GRI adoption rates amongst sustainability reporters, the study finds that these have declined from 11.9% in 2013 to 8.2% in 2017. In comparison, global GRI adoption is approximately 89% in the world's largest 250 companies and 74% amongst the top 100 companies from a sample of 49 countries (KPMG, 2017). These findings indicate that managers in listed GCC companies are not following the requirements of internationally recognised standards as doing so restricts managers' ability to control the reporting agenda, giving rise to an increased likelihood of managerial capture.

In terms of materiality assessment disclosure rates, the study finds that the number of sustainability reports offering stakeholders information on how the reporter undertook the materiality assessment declined from 10.2% of published sustainability reports in 2013 to 8.6% in 2017. The decline can be attributed to a reduction in GRI adoption rates in the region. At a country level, in 2017 the materiality assessment disclosure rates were the highest in Qatar, which leads the GCC in terms of GRI adoption rates. In comparison, the lowest materiality assessment disclosure rates in 2017 were observed in Kuwait which also has experienced the most significant decline in GRI adoption rates in the GCC, from 10.7% in 2013 to 3.1% in 2017. These results confirm the presence of managerial capture, as a decline in the adoption of internationally recognised standards leads to a decline in materiality assessment disclosures.

In terms of materiality assessment disclosure scores, the study indicates that the average scores for the GCC region have improved, moving from 2.39 in 2013 to 3.08 in 2017. These results

¹⁵ From the KPMG (2017) survey we group oil and gas, chemicals, mining, automotive, construction and materials, and industrials, manufacturing and metals into one cluster for ease of comparison.

are interesting because we see a decline in the number of sustainability reports that provide information on the reporters' materiality assessment whilst simultaneously finding that of the reporters that do provide their stakeholders with information on their materiality assessment, there is an improvement in the quality of such disclosures, witnessed by an increase in materiality assessment disclosures scores. These results motivate our second research question: what corporate characteristics influence materiality assessment disclosures scores? These corporate characteristics include corporate financial performance, corporate leverage, corporate governance and size and are based on the sustainability reporting quality literature (Hahn & Kühnen, 2013).

In terms of financial performance, profitable (i.e. high Return on Assets) companies may have access to greater financial resources necessary to support the publication of high-quality sustainability reports. Further, profitable companies are usually characterised by better management practices and have less need for undertaking managerial capture (Baker, 2010). In terms of the market-to-book ratio, we do not find any association between market-to-book ratio and materiality assessment disclosure scores. Overall, these results suggest that corporate financial performance partially influences materiality assessment disclosure scores. These findings are in line with prior studies which suggest that heterogeneity in corporate financial performance leads to divergent organisational outcomes (Jain and Zaman, 2020).

In terms of corporate leverage, the negative association between corporate leverage and materiality assessment disclosure scores suggests that companies with high leverage are financially burdened and cannot afford the cost of preparing high-quality sustainability reports or the reputational and legal costs associated with disclosing potentially damaging information. These results contrast to studies that argue that companies with higher gearing levels are likely to disclose higher quality results (Clarkson et al., 2008). We find that strong corporate governance (including the presence of independent directors on boards) are effective in monitoring managers and reducing the negative impact of managerial capture.

Finally, we do not find any association between company size and materiality assessment disclosure scores. These findings are in line with the extant literature which finds no relationship between company size and sustainability reporting quality (Ettredge et al., 2011; Vormedal & Ruud, 2009).

7. Conclusion

Sustainability reports are often criticised for not providing stakeholders with information on material issues (i.e. sustainability reporting suffers from managerial capture). One solution, advocated by standard setters (such as the GRI), practitioners (KPMG, 2013) and scholars (De

Villiers et al., 2014; Jones et al., 2016), is for reporters to provide their readers with information on how they undertake a how materiality assessment – how are issues and topics identified or for inclusion in their sustainability reports . This information would allow users to understand the reporter’s process and why some issues are reported on while others are excluded, using a materiality matrix. Additionally, users can evaluate the materiality assessment by comparing it against the requirements of internationally recognised standards, such as the GRI. This would promote greater confidence in sustainability reports among users.

It is also important to understand what corporate characteristics influence materiality assessment disclosures amongst reporting entities. However, there remains a dearth of studies examining materiality in sustainability reporting (Beske et al., 2020; Unerman & Zappettini, 2014). Further, despite the geopolitical significance of the GCC, the region has received little academic attention (Gerged et al., 2018).

Sustainability reporting rates have improved across the sample period (25% in 2013 to 40% in 2017), though 60% of listed GCC companies do not engage in sustainability reporting. The use of internationally recognised standards has also declined with only 8.2% of sustainability reports in 2017 referring to internationally recognised standards, compared to 11.9% 2013. While materiality assessment disclosures have improved (2.39 in 2013 to 3.08 in 2017), the number of sustainability reports that offer information on how the reporter identifies material issues has declined (10.2% in 2013 to 8.6% in 2017). Thus, materiality assessment disclosure practice varies, with some reporters offering users comprehensive information on their materiality assessment while others provide little (or in some instances no) information on how this was done. By failing to provide information on their materiality assessment, reporters are able to avoid stakeholder scrutiny over their underlying reporting processes and can maintain their control over the sustainability reporting agenda, and the potential for managerial capture persists. These findings extend Michelin et al., (2015) who note the symbolic use of sustainability reporting by companies and express scepticism that such practices are subject to managerial capture and fail to promote transparency and corporate accountability. Further, the study finds that materiality assessment disclosure scores are positively influenced by better corporate governance, lower corporate leverage and higher financial performance (i.e. higher Return on Assets). However, we find that company size and market-to-book ratio does not influence materiality assessment disclosure scores.

7.1 Contributions

At an academic level, the contributions from the study are twofold. First, the study addresses the call for greater research examining materiality in sustainability reporting and contributes to

the limited literature in this area (Beske et al., 2020; Unerman & Zappettini, 2014). Scholars have attributed the inconclusive findings of corporate sustainability disclosure and performance nexus to the lack of consideration of materiality disclosures (see, Khan et al., 2016) and hence there is a need for greater research in this area to contribute to the literature. Our study fulfils this gap and brings novel insights from a managerial capture lens. Surprisingly, despite its relevance, this lens has not been widely used in the sustainability reporting literature (see, Hahn and Kuhnen, 2013). Improvements in the quality of materiality assessment disclosures have the potential to promote transparency and corporate accountability. Furthermore, the study offers useful insights into the sustainability reporting practices of companies based in high GDP economies generally and the GCC more specifically (Amran & Haniffa, 2011; Beske et al., 2020; Gerged et al., 2018). In this way, the study contributes to the limited existing literature examining a region that carries significant social, political and economic importance. Further, the GCC states have expressed a commitment to sustainable development and academic research can assist practitioners, reporters and regulators in improving the quality of their sustainability reporting. The study is novel in the sense that it captures the materiality assessment disclosure score of companies in a highly under-research region, the GCC, and also identifies and empirically tests corporate-level antecedents of materiality assessments. Further, academic attention to sustainability reporting rates in developing countries is useful as these countries are in the early stages of their sustainability reporting journey and variations in practice are more likely.

At a practical level, the findings may prove useful to practitioners (including sustainability reporting managers and sustainability assurance providers) with regard to what constitutes best practice in sustainability reporting. Sustainability reporting managers are encouraged to provide comprehensive disclosure over their materiality assessments. The examples provided in this study will assist managers in this respect. Further, such disclosures should be included in the scope of sustainability assurance engagements (Farooq & De Villiers, 2019a) and sustainability assurance providers can use the examples of materiality assessment disclosures when evaluating corporate materiality assessment disclosures. Thus, regulators are encouraged to introduce tougher regulations around materiality assessment disclosures in sustainability reporting and sustainability assurance. Further, stock exchange regulators should introduce tougher corporate governance requirements around board structure (i.e. independent directors) and sustainability reporting standards (i.e. the use of internationally recognised sustainability reporting standards, e.g. GRI standards) as our results show that these variables lead to higher materiality assessment disclosure scores (results available upon request). Therefore, regulators should consider including these recommendations as part of corporate listing requirements.

Finally, the societal implications of these recommendations are improved sustainability reporting quality, specifically better materiality assessment disclosures, which can lead to transparency and corporate accountability. Such changes have the potential to further the sustainability agenda and support the GCC states' desire to implement the UN SDGs and transition to sustainable development.

7.2 Limitations and future research

The low reporting rates, low adoption of the GRI and poor materiality assessment disclosures indicate a need for greater research into the sustainability reporting practices of organisations (private and public, large listed and smaller non-listed) in developing countries, especially those located in the Middle East, Asia and Africa. It is particularly worth exploring the institutional and cultural inhibitors that are causing a decline in sustainability reporting rates, the adoption of international standards such as the GRI, and the materiality assessment disclosures. Future studies should involve comparing reporters' claims on how the materiality assessment was performed against how the assessment was carried out, using either survey or case study research methods. Researchers should also consider materiality assessment disclosures offered in other media, such as reporters' websites. This study is limited to the examination of reporters' materiality assessment disclosures - how they conducted their materiality assessments - by developing a scoring index broadly based on the GRI index. However, considering the significance of International Integrated Reporting Council (IIRC) and Sustainability Accounting Standard Board (SASB) literature in materiality determination, it is recommended for future researchers to investigate the peculiarities associated with use of specific standards (e.g. GRI, AccountAbility, 2018 AP1100 and IIRC) on materiality assessment disclosure quality. This study is limited to the identification and testing of four determinants of materiality assessment disclosure scores. Future researchers should consider the impact of other corporate characteristics, such as ownership structure, media coverage and gender diversity, on the quality of materiality assessment disclosures. As materiality assessment disclosures can be influenced by investor sentiments, it is recommended for future researchers to capture the nuances associated with investor sentiments. In addition, the cost of corporate disclosures varies directly with the quality of their information. Future researchers should also consider incorporating this variable in their analysis to offer a more nuanced discussion of corporate reporting behaviour. Finally, there is a need for more interpretive (qualitative) and case studies, examining the extent of managerial (and professional) capture in sustainability reporting practices by companies based in the GCC region. The potential for the materiality assessment in feeding into corporate sustainability planning and decision making is also worth examining.

Appendix A1: Examples of materiality assessment disclosures

This section provides examples of materiality assessment disclosures that achieve scores ranging from one to five:

A1.1 Materiality assessment score 1

An example of a reporter that claims to have conducted a materiality assessment without providing any disclosure on the materiality assessment is Almarai (KSA) who, in its 2017 annual report, states:

“We aim to disclose our performance against our sustainability goals in a dedicated Sustainability Report that will cover 2017 and appear in 2018. We made progress in applying the materiality assessment process to identify issues that reflect Almarai’s significant economic, environmental and social impacts, or those that most influence the assessments and views of our stakeholders. This continuous materiality assessment is helping us focus on the sustainability issues that matter most and identify the critical issues we need to manage. Assessment of materiality will allow us to develop a strategic sustainability programme, with a clear road map and goals. Materiality will be the anchor of our sustainability strategy as we move forward” (Almarai, Annual Report, 2017, pg 44).

Other than the information quoted above, the reporter provides no discussion on how the materiality assessment was undertaken or how (in terms of criteria used) it prioritised issues through a materiality matrix.

It was found that in some cases, reporters will undertake materiality assessment in one reporting period and then use the results of that assessment in driving the content of multiple subsequent reports. One example is Sabic (KSA) which refers to its 2013 materiality assessment for sustainability reports published in 2014, 2015 and 2017 (no sustainability report was published in 2016). This approach to disclosing information on the materiality assessment creates two issues. First, there arises a question of the frequency with which reporters undertake a materiality assessment (e.g. every year versus every five years) and how frequently they should be undertaking their materiality assessment. The challenge for regulators and standard setters is that each reporter is unique, and while some reporters may experience rapid internal or external change/s (prompting a fresh materiality assessment), others may find that their material issues have remained relatively stable. The latter group of reporters must be required to undertake an annual materiality review aimed at validating the suitability of materiality assessments undertaken in previous years and to disclose information about how the review was conducted within each sustainability report.

Second, reporters must ensure that if they refer to materiality assessments undertaken in previous reporting periods and choose not to provide information on how this was done in the current sustainability report, then copies of the old sustainability reports (which contain information on the materiality assessment) must be available online for stakeholders. For example, ACWA (Oman), in its 2016 sustainability report states:

“The details of our revised materiality assessment and all other GRI reporting requirements have been collated into a Sustainability Supplement to enable easy reference. The Sustainability Supplement is an integral part of this annual performance report and is available from the Annual Report section of our website, www.acwapower.com” (ACWA, Sustainability Report, 2016, pg. 14).

When the supplement was examined it was found that it simply contained a table of material issues without any discussion of how these were identified or on what basis or criteria they were ranked. Thus, it may be appropriate for reporters to simply reproduce their materiality assessment disclosures in subsequent reports, if material issues have remained relatively stable.

A1.2 Materiality assessment score 2

An example of a reporter that provides limited disclosure without disclosing a materiality matrix is Kahramaa (Qatar), which in its 2016 sustainability report gave limited information on its materiality assessment.

“Identifying material sustainability issues: We engage with our stakeholders on various sustainability topics on an ongoing basis. In 2014, we have strengthened our efforts even further. At the beginning of our report development process we have conducted a formal materiality assessment. Our aims were to initiate the conversation with our various stakeholder groups around what matters to them and what they would like to see from KAHRAMAA, and to identify, filter, and prioritize our key sustainability aspects. In determining and prioritizing these areas, we considered whether they reflect KAHRAMAA’s most significant economic, environmental and social impacts, and substantially influence our stakeholders’ assessments and/or decisions about our organization. The content of this report has been compiled through discussions with KAHRAMAA’s senior management and decision-makers, as well as through two materiality workshops - one for internal stakeholders, including representatives from various departments, and another for our external stakeholder groups. During these workshops we were able to capture key feedback on our first sustainability report, and to hear directly from our audiences on their future expectations from KAHRAMAA. We have reviewed our most material issues already

identified in the previous report to assess their continuous relevance to both our organization and the stakeholders. We have also considered the GRI G4 Aspects list and have benchmarked peers to understand what they considered material and how they report on these topics” (Kahramaa, Sustainability Report, 2016, pg. 16).

“During the report preparation process, we have specifically engaged a number of internal and external stakeholders as part of the materiality assessment. Our intent was to invite their perspectives and recommendations on our report and to hear from them regarding our most material sustainability aspects. The feedback was positive and our effort for the first sustainability report was highly appreciated” (Kahramaa, Sustainability Report, 2016, pg. 17).

The reporter claims to develop a materiality matrix (pg. 4) but does not disclose the materiality matrix within the sustainability report.

A1.3 Materiality assessment score 3

An example of a reporter that provides limited disclosure along with a materiality matrix is Tasnee (KSA), which in its 2017 sustainability report states:

“Conducted workshop on “Materiality”. Completed materiality assessment for identifying top Sustainability issues in TPC via engagement of internal stakeholders & external expert opinion” (Tasnee, Sustainability Report, 2017, page 5).

“As part of sustainability management program, TASNEE Petrochemical Complex (TPC) has developed first sustainability materiality assessment by engagement of internal stakeholders and the external expert opinion that defines & ranks the issues and topics that have the highest impact on company & stakeholders. On the basis of this assessment TPC management selected company material topics. TPC have focused on the majority of topics that fell within the high importance for company and high importance for Stakeholders. These topics are considered to be the most important to our business. Sustainability management begins with identifying and defining the topics and issues that have the most significant impact on company’s operations and stakeholders” (Tasnee, Sustainability Report, 2017, page 6).

A materiality matrix (p. 6) prioritises issues based on internal stakeholders (x-axis) and external stakeholders (y-axis) and identifies and prioritises 48 issues.

A1.4 Materiality assessment score 4

An example of a reporter that provided comprehensive disclosure over its materiality assessment without providing a materiality matrix is WOQOD (Qatar), which in its 2016 sustainability report outlined a four-step materiality assessment process (identification, prioritisation, validation and review) in line with the recommendations of the GRI. However, a materiality matrix is missing from the discussion. Instead, the reporter simply states:

“STEP 2: PRIORITIZATION: After considering a list of relevant topics which will be covered in the report which are likely to be a list containing a selection of GRI Aspects and GRI sector disclosures that are complemented, if needed, by other topics, the organization should prioritize them. This involves considering the significance of their economic, environmental and social impacts for their substantive influence on the assessments and decisions through stakeholder consultations” (WOQOD, Sustainability Report, 2016, pg. 26-27).

This indicates that some reporters are perhaps unwilling to share with their stakeholders: (1) the issues that they identified through the materiality assessment; and (2) the criteria/basis used to rank/prioritise issues between material (disclosed) and immaterial (not disclosed).

A1.5 Materiality assessment score 5

An example of a reporter that provides comprehensive disclosure over its materiality assessment and a materiality matrix is Dolphin Energy (Abu Dhabi), which scored 5 for its 2015 sustainability report. The company adopts the GRI guidelines and presents a four-step approach to its materiality assessment. A materiality matrix (p. 6) prioritises issues based on significance to Dolphin Energy (x-axis) and significance to stakeholders (y-axis) and identifies and prioritises 21 issues into “least material”, “somewhat material” and “very material” categories.

Appendix A2: Variables definition

Variables	Description	Source
Materiality Disc. Score	Materiality assessment disclosure score captured through content analysis by scoring materiality assessment disclosures from zero (no information provided) to five (comprehensive disclosure in line with the GRI requirement) (See appendix A1 for detailed construction)	Author's compilation
Leverage	Leverage is the ratio of total debt to total assets.	Author's calculation
ROA	Return on assets is the ratio of income before extraordinary items to total assets.	Author's calculation
MTB	Market to book ratio.	Author's calculation
Board independence	Percentage of independent director to total director on board	Thomson Reuters Eikon
Governance Score	Governance score takes values from 0 to 100 with the lowest values correspond to low corporate governance.	Thomson Reuter Eikon
Company Size	Natural log of total asset	Author's calculation
Voice and Accountability Index	World Governance Indicators that captures perception of the extent to which country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media	World Bank
Regulatory Quality	World Governance Indicators that captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development	World Bank
GD Growth	Capture growth of county's economy	World Bank
Ln.GDP	The natural logarithm of gross domestic product (GDP) per capita.	World Bank

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Table 1: Sustainability reporting across sample of listed GCC companies

Country	2013	2014	2015	2016	2017	Grand Total
Abu Dhabi	18	21	23	22	26	110
Bahrain	17	21	22	24	23	107
Dubai	15	13	19	25	27	99
Kuwait	28	32	35	63	64	222
Oman	26	30	32	36	39	163
Qatar	19	24	24	26	24	117
KSA	54	59	67	73	76	329
Grand Total	177	200	222	269	279	1147

Table 2: Materiality assessment disclosure score

Description	Score
No reference made to a materiality assessment.	0
The reporter claims to have undertaken a materiality assessment but provides no information on the steps adopted.	1
Limited information provided on the steps of the materiality assessment. However, no materiality matrix is provided to sustainability report users.	2
Limited information provided on the steps of the materiality assessment and a materiality matrix is provided.	3
Comprehensive disclosure provided on the steps of the materiality assessment. However, no materiality matrix is provided.	4
Comprehensive disclosure provided on the steps of the materiality assessment and a materiality matrix is provided.	5

Table 3: Sustainability reporters across countries

Listed Company	2013		2014		2015		2016		2017	
Abu Dhabi	70	18 26%	21 30%	23 33%	22 31%	26 37%				
Bahrain	44	17 39%	21 48%	22 50%	24 55%	23 52%				
Dubai	76	15 20%	13 17%	19 25%	25 33%	27 36%				
Kuwait	176	28 16%	32 18%	35 20%	63 36%	64 36%				
Oman	116	26 22%	30 26%	32 28%	36 31%	39 34%				
Qatar	46	19 41%	24 52%	24 52%	26 57%	24 52%				
KSA	176	54 31%	59 34%	67 38%	73 41%	76 43%				
Grand Total	704	177	200	222	269	279				

Note: This Table provides an assessment of ‘Sustainability Reporters’ among GCC countries. ‘Sustainability Reporters’ (SR) assessment, is based on a dichotomous scale; i.e. ‘1’, if a company discloses sustainability-related information in its annual reports or standalone sustainability reports and ‘0’ otherwise.

Table 4: Sustainability reporters across industries

Listed Firms	2013		2014		2015		2016		2017	
Construction	7	1 14%	1 14%	2 29%	2 29%	2 29%				
Finance, Insurance, Real Estate	354	98 28%	103 29%	115 32%	145 41%	147 42%				
Manufacturing	209	40 19%	50 24%	54 26%	68 33%	75 36%				
Mining	19	1 5%	1 5%	1 5%	3 16%	5 26%				
Retail Trade	6	0 0%	0 0%	1 17%	2 33%	1 17%				
Services	80	20 25%	30 38%	32 40%	31 39%	30 38%				
Transportation & Public Utilities	29	17 59%	15 52%	17 59%	18 62%	19 66%				
Grand Total	704	177 25%	200 28%	222 32%	269 38%	279 40%				

Note: This Table provides an industry wise assessment of ‘Sustainability Reporters’ among GCC countries. ‘Sustainability Reporters’ (SR) assessment, is based on a dichotomous scale; i.e. ‘1’, if a company discloses sustainability-related information in its annual reports or standalone sustainability reports and ‘0’ otherwise.

Table 5: Overview of GRI and Materiality Assessment Disclosure

		Panel A: GRI Adoption Rates			Panel B: Materiality assessment Rates		Panel C: Materiality assessment disclosure scores	
Year	SR	GRI	GRI %	MAD ¹	MAD %	MAS	Avg.MAS	
2013	Abu Dhabi	18	5	27.8%	3	16.7%	7	2.33
	Bahrain	17	1	5.9%	1	5.9%	2	2.00
	Dubai	15	3	20.0%	3	20.0%	7	2.33
	Kuwait	28	3	10.7%	2	7.1%	5	2.50
	Muscat	26	4	15.4%	4	15.4%	10	2.50
	Qatar	19	2	10.5%	1	5.3%	2	2.00
	KSA	54	3	5.6%	4	7.4%	10	2.50
	Total	177	21	11.9%	18	10.2%	43	2.39
2014	Abu Dhabi	21	4	19.0%	3	14.3%	11	3.67
	Bahrain	21	1	4.8%	1	4.8%	3	3.00
	Dubai	13	2	15.4%	2	15.4%	5	2.50
	Kuwait	32	2	6.3%	1	3.1%	3	3.00
	Muscat	30	4	13.3%	4	13.3%	12	3.00
	Qatar	24	5	20.8%	3	12.5%	9	3.00
	KSA	59	4	6.8%	3	5.1%	8	2.67
	Total	200	22	11.0%	17	8.5%	51	3.00
2015	Abu Dhabi	23	2	8.7%	2	8.7%	5	2.50
	Bahrain	22	1	4.5%	1	4.5%	3	3.00
	Dubai	19	3	15.8%	3	15.8%	9	3.00
	Kuwait	35	2	5.7%	2	5.7%	4	2.00
	Muscat	32	5	15.6%	5	15.6%	15	3.00
	Qatar	24	4	16.7%	3	12.5%	7	2.33
	KSA	67	4	6.0%	4	6.0%	9	2.25
	Total	222	21	9.5%	20	9.0%	52	2.60
2016	Abu Dhabi	22	4	18.2%	3	13.6%	12	4.00
	Bahrain	24	2	8.3%	2	8.3%	6	3.00
	Dubai	25	3	12.0%	3	12.0%	7	2.33
	Kuwait	63	4	6.3%	4	6.3%	7	1.75
	Muscat	36	3	8.3%	3	8.3%	9	3.00
	Qatar	26	4	15.4%	3	11.5%	12	4.00
	KSA	73	4	5.5%	3	4.1%	7	2.33
	Total	269	24	8.9%	21	7.8%	60	2.86

		Panel A: GRI Adoption Rates			Panel B: Materiality assessment Rates		Panel C: Materiality assessment disclosure scores	
Abu Dhabi	2017	26	3	11.5%	3	11.5%	13	4.33
Bahrain		23	2	8.7%	2	8.7%	6	3.00
Dubai		27	3	11.1%	3	11.1%	8	2.67
Kuwait		64	2	3.1%	2	3.1%	6	3.00
Muscat		39	3	7.7%	3	7.7%	13	4.33
Qatar		24	4	16.7%	3	12.5%	11	3.67
KSA		76	6	7.9%	8	10.5%	17	2.50
Total		279	23	8.2%	24	8.6%	74	3.08

Note: This table provides a summary of the GRI adoption rates, Materiality assessment disclosure rate and Materiality assessment disclosure scores among sustainability reporters over the five-year period of analysis. Panel A: shows the SR column provides the sum of sustainability reports, the GRI column indicates the sum of the GRI adoption rates, and the % column shows the percentage of companies following GRI among sustainability reporters. Note that the GRI adoption rates are based on a dichotomous scale; i.e. ‘1’ if the sustainability report provides reference to the GRI and ‘0’ otherwise. Panel B provides a summary of materiality assessment disclosure (MAD) rates among sustainability reporters over the five-year period of analysis. The MAD column indicates the sum of materiality assessment disclosures identified in sustainability reports, and the % column shows the percentage of sustainability reports providing some information on materiality assessment. The MAD is based on a dichotomous scale; i.e. ‘1’, if a sustainability report provides some information on the materiality assessment and ‘0’ otherwise. Panel C provides a summary of the materiality assessment (MA) scores for sustainability reporters over the five-year period of analysis. The MAS column provides the sum of MA scores, and the Avg.MAS column shows the average materiality assessment score. The MAS is calculated based on the materiality assessment disclosure scores (Table 2).

Table 6: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Materiality Disc. Score	100	1.486	1.600	0.000	5
Leverage	100	0.627	1.078	-6.500	5.125
ROA	100	0.129	0.325	-0.065	2.364
MTB	100	1.660	1.240	0.261	11.786
Company size	100	22.521	2.289	15.226	26.581
Board independence	100	23.074	29.025	0.000	100
CG Quality	100	61.886	20.016	16.000	93.853
Voice & Accountability Index	100	15.456	7.670	2.817	30.542
Regulatory Quality	100	68.037	11.12	48.558	82.692
GDP growth	100	2.940	1.939	-4.70	5.4
Ln GDP	100	11.396	0.398	10.493	11.879

Note: This Table provide the descriptive statistics of study variables.

Table 7: Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Leverage	1.000									
(2) ROA	-0.015	1.000								
(3) MTB	0.074	0.105	1.000							
(4) Company size	0.009	0.276***	0.314***	1.000						
(5) B.IND	-0.046	0.044	0.055	0.169**	1.000					
(6) CG Quality	0.159*	-0.010	-0.025	0.021	0.360***	1.000				
(7) Voice & Accountability	-0.121*	-0.252***	-0.066	-0.345***	-0.250***	-0.204**	1.000			
(8) Regulatory Quality	-0.052	-0.192**	-0.038	-0.131*	-0.041	-0.306***	0.428***	1.000		
(9) GDP growth	0.014	-0.056	-0.072	-0.068	0.056	-0.231**	-0.065	0.407***	1.000	
(10) ln GDP	0.076	0.191**	0.185**	0.663***	-0.053	0.159*	-0.506***	-0.225***	-0.053	1.000

Note: This table shows pairwise correlation matrix between proxies of variables. ***, **, * shows significance at 1%, 5% and 10% level

Table 8: Regression results of corporate characteristics and materiality assessment disclosure

Variables	Fixed Effect Ordered Logic		Poisson Regression
	DV: Materiality assessment disclosure Score		
	(1)	(2)	(3)
Leverage	-0.605** (0.281)	-0.755*** (0.284)	-0.199** (0.0783)
ROA	0.080** (0.037)	0.121*** (0.0430)	0.246** (0.124)
MTB	-0.050 (0.374)	0.0979 (0.407)	0.000515 (0.00223)
Company size	0.082 (0.164)	0.144 (0.220)	-0.0465 (0.0769)
Board independence	0.014 (0.010)	0.0434*** (0.0160)	0.00963** (0.00427)
Governance Quality	0.035*** (0.013)	0.0586*** (0.0181)	0.0142*** (0.00542)
Voice and Accountability Index		0.127** (0.0598)	0.0368** (0.0176)
Regulatory Quality		0.0370 (0.0296)	0.0247 (0.0169)
GDP growth		0.128 (0.146)	0.00625 (0.0467)
Ln GDP		-2.612** (1.211)	-0.555* (0.317)
Constant	-3.374 (3.692)	23.19* (12.84)	6.355* (3.474)
F-stat p-value	0.002	0.000	0.006
Year Fixed Effect	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes
Pseudo R2	0.158	0.250	0.056
Observations	100	100	100

Note: This table presents the regression result of Materiality assessment disclosure Score and Corporate Characteristics using fixed effect Fixed Effect Ordered Logic and Poisson Regression estimation approach. Industry and years control are included in all estimation. The robust standard errors are reported in parenthesis and ***, **, * show significance at 1%, 5% and 10% level.