Sustainability assurance: Insights into assured sustainability-related information of the Top 100 companies listed on the ASX and JPX

A research report submitted by

Nompumelelo Nkosi

Student number: 1839943

Cell: 0720169635

Email: 1839943@students.wits.ac.za

Date submitted: 26 March 2024

Supervisor: Dannielle Cerbone

in partial fulfilment of the requirements for the degree of

Master of Commerce

University of the Witwatersrand

TABLE OF CONTENTS

2. INTRODUCTION 4
3. LITERATURE REVIEW 6
3. 1. SUSTAINABILITY REPORTING 6
3.1.1 THE DEFINITION OF SUSTAINABILITY REPORTING 6
3.1.2 THE ADOPTION OF SUSTAINABILITY REPORTING 9
3.1.3 GLOBAL REPORTING CULTURES 11
3.1.4 CHALLENGES OF SUSTAINABILITY REPORTING 12
3.2 ASSURANCE 14
3.2.1 ADOPTION OF ASSURANCE 14
3.2.2 THE ASSURANCE PROCESS 16
3.2.2.1 Three-Party Relationship: The Auditor 16
3.2.2.2 Subject Matter 17
3.2.2.3 Suitable Criteria 18
3.2.2.4 Audit Report 19
3.3 SIGNALLING AND SUSTAINABILITY ASSURANCE 21
4. METHODOLOGY 24
4.1 RESEARCH DESIGN 24
4.2 POPULATION AND SAMPLING 24
4.3 DATA COLLECTION INSTRUMENTATION 25
4.3.1 DATA SOURCES 25
4.3.2 DATA COLLECTION 25
Table 1: Example of categorisation of assured items. 27
4.4 DATA ANALYSIS 28
4.5 VALIDITY AND RELIABILITY 29
5. RESULTS AND DISCUSSION 30
5.1 SUBJECT MATTER ASSURED 32
5.1.1 Per subject matter category 32
5.1.2 Subject matter assured within the listing. 34
5.1.3 Subject matter assured within the industry. 35
5.2 ASSURED SUBJECT MATTER AND THE SIX CAPITALS 37
5.3 SUBJECT MATTER THAT OVERLAPS WITH FINANCIAL STATEMENTS 38
5.4 SUBJECT MATTER AND THE UNIT OF MEASUREMENT 40
5.5 PROSPECTIVE INFORMATION ASSURED 40
5.6 LACK OF COMPARATIVE INFORMATION 42

5.7 SUSTAINABILITY REPORTING FRAMEWORKS 43
5.8 THE TYPE OF AUDITOR 44
5.8.1 The type of auditor and the listing 44
5.8.2 The type of auditor and the six capitals 48
5.9 TYPE OF ASSURANCE ENGAGEMENT 48
6. CONCLUSION 51
6.1 SUMMARY OF FINDINGS 51
6. 2 RESEARCH CONTRIBUTIONS, IMPLICATIONS AND RECOMMENDATIONS 52
6. 3 LIMITATIONS AND AREAS FOR FUTURE RESEARCH 53
7. ACKNOWLEDGEMENTS 54
8. REFERENCES 56
9. APPENDIX 1: DISCLOSURE CHECKLIST 62
10. APPENDIX 2: REPORTING FRAMEWORKS AND LEVEL OF GUIDANCE 63

ABSTRACT

There is a lack of consensus and ambiguity on the currently adopted standards on sustainability and the assurance thereof which has led to variations in the subject matter assured, criteria used, and the type of assurance provided. This study aims to broaden the extant body of literature related to the assurance of sustainability-related information and provide new insights that can guide future research. The study aims to investigate the sustainability-related assurance practices and reports for the top 100 companies listed on the Australian Stock Exchange (ASX) and the Japan Stock Exchange (JPX). Data was collected for 113 companies (52 companies for ASX and 61 companies for JPX). A content analysis of the audit report and the sustainability-related information reports was used to collect data based on a disclosure checklist. The data was analysed and reported on using descriptive statistics and inferential statistics. Based on the results from the statistics performed, it was noted that there is a difference in the number of subject matter items assured in a category however there is congruence in the subject matter items. This provides evidence of mimetic isomorphism and highlights how companies are using specific subject matter items as an important signal to the market to indicate the credibility of the sustainability reports. Albeit the majority of the assurance provided are limited assurance engagements, some subject matter characteristics should preclude assurance. This finding supports prior research that non-financial assurance engagements do not provide sufficient value to the stakeholders. In addition, it was found that there is variability in the assurance providers based on jurisdiction with financial auditors (traditional auditors) found to be dominate in the ASX and sustainability auditors gaining ground in the JPX. Sustainability auditors could add to the complexity and confusion of the assurance process due to being less likely to have professional training on assurance which allows the engagement of financial auditors by companies to be a signal for stakeholders.

Keywords: Sustainability reporting, sustainability assurance, subject matter and criteria, Australia, and Japan

1. INTRODUCTION

The increasing prevalence of sustainability reports is closely associated with apprehensions regarding the trustworthiness of sustainability-related information that is provided by companies to stakeholders (Akisik & Gal, 2020; Boiral & Heras-Saizarbitoria, 2020). In a similar fashion to financial reporting, companies have gravitated towards the assurance of sustainability-related information in order to improve the credibility of the report (AccountAbility, 2020; Eugénio et al., 2022; Romero et al., 2014). The reporting and assurance of sustainability-related information remains largely voluntary (Bepari & Mollik, 2016; Eccles et al., 2011; GRI, 2023; Tarquinio & Posadas, 2020; TCFD, 2021). As a result, prior research has raised concerns that the reporting and assurance process might be subject to management and professional capture, with both the auditor and management deciding on the subject matter, criteria, and type of assurance engagement ultimately defeating the purpose of assurance (Braam & Peeters, 2018; Farooq & De Villiers, 2017b; Yan et al., 2022). In contrast to financial reporting assurance, sustainability assurance standards are not as well developed. This has resulted in the selection of inappropriate criteria used in the assurance of the subject matters (CDP, 2021; De Villiers & Maroun, 2017; Gerwing et al., 2022; GRI, 2023; Nations, 2021; Tarquinio & Posadas, 2020; TCFD, 2021). Commonly, the ISAE 3000, ISAE 3410 and AA1000AS have been used for the assurance of sustainability-related information, however, other assurance standards are currently in the draft phase[1]. The development of new assurance standards is due to the lack of a consensus between the currently used standards (IAASB, 2023). This results in variations in the subject matter assured, criteria used and the type of assurance that is provided (Braam & Peeters, 2018; Farooq & De Villiers, 2017b; Yan et al., 2022). Additionally, there is no standardised, globally accepted reporting framework established for sustainability reporting (Bepari & Mollik, 2016; Eccles et al., 2011; GRI, 2023; Tarquinio & Posadas, 2020; TCFD, 2021; Zrnić et al., 2020). This has caused ambiguity and diversity in the sustainability-related information being selected, and the criteria which are adopted to report and measure the information (Ball et al., 2000; O'Dwyer & Owen, 2007; O'Dwyer & Owen, 2005).

Despite this, sustainability assurance has grown in scope (Eugénio et al., 2022; Romero et al., 2014) and application (De Villiers & Maroun, 2017; Gerwing et al., 2022; Tarquinio & Posadas, 2020) which raises concerns about the credibility and appropriateness of the assurance reports. This has resulted in prior research suggesting that reporting on sustainability-related information is an effort to signal commitment to sustainability efforts (De

1 The IAASB is in the process of developing an International Standard on Sustainability Assurance (ISSA) 5000 framework that will provide general requirements for sustainability assurance engagements.

Villiers & Maroun, 2017; Tarquinio & Posadas, 2020; Zhou, 2022), while assurance serves as a signal of the credibility of the reported information (Akisik & Gal, 2020; Boiral & Heras-Saizarbitoria, 2020).

The adoption of assurance in sustainability reporting has attracted significant attention from academic researchers. Simnett et al. (2009) and Kolk and Perego (2010) identify factors associated with the decision to voluntarily purchase assurance. Wallage (2000) provided an analysis of the initial experiences with the new assurance service from the auditor's perspective and provided examples and characteristics of criteria that are needed to assure sustainability-related information. Mock et al. (2013) expanded this research by investigating which countries and industries were more likely to assure their sustainability-related information, the levels of assurance provided and the factors that affected the level of assurance provided. Perego and Kolk (2012) explored how multinational corporations adopt assurance practices to develop and sustain organisational accountability for sustainability by investigating the diffusion patterns of third-party assurance of sustainability reports.

This research aims to extend on the research previously done on the assurance of sustainability reports by investigating external assurance practices that are adopted by the top 100 companies that are listed on the Australian Stock Exchange (ASX) and the Japan Stock Exchange (JPX). South Africa is well-researched owing to a considerable amount of governance policies and a history of integrated reporting, see for example Marx and Mohammadali-Haji (2014) Marx and van Dyk (2011) and Maroun (2017). The research on sustainability-related information assurance in Australia and Japan is still emerging and this research aims to contribute to the existing body of research (Alsahali & Malagueño, 2022; Bepari & Mollik, 2016; Haider & Nishitani, 2020; Heenetigala et al., 2016; Perego & Kolk, 2012). Australia and Japan share similar sustainability reporting cultures however they have different sustainability assurance cultures (Deegan et al., 2006a; Haider & Nishitani, 2020; Junior et al., 2014; Mock et al., 2007; Nishitani et al., 2020; Perego & Kolk, 2012). Australia and Japan have well-established cultures of sustainability reporting. This is largely due to the legislation enacted in each jurisdiction to promote sustainability reporting (Bepari & Mollik, 2016; Perego & Kolk, 2012; Zhou, 2022). However, these jurisdictions have different cultural contexts for the assurance of sustainability-related information. Companies listed on the JPX are still hesitant to purchase third-party external assurance and would rather verify their sustainability reports using third-party comment verification (Haider & Nishitani, 2020; Nishitani et al., 2020). In contrast, companies listed on the ASX consider the assurance of their sustainability reports to be 'best practice' as it seems to be the most practical way to improve the quality of sustainability reports (Deegan et al., 2006a). The sustainability reporting

and assurance standards that are currently adopted are international, making it important to extend the locus to other jurisdictions. Using data from two jurisdictions that have similar sustainability reporting practices and different assurance practices will provide a comparative insight into the practice of sustainability assurance.

Despite both jurisdictions sharing different sustainability practices, there has been a common difficulty for assurance providers which is the measurement of the subject matter that is assured. This difficulty is a result of the type of information that is included in the sustainability related reports and the lack of extensive guidance from the reporting frameworks on how to measure the subject matter against criteria (Farooq & De Villiers, 2020; Schelluch & Gay, 2006). As a result, the following research questions are relevant:

1. *What insights can be ascertained from the sustainability assurance practices of companies that are listed on the ASX and JPX?*
2. *What insights can be ascertained from analysing the differences in the sustainability assurance practices between companies listed on the ASX and the JPX?*

The remainder of this paper is structured as follows: Section 3 reviews the literature, by providing background into sustainability reporting (Section 3.1) and the assurance thereof (Section 3.2). Section 4 details the methodology. The results and discussions follow in Section 5. Finally, Section 6 concludes, discusses implications, and outlines areas for future sustainability assurance research.

2. LITERATURE REVIEW

3. 1. SUSTAINABILITY REPORTING 3.1.1 THE DEFINITION OF SUSTAINABILITY REPORTING

Sustainable development or sustainability is defined as (AccountAbility, 2020, p. 37; GRI, 2023, p. 865):

> "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

There is a growing awareness of environmental and social concerns that companies do not promote sustainable development or sustainability such as climate change, and social inequality (Junior et al., 2014). These concerns are driven by corporate scandals (Alsahali & Malagueño, 2022), globalisation (Tarquinio & Posadas, 2020; Yan et al., 2022), access to more information (O'Dwyer & Owen, 2005; Simnett et al., 2009; Tarquinio & Posadas, 2020) and the increase on climate change (Junior et al., 2014; Zhou, 2022). This heightened

awareness has led to a significant transformation in the business landscape, with companies seeking to integrate sustainable practices into their operations (Junior et al., 2014; Yan et al., 2022). This can be seen as companies aligning their business operations with fields of contemporary society and the belief set of stakeholders to achieve legitimacy (De Villiers & Maroun, 2017).

Additionally, the growing awareness has had a profound impact on the stakeholder's views on what entails corporate value (Junior et al., 2014; Simnett et al., 2009). Stakeholders are concerned that traditional financial reports do not adequately represent the multiple dimensions of corporate value in the current age (Eccles et al., 2011; Junior et al., 2014; Mock et al., 2013; Simnett et al., 2009; Zrnić et al., 2020). This has resulted in stakeholders searching for new metrics that will go against the multiple dimensions of corporate value in extension to the financial metrics that exist (Ballou et al., 2006; Eccles et al., 2011; Kolk & Perego, 2010; Simnett et al., 2009; Zrnić et al., 2020). These multiple dimensions that contribute to corporate value are identified by IIRC (2021) as the six capitals, namely, financial capital, human capital, social and relationship capital, natural capital, manufactured capital and intellectual capital. As a result, companies have been presented with an opportunity to signal their multiple dimensions of value through the adoption of sustainability-related reporting (De Villiers & Maroun, 2017; Tarquinio & Posadas, 2020; Zhou, 2022).

A company's performance, whether positive or negative, towards the aim of sustainable development is measured, disclosed, and held accountable to stakeholders through the issuance of sustainability-related reports (Ballou et al., 2006; EFRAG, 2022; GRI, 2023). These reports consist of information related to actual or potential risks, opportunities, governance, strategy, metrics, targets and other measures within a business that have an impact on the company's contribution towards sustainable development (EFRAG, 2022; GRI, 2023). It is recommended by established and in-draft reporting frameworks that companies should provide disclosures that will benefit stakeholders (EFRAG, 2022; GRI, 2023). To reduce information asymmetry, the reporting of sustainability-related information will provide the stakeholders with a better understanding of the sustainability activities of the company while gaining valuable insights from the information given (EFRAG, 2022; GRI, 2023; Pasko et al., 2021). This way stakeholders can make informed decisions regarding the company and hold the companies accountable for their actions towards sustainability, and address the concerns that stakeholders have towards sustainability in the company (Junior et al., 2014; Mock et al., 2007; Stolowy & Paugam, 2018).

The vast efforts, activities or measures within a company that contribute to sustainable development alongside the lack of a generally accepted reporting framework might lead to an

overload of information that companies can report on for their sustainability (McNally et al., 2017). The overload of sustainability-related information can confuse users and make the information difficult to understand (Akisik & Gal, 2017; McNally et al., 2017). As a result, a shared vocabulary in the form of categorised sustainability-related information was developed by reporting frameworks as an attempt to alleviate the confusion and difficulty of understanding the information (EFRAG, 2022; GRI, 2023; Haller et al., 2017; ICMM, 2023; Tarquinio & Posadas, 2020; TCFD, 2021). The widely accepted categories are environmental disclosures, social disclosures and governance disclosures which are widely referred to as ESG disclosures[2] (EFRAG, 2022; GRI, 2023; Haller et al., 2017; ICMM, 2023; Tarquinio & Posadas, 2020; TCFD, 2021).

The information that is disclosed in the sustainability reports can consist of qualitative and quantitative measures that provide a nuanced and comprehensive understanding of the company's sustainability performance (EFRAG, 2022; GRI, 2023). Qualitative measures focus on providing descriptive insights and narratives of the measures that contribute to a company's sustainable development practices (EFRAG, 2022; GRI, 2023; TCFD, 2021). Examples include business ethics and values, social impact, and stakeholder involvement (GRI, 2023; TCFD, 2021). In contrast, quantitative measures provide a quantifiable assessment of a company's sustainability performance on numerical values or metrics (EFRAG, 2022; TCFD, 2021). Examples would include the metric tonnes of waste generated and kilolitres of water used (GRI, 2023; TCFD, 2021).

Some organisations provide quantified measures of economic, environmental and social outcomes, but this is usually complemented with qualitative disclosures, narrative information and diagrams/images (De Villiers & Maroun, 2017). Since sustainability reporting frequently entails describing the wider context outside of the financial context in which an organisation operates, sustainability-related information is primarily qualitative (De Villiers & Maroun, 2017). The qualitative information in sustainability reports may not be directly related to the company's financial performance and consequently, is difficult to measure or quantify (Akisik & Gal, 2017; De Villiers & Maroun, 2017). Additionally, sustainability-related information includes reporting on opportunities and targets, which might result in the forward-looking information being reported on (De Villiers & Maroun, 2017; Schelluch & Gay, 2006).

Given the nature of a sustainability report, the assurance of the report might present a challenge to the assurance provider as the qualitative information may not be easily measured

[2] Environmental disclosures are focused on the company's impact on the environment whilst social disclosures encompass the company's impact on society and stakeholders. Governance disclosures are concerned with the way a company is managed and governed by management.

against a criteria as it might not be quantified in monetary terms or directly linked to financial performance (De Villiers & Maroun, 2017).

3.1.2 THE ADOPTION OF SUSTAINABILITY REPORTING

Over the years, the reporting of sustainability-related information was not mandatorily required by law and regulation, making the reporting a voluntary act (Bepari & Mollik, 2016; GRI, 2023; Tarquinio & Posadas, 2020; TCFD, 2021). However, in March 2013, the Financial Services Agency (FSA) in Japan made effective the first stage of mandatory sustainability disclosures for all listed companies in Japan[3] (Kawahara, 2017). Following suit, in January and June 2023, the Australian government released plans to introduce mandatory sustainability reporting requirements for large entities listed in Australia, beginning in 2024 (Segal, 2024). Additionally, institutions such as the European Financial Reporting Advisory Group (EFRAG), and International Sustainability Standards Board (ISSB) are in the process of developing frameworks and guidelines for sustainability reporting to enforce mandatory reporting of such information (EFRAG, 2022; ISSB, 2022). Despite the voluntary nature of sustainability reporting over the years, the reporting of such information has grown which might be a result of companies adopting the reporting as an attempt to send a signal to the stakeholders (De Villiers & Maroun, 2017; Tarquinio & Posadas, 2020; Zhou, 2022).

Prior studies have found that the growth of sustainability reporting can be attributable to the reliance that stakeholders place on sustainability reporting to provide an indication of the underlying corporate risks, likely future performance and a historic review of the company's efforts towards sustainability (Ballou et al., 2006; Eccles et al., 2011; Kolk & Perego, 2010; Yan et al., 2022; Zrnić et al., 2020). It has been found that sustainability reports can influence the decision-making process of different stakeholders who are not only concerned with economic aspects but also with environmental and social aspects (Junior et al., 2014; Low & Siesfeld, 1998).

Reporting on the sustainability-related information provides stakeholders with a more transparent view of the company which can potentially enable the stakeholders to make more informed decisions (Junior et al., 2014; Low & Siesfeld, 1998; Mock et al., 2007). Additionally, it has been found that stakeholders are increasingly using sustainability disclosures as a signal of management quality (Eccles et al., 2011; Yan et al., 2022). Stakeholders are also seen to be using sustainability reports to assess how committed the company's management is to

[3] The first stage of mandatory sustainability disclosures requires that all listed companies in Japan are required to include a new section for sustainability-related information in the annual securities report (i.e., statutory report) using the TCFD standard pillars (Strategy, Metrics and targets, Governance, and risk management).

managing sustainability risks and threats while capitalising on the strengths and opportunities (Eccles et al., 2011; Yan et al., 2022). As a result, companies have more reason to adopt the reporting of sustainability because not only does it enable stakeholders to make informed investment decisions, but it also demonstrates management's commitment to sustainability (Eccles et al., 2011; Junior et al., 2014; Low & Siesfeld, 1998; Yan et al., 2022).

The increased adoption of sustainability reporting can also be attributed to the benefits that companies derive from reporting the information (Akisik & Gal, 2014, 2017; Cheng et al., 2014; Dhaliwal et al., 2011; Dhaliwal et al., 2012; El Ghoul et al., 2011; Gao & Zhang, 2015; Grewal et al., 2021; Plumlee et al., 2015). Previous studies have found a positive association between the reporting of sustainability-related disclosures and higher firm value (Gao & Zhang, 2015; Plumlee et al., 2015), higher stock liquidity (Grewal et al., 2021), lower cost of equity (Dhaliwal et al., 2011; El Ghoul et al., 2011), lower cost of debt (Cheng et al., 2014) and more accurate analysts' forecasts (Dhaliwal et al., 2012). There is evidence from previous studies that customers are willing to provide support to organisations that are concerned with sustainable operations which might increase the revenue levels of an organisation as the customers may be willing to pay higher prices to organisations that are more sustainable in their operations (Akisik & Gal, 2014, 2017). Sustainability disclosure plays a role in the financial performance of the organisation which further incentivises the organisations to report on their sustainability-related efforts as the benefit of reporting might exceed the cost of reporting for the organisation (Akisik & Gal, 2014, 2017).

Prior studies have identified that the adoption of sustainability reporting is driven by internal and external determinants (Hahn & Kühnen, 2013). Internal determinants include corporate size and financial performance, social and environmental performance, ownership structure (e.g. dispersed vs concentrated ownership), corporate governance (e.g., managerial incentive schemes, number of board meetings) and management characteristics (e.g., Management's educational levels and training) (Hahn & Kühnen, 2013; Liao et al., 2018; Peters & Romi, 2015; Wang et al., 2021; Zhou, 2022). Existing literature has found external determinants of sustainability to include corporate visibility which relates to media exposure and direct interactions with consumers (Hahn & Kühnen, 2013; Simnett et al., 2009), industry affiliation and operation (Hahn & Kühnen, 2013; Simnett et al., 2009), country of origin and legal requirements (Hahn & Kühnen, 2013; Simnett et al., 2009). Some event studies provide evidence that companies tend to increase their sustainability disclosures following reputational damage or environmental catastrophe (Bonetti et al., 2023; Chakravarthy et al., 2014; Patten, 1992). Additionally, public pressures and government stimuli in the form of enforcing laws and regulations for reporting have also contributed to external pressures (DiMaggio & Powell, 1983).

3.1.3 GLOBAL REPORTING CULTURES

Sustainability reporting has increasingly emerged as a best practice among companies, and numerous countries have moved towards endorsing such reports by enacting laws and regulations that compel companies to document their sustainability practices, as seen in Japan and Australia (Alsahali & Malagueño, 2022). KPMG (2022) provided that 96% of the G250[4] companies report on their sustainability efforts, with national rates of sustainability reporting in Australia in 2022 being 89% and 100% in Japan. Currently, sustainability reporting is approaching a significant shift, with regulators introducing mandatory reporting and regulated guidelines which are poised to change the reporting landscape drastically (Bepari & Mollik, 2016; GRI, 2023; Tarquinio & Posadas, 2020; TCFD, 2021).

Prior literature has evidenced that despite Australia and Japan having different social contexts and cultures of sustainability reporting (Bepari & Mollik, 2016; Haider & Nishitani, 2020; Perego & Kolk, 2012), both countries have actively embraced sustainability reporting practices. This has resulted in the countries having well-established cultures of sustainability reporting. This is owing to the legislation enacted in each jurisdiction to promote sustainability reporting (Bepari & Mollik, 2016; Perego & Kolk, 2012; Zhou, 2022). Although there is a significant improvement in the issuance of such reports, organisations in Japan are still hesitant to purchase external assurance and would rather verify their sustainability reports using third-party comment verification (Haider & Nishitani, 2020; Nishitani et al., 2020). According to previous studies Australia is considered to be one of the global leaders in sustainability reporting and the assurance of sustainability reports in Australia is considered to be “best practice” as it seems to be the most practical way to improve the quality of sustainability reports (Deegan et al., 2006a).

Kolk (2010) found that France, Germany, Japan, and the UK were more active in the reporting of sustainability-related information in comparison to other developed countries such as the United States, Canada, and Australia. In contrast, Junior et al. (2014) provided a study on the percentage of companies in the Fortune Global 500 in 2010 that reported on their sustainability-related information. Junior et al. (2014) provided evidence that high levels of sustainability reporting were also evident in some developed countries such as Australia and the United States. Junior et al. (2014) found that of the top 5 countries with the largest number of companies in the G500 list (US, Japan, China, France, and Germany) which represent 66%

[4] The G250 refers to the world’s 250 largest companies by revenue based on the 2021 Fortune 500 ranking. These large global companies tend to lead in sustainability reporting and provide a useful gauge for broader trends that are eventually adopted more widely KPMG. (2022). Big shifts, small steps. Survey of Sustainability Reporting 2022.

of the total, Japan achieved the highest percentage of companies issuing a sustainability report, followed by US, France, and Germany.

However, while sustainability reporting has experienced substantial growth over the years and the adoption of such corporate reporting offers numerous advantages, its primary obstacle remains the absence of a universally accepted reporting framework (Eccles et al., 2011; Zrnić et al., 2020). This implies each country can impose different reporting frameworks based on their laws and regulations, hence sustainability reporting varies across countries (Eccles et al., 2011; Zrnić et al., 2020).

3.1.4 CHALLENGES OF SUSTAINABILITY REPORTING

Frameworks provide a common set of guidelines that help organisations identify the most material sustainability issues to report on and structure sustainability reports clearly and concisely (GRI, 2023; TCFD, 2021). Over time, various institutions have been established to provide reporting organisations with frameworks and guidelines on sustainability reporting such as the Global Reporting Initiative (GRI), CDP (previously referred to as the Carbon Disclosure Project), the United Nations Sustainable Development Goals (SDGs), the Task Force on Climate-related Financial Disclosures (TCFD) and Occupational Safety and Health Administration (OSHA) standards and Sustainability Accounting Standards Board (SASB) have developed frameworks and guidelines on sustainability reporting (Gerwing et al., 2022; GRI, 2023; O'Dwyer & Owen, 2005; Tarquinio & Posadas, 2020; TCFD, 2021).

Additionally, other institutions such as the European Financial Reporting Advisory Group (EFRAG)[5], and the International Sustainability Standards Board (ISSB)[6] are in the process of developing frameworks and guidelines for sustainability reporting, aimed at enforcing mandatory disclosure of sustainability-related information (EFRAG, 2022; ISSB, 2022). Despite the existence of reporting frameworks and the introduction of more, there is a lack of generally accepted reporting frameworks for sustainability reporting which has manifold implications (Eccles et al., 2011).

The lack of a generally accepted reporting framework exposes sustainability reporting to management bias (Ackers, 2009; Eccles et al., 2011; McNally et al., 2017). Management has the flexibility to choose reporting frameworks to guide the disclosure of sustainability information, select the specific information to include, determine the extent of reporting, and

[5] EFRAG has developed the European Sustainability Reporting Standards (ESRS), a set of guidelines that tells companies how to report on their sustainability performance. These standards will come into effect in January 2023.

[6] ISSB has focused its efforts on issuing its first two IFRS Sustainability Disclosure Standards, IFRS S1-*General Requirements for Disclosure of Sustainability-related financial information* and IFRS S2-*Climate-related disclosures* which will be applied to reports starting in January 2024.

decide on the measurement methodologies, all tailored to their preferences and needs (Ackers, 2009; Deegan et al., 2006b; Farooq & De Villiers, 2020; O'Dwyer & Owen, 2005). They are ultimately, allowing companies to use the reporting of this information as a signalling tactic, a legitimising act, and an opportunity for impression management.

Management being able to choose reporting frameworks that suit their needs might lead to the adoption of multiple and varied reporting standards for one sustainability report (Farooq & De Villiers, 2020). The sheer number of reporting standards in use by a company can lead to information overload for stakeholders resulting in users struggling to navigate and understand the varying terminology, metric and methodologies adopted in one report (Beets & Souther, 1999; Farooq & De Villiers, 2020; McNally et al., 2017). Additionally, the diversity in the reporting frameworks adopted can introduce inconsistency in reporting boundaries, disclosure styles, and measurement criteria, making it challenging to compare sustainability reports across different companies (Beets & Souther, 1999; De Villiers & Maroun, 2017; Farooq & De Villiers, 2020; McNally et al., 2017).

Management having the choice to determine what material to report on, how much to report on, and how to measure the information reported that can lead to the inclusion of information that is unnecessary, generic and repetitive (Akisik & Gal, 2017, 2020; Deegan et al., 2006a; McNally et al., 2017). Different companies may prioritise different sustainability-related information to report on, imposing a challenge for users to use the information in comparing the sustainability efforts of different companies to make informed decisions (Akisik & Gal, 2020; McNally et al., 2017). This can also lead to stakeholders now having access to a trove of data as there is no standardised basis for determining reporting boundaries and scopes (Akisik & Gal, 2020; Deegan et al., 2006a; McNally et al., 2017). Users might find it difficult to assess the accuracy of such information which can erode the credibility of the sustainability-related information reported (Akisik & Gal, 2020; Boiral & Heras-Saizarbitoria, 2020).

The reasons for companies adopting sustainability reporting may not be altruistic (Akisik & Gal, 2020; Boiral & Heras-Saizarbitoria, 2020). This results in an increased concern from stakeholders that management’s decision to adopt the practice is an attempt to change society’s view of the company and make it appear to be a legitimate member of society (Akisik & Gal, 2020; Boiral & Heras-Saizarbitoria, 2020). Additionally, the lack of a universally accepted framework may create opportunities for impression management where companies can selectively adopt reporting frameworks, content and scope that misleadingly present them in a favourable light (Ackers, 2009; Boiral & Heras-Saizarbitoria, 2020; De Villiers & Maroun, 2017; Gal & Akisik, 2020; McNally et al., 2017). As a result of the above challenges, companies

have resorted to the adoption of external assurance to signal the credibility of their sustainability-related information (Akisik & Gal, 2020; Boiral & Heras-Saizarbitoria, 2020).

3.2 ASSURANCE

3.2.1 ADOPTION OF ASSURANCE

An assurance engagement is defined as (IAASB, 2010a, p. 6):

> "An engagement in which a practitioner aims to obtain sufficient appropriate evidence to express a conclusion designed to enhance the degree of confidence of the intended users other than the responsible party about the subject matter information".

While the mandatory reporting of sustainability-related information is underway, mandatory assurance of the information will likely follow suit (EFRAG, 2022; ISSB, 2022). Although external assurance is highly recommended by the established sustainability reporting frameworks, it remains voluntary (Deegan et al., 2006b). Given that the adoption of assurance is voluntary and is a costly decision, prior studies hold that companies that adopt external assurance do so as a result of benefits outweighing the costs (Simnett et al., 2009).

Companies are perceived to benefit from the credibility that is being offered by external assurance (AccountAbility, 2020; Eugénio et al., 2022; Romero et al., 2014; Simnett et al., 2009). Studies have identified two aspects of credibility which are internal and external, in which the former is better associated with the benefits for management and the latter better associated with the benefits for the stakeholders (Adams & Evans, 2004; Rhianon Edgley et al., 2010). Internal credibility is concerned with offering improved systems over the quality of policies, organisational structures such as internal risk management systems and internal audit systems that are used to develop sustainability reports (Adams & Evans, 2004; Braam & Peeters, 2018; Rhianon Edgley et al., 2010; Romero et al., 2014). External credibility is concerned with the enhanced confidence that stakeholders have in the sustainability actions of the company (Adams & Evans, 2004; Wallage, 2000).

The growth of sustainability assurance is owing to several factors such as the business culture of the company and the industry in which the company operates (Farooq & De Villiers, 2017c, 2020; Kolk & Perego, 2010)

Prior studies have found evidence of the association between the business culture of a company and the emphasis on assurance (Braam & Peeters, 2018; Kolk & Perego, 2010; Simnett et al., 2009; Zhou, 2022). Studies have found that management in stakeholder-orientated societies is more likely to acquire assurance on sustainability-related information to achieve external credibility (Kolk & Perego, 2010; Simnett et al., 2009; Zhou, 2022). For instance, Japan is believed to be a more stakeholder-orientated country as the broad spectrum

of stakeholders has considerable influence on the sustainability activities of the organisations (Braam & Peeters, 2018; Herda et al., 2014). By contrast, Australia is more of a shareholder-orientated country as the shareholders are primarily seen as instruments for shareholder value creation and other stakeholder groups have less influence on the sustainability activities of an organisation (Braam & Peeters, 2018; Herda et al., 2014).

Given this distinction, it is suggested that companies listed on the JPX and the ASX are more likely to obtain assurance over their sustainability reports (Herda et al., 2014; Simnett et al., 2009). Companies in Japan have long-standing traditions of assuring their sustainability reports with not only external assurance but also third-party comments as part of the assurance model (Haider & Nishitani, 2020; Junior et al., 2014; Kolk & Perego, 2010; Nishitani et al., 2020). Although not to the extent of companies in Japan, companies in Australia are also considered to be one of the global leaders in the external assurance of their sustainability-related information (Deegan et al., 2006a; Heenetigala et al., 2016; Mock et al., 2013; Simnett et al., 2009). This is a result of external assurance in Australia being considered to be best practice as it is the most practical way to improve the credibility of sustainability-related information (Deegan et al., 2006a; Heenetigala et al., 2016; Mock et al., 2013; Simnett et al., 2009).

Studies have found that companies operating in environmentally and economically sensitive industries are more likely to secure sustainability assurance as these companies are exposed to sustainability risks (Farooq & De Villiers, 2020; Kolk & Perego, 2010; Mock et al., 2007; Simnett et al., 2009; Yan et al., 2022; Zhou, 2022). To manage these risks, the companies will provide external assurance on their sustainability-related information which will increase the credibility of the information in the reports and increase stakeholder confidence (Simnett et al., 2009; Yan et al., 2022; Zhou, 2022). Studies have found that the dominance of mining firms (environmentally sensitive) in the Australian economy has led to increased sustainability reporting in the mainstream Australian domain and these companies have more assurance in their reports in comparison to other industries (Bepari & Mollik, 2016; Deegan et al., 2006a). However, studies have found the sustainability reports that are being assured in Japan are not only in industries that are more environmentally sensitive but also in the banking and insurance sectors (economically sensitive) (Kolk & Perego, 2010).

The adoption of assurance is underpinned by the reasons discussed above and to effectively provide meaningful assurance, specific assurance elements as defined by auditing standards are essential (AccountAbility, 2020; IAASB, 2019; ICMM, 2023). These assurance elements serve as the foundational framework on which credible assurance practices are built.

3.2.2 THE ASSURANCE PROCESS

The assurance process is made up of the three-party relationship (assurance provider[7], the intended user[8] and the reporting organisation[9]), the appropriate subject matter, the suitable criteria and a written report (AccountAbility, 2020; IAASB, 2019; ICMM, 2023). The assurance provider performs an assurance engagement to obtain sufficient and appropriate audit evidence on whether the subject matter information is free from material misstatement or other agreed-upon objectives (AccountAbility, 2020; IAASB, 2019; ICMM, 2023).

3.2.2.1 Three-Party Relationship: The Auditor

The external auditor is tasked with being the professional who provides an audit opinion that is intended to enhance the legitimacy of the company by ensuring the credibility of the sustainability-related information (IAASB, 2010b, 2013). Unlike the audit of financial statements, financial auditors are not the only external auditors who are trusted with sustainability assurance (Ackers, 2009; Cohen & Simnett, 2015; Mock et al., 2007). The providers of assurance on sustainability-related information consist of financial and sustainability auditors (Alsahali & Malagueño, 2022; Cohen & Simnett, 2015; Deegan et al., 2006a; Farooq & De Villiers, 2020; Prinsloo & Maroun, 2021). Financial auditors primarily specialise in the audit of financial information and broader business advisory services (Alsahali & Malagueño, 2022; Deegan et al., 2006a; Farooq & De Villiers, 2020; Prinsloo & Maroun, 2021). Financial auditors can further be categorised into The Big 4 auditors and non-big 4 financial auditors (Ackers, 2009; Mock et al., 2013). The Big 4 are the four largest professional services firms that offer assurance and Deloitte, PricewaterhouseCoopers (PwC), KPMG and Ernst and Young (EY) form part of the Big 4 (Ackers, 2009; Mock et al., 2007). Sustainability auditors specialise in sustainability assessments, compliance, certification, environmental impact auditing and related services (Alsahali & Malagueño, 2022; Deegan et al., 2006a; Farooq & De Villiers, 2020; Prinsloo & Maroun, 2021).

Prior studies have found contradicting evidence on the level of trust that is being afforded to the external auditors, reflected by each auditor's dominance in the sustainability assurance market (Ackers, 2009; Alsahali & Malagueño, 2022; Simnett et al., 2009; Yan et al., 2022). Prior studies have found financial auditors are trusted more and this might be a result of the dominance of these auditors in the audit of the financial information market which exposed them to sufficient experience and competence in the assurance market (Ackers, 2009; Simnett

[7] The assurance provider is responsible for providing assurance over the subject matter. The assurance provider and the auditor can be used interchangeably.
[8] The intended user for assurance is the person for whom the practitioner prepares the assurance report.
[9] The reporting organisation is the party responsible for the preparation of the sustainability-related information and providing the auditors with the sustainability report.

et al., 2009). Other studies argue that despite the sustainability auditors not dominating the market, they have a better understanding of sustainability-related information (Alsahali & Malagueño, 2022; Yan et al., 2022). Manetti and Becatti (2009) argue that financial auditors may not always be competent to assure sustainability reports due to their limited knowledge of the subject matter (sustainability information) in comparison to sustainability auditors who may be experts in the field of the subject matter that is being assured (Alsahali & Malagueño, 2022).

When considered at the country level, Kolk and Perego (2010) found that financial auditors are more likely to be chosen in a country that is shareholder-oriented (Australia) which is in contrast to the findings of Simnett et al. (2009) who found that companies in a stakeholder-oriented country (Japan) are more likely to choose financial auditors as their assurance provider.

3.2.2.2 Subject Matter

The subject matter is the information that is measured by the company against reporting frameworks which the intended user will use to build justified trust (AccountAbility, 2020; IAASB, 2010a, 2013). According to assurance standards, for the reported sustainability-related information to be an appropriate subject matter, it needs to be identifiable and capable of consistent evaluation or measurement against identified suitable criteria (IAASB, 2010b). This is to ensure that the appropriate subject matter can be subjected to procedures for gathering sufficient appropriate evidence to support an assurance conclusion (IAASB, 2010b). However, this might not always be the case due to the lack of guidance on how to measure the subject matter. This subjects the assured sustainability-related information to professional and managerial bias (Braam & Peeters, 2018; Farooq & De Villiers, 2017b; Yan et al., 2022). Managerial bias involves management furthering their interests in enhancing the credibility of the information disclosed. In contrast, professional bias involves the auditors enhancing their interest by developing their position in the new assurance market to grow more income (Farooq & De Villiers, 2017a, 2017c, 2020; Yan et al., 2022).

Prior studies have raised concern over the ambiguity and diversity of the criteria used and the scope of the information that is being assured (Ball et al., 2000; O'Dwyer & Owen, 2007; O'Dwyer & Owen, 2005). These concerns are a result of management having the opportunity to use assurance as a tool to manage the perceptions of the stakeholders on the credibility of the information by self-servingly selecting good sustainability-related information for assurance (Farooq & De Villiers, 2017a, 2017c, 2020; Yan et al., 2022). Interestingly, Braam and Peeters (2018) argue that companies with good sustainability performance are more likely to signal their efforts by selecting a broader assurance scope.

Due to the sustainability-related information being diverse, it has different characteristics that make it difficult to assure (CDP, 2021; De Villiers & Maroun, 2017; Gerwing et al., 2022; GRI, 2023; Nations, 2021; Tarquinio & Posadas, 2020; TCFD, 2021). This information includes qualitative information that cannot be readily measured in monetary terms, making it difficult to measure (CDP, 2021; De Villiers & Maroun, 2017; Gerwing et al., 2022; GRI, 2023; Nations, 2021; Tarquinio & Posadas, 2020; TCFD, 2021) or information that is prospective and forward-looking, relying solely on estimates which might also be difficult to measure (CDP, 2021; De Villiers & Maroun, 2017; Gerwing et al., 2022; GRI, 2023; Nations, 2021; Tarquinio & Posadas, 2020; TCFD, 2021). The different characteristics affect the precision with which the subject matter can be evaluated against the suitable criteria and the persuasiveness (quality and quantity) of the evidence that can be derived from the subject matter (AUASB, 2014; IAASB, 2013). It is ultimately, reducing the level of credibility that is being offered by the external assurance which creates an area of contention in the sustainability assurance market. Contention has been raised on sustainability-related information that is reported as being material but not capable of being assured or the assurance being of little value (Farooq & De Villiers, 2020; Schelluch & Gay, 2006). Additionally, further contention has been raised on the information that might be material but not being selected for assurance due to the managerial or professional bias associated with ensuring legitimacy (Farooq & De Villiers, 2020; Schelluch & Gay, 2006).

3.2.2.3 Suitable Criteria

A criterion is a benchmark that is used to measure or evaluate the subject matter in an assurance process (AccountAbility, 2020; IAASB, 2010b; ICMM, 2023). Regarding sustainability reporting, the criteria are the reporting frameworks such as the GRI, SASB, SDGs and TCFD (Gerwing et al., 2022; GRI, 2023; O'Dwyer & Owen, 2005; Tarquinio & Posadas, 2020; TCFD, 2021). The suitable criteria guide how the subject matter should be measured, recorded, and reported (Gerwing et al., 2022; GRI, 2023; O'Dwyer & Owen, 2005; Tarquinio & Posadas, 2020; TCFD, 2021). In contrast to financial reporting criteria, sustainability reporting criteria are less well developed as there is a lack of generally accepted sustainability-related information reporting standards and frameworks and the established standards are not mandatory (Cohen & Simnett, 2015; Deegan et al., 2006a; Hodge et al., 2009). As a result, companies can adopt different reporting frameworks that may provide various forms of guidance on the measurement, recording and reporting of the subject matter (Ackers, 2009; Deegan et al., 2006b; Farooq & De Villiers, 2020; O'Dwyer & Owen, 2005). This lack of standardisation can contribute to the difficulty of assuring specific subject matter. In the instance of auditors not being able to apply appropriate assurance techniques over the

quantitative and qualitative information might leave the audit opinion vulnerable to misinterpretation or misunderstanding (Ackers, 2009; Deegan et al., 2006b; Farooq & De Villiers, 2020; O'Dwyer & Owen, 2005). Previous studies have also added that due to the lack of a generally accepted reporting framework, the same subject matter can be measured in different units of measurement or currency which might lead to incoherence and inconsistencies in the measurement of the same subject matter (Akisik & Gal, 2017; Cohen & Simnett, 2015; De Villiers & Maroun, 2017; Hodge et al., 2009).

3.2.2.4 Audit Report

The audit opinion on which the credibility of the sustainability-related information lies is based on the type of assurance engagement that is being provided (AccountAbility, 2020; IAASB, 2010b; ICMM, 2023). The audit opinion is based on the level of evidence obtained by the auditor, with reasonable assurance being the highest level, shortly followed by limited assurance (AccountAbility, 2020; IAASB, 2010b; ICMM, 2023).

The credibility offered by reasonable assurance is that the risk of the sustainability-related information not being free from material misstatements has been reduced to an acceptably low level (AccountAbility, 2020; IAASB, 2010b; ICMM, 2023). In contrast, the credibility offered by limited assurance is that the risk of the sustainability-related information not being free from material misstatements is low but still greater than that of a reasonable assurance engagement objective of a limited assurance (AccountAbility, 2020; IAASB, 2010b; ICMM, 2023).

To provide the desired level of assurance, Hasan et al. (2005) and Green and Li (2011) provide that the subject matter and the audit procedures that are performed over the subject matter are considered by the external auditors to be the most important determinants. ISAE 3000 allows assurance providers to offer a mix of reasonable and limited levels of assurance to cover different content within a single sustainability report (IAASB, 2013).

Mock et al. (2013) took a sample of assurance reports from different countries including Australia (5.41%) and Japan (4.05%) for the period 2006-2007. Their results revealed that the type of provide was significantly associated with the level of assurance, being financial auditors are more likely to provide a lower level of assurance, unlike sustainability providers. The study by O'Dwyer and Owen (2005) focused on interviewing practitioners who had been directly involved in the assurance process. The study noted that sustainability auditors were more likely to provide higher levels of assurance (reasonable assurance) than financial auditors. The study was further supported by a study by Hasan et al. (2005) that found that financial auditors provide a moderate level of assurance (limited assurance) rather than a higher level of assurance (reasonable assurance). The study was administered to ten audit

firms in each of the 11 participating countries: Australia, Brazil, Canada, Denmark, France, Germany, Japan, Mexico, UK, Singapore and the Netherlands. Alsahali and Malagueño (2022) performed a study over a sample of 12 783 companies from different regions over a six period (2012-2017) to identify current trends and new insights into sustainability reporting. The study was spread over companies from Africa (6%), Asia (30%), Europe (36%), Latin America and Caribbean (13%), Northern America (11%) and Oceania (3%). The study found that financial auditors are less likely to provide reasonable assurance (higher level). The study found financial auditors contributed 8% to the reasonable/higher level of assurance provided in contrast to the 18% that was provided by sustainability auditors. This supports prior research that financial auditors are more likely to adopt limited assurance over sustainability-related information. The study by Bollas-Araya et al. (2019) further substantiate the research by analysing the determinants of CSR reporting and assurance of 300 top cooperative and mutual organisations from 28 countries (including 12 companies from Australia and 73 companies from Japan) and eight economic sectors for a four year period (2010-2013). The research identified that financial auditors mostly apply moderate/limited level of assurance (88.2%), while sustainability auditors apply specially a reasonable/higher level or a combination of both levels (66.7%). As a result, the type of provider is significantly associated with the level of assurance (Bollas-Araya et al., 2019)

The study by Hasan et al. (2005) noted that the determination of the level of assurance that is provided is dependent on these following five factors: subject matter, criteria, work effort, quality of evidence, and quantity of evidence. This study is supported by Bollas-Araya et al. (2019) who identified that the level of assurance is due to the nature of case, the lack of appropriate criteria or standards, considerations of cost/benefit, the lack of proper evidence, the needs of users and the type of auditor. As a result, it is noted that the country in which the company is domiciled does not have an impact on the level of assurance that is provided.

Studies have found that sustainability auditor's inclination towards reasonable assurance is attributable to the reduced risk that is associated with the auditors as they might not be subject to the codes of conduct by registered professional bodies that the financial auditors are subject to (Ackers, 2009). Prior studies have also highlighted that sustainability auditors provide assurance by adopting a more evaluative approach which is focused on providing the company with corporate strategic direction and areas of improvement which can potentially blur the auditor's independence (Ackers, 2009; Alsahali & Malagueño, 2022; O'Dwyer & Owen, 2005; Rhianon Edgley et al., 2010; Romero et al., 2014). While sustainability auditors provide more quality on the aspects associated with recommendations and areas of improvement, financial auditors provide more quality on the aspects related to the format of reporting and the procedures used to obtain audit evidence (Braam & Peeters, 2018; Junior et al., 2014;

Zhou, 2022). The auditors providing quality in different aspects may be attributable to the competitive nature of the market for sustainability assurance services as assurance providers create market incentives to offer services in a cost-efficient yet effective way (Ackers, 2009; Cohen & Simnett, 2015).

Different assurance standards can be applied to the assurance engagement, with some being focused on the assurance of sustainability-related information in general (such as ISAE 3000 and the AA1000AS) and others on specific subject matter (such as the ISAE 3410 and ISO14064-3 on Greenhouse Gas statements) (AccountAbility, 2020; IAASB, 2013; ISO, 2006). The ISAE 3000 that is developed by the International Auditing and Assurance Standards Board (IAASB) and the AccountAbility Assurance Standard (AA1000AS) are the most common assurance standards adopted for sustainability and guide the assurance of sustainability in general (AccountAbility, 2020; IAASB, 2013). Manetti and Becatti (2009) found that ISAE 3000 was the most used standard, followed by a combination of the ISAE 300 AND AA1000AS. Likewise, Manetti and Toccafondi (2012) found that almost all statements specified the standards. Specifically, the most frequent adoption was a combination of two standards, followed by the use of the ISAE 3000, the AA1000AS, and other national and international standards. In contrast to financial reporting assurance standards, sustainability assurance standards are not well developed with other standards still in the draft phase[10]. There is no generally accepted assurance framework specified which has led to the lack of unified standards for the assurance of sustainability information, there variations in the assurance scope and the methods employed to perform the assurance engagement (Alsahali & Malagueño, 2022; Bepari & Mollik, 2016).

3.3 SIGNALLING AND SUSTAINABILITY ASSURANCE

Signalling theory has been the basis of many hypotheses, models, theories and ideas since Spence (1973). The theory does not have a well-defined and technical vocabulary (Spence, 1973). For instance, Saunders (2009) describes it as “a work in progress”, emphasising the limited refinement in its concepts over time. Signalling theory is fundamentally concerned with reducing information asymmetry between two parties (Spence, 1973). For example, Spence (1973)’s seminal work on labour markets demonstrated how a potential job applicant might engage in behaviours to reduce information asymmetry that would hamper the selection ability of the prospective employer. Spence (1973) illustrated how high quality prospective

[10] The IAASB is in the process of developing an International Standard on Sustainability Assurance (ISSA) 5000 framework that will provide general requirements for sustainability assurance engagements. As at August 2023, the IAASB estimates that in January 2025, they publish a range of guidance and application materials for the ISSA 5000 standard IAASB. (2023). Proposed International Standard on Sustainability Assurance 5000 In *The International Auditing and Assurance Standards Board*..

employees will distinguish themselves from low quality prospects via the costly signal of rigorous higher education. Spence (1973)'s work triggered an enormous volume of literature applying signalling theory to selection scenarios. In this study, we focus on the signalling role of assurance practices adopted by companies in the ASX and JPX. Signalling theory suggests that the mechanism underlying the incremental value of assurance of reported information lies in the reporting entity having incentives to provide a signal to the market (Cheng et al., 2014)

The key elements of the signalling theory include the signaller, the receiver, and the signal (Connelly et al., 2011; Karasek III & Bryant, 2012; Spence, 1973). At the heart of signalling theory is that signallers are insiders who have information, whether positive or negative, that is not available to the outsider and might be useful to the outsider (Connelly et al., 2011; Karasek III & Bryant, 2012; Spence, 1973). The receiver is the outsider who lacks information about the company in question and would like to receive this information as it might be pivotal to their decision-making (Connelly et al., 2011; Karasek III & Bryant, 2012; Spence, 1973). The signal is the information that signallers have and must decide whether and how to communicate this information to receivers (Connelly et al., 2011; Karasek III & Bryant, 2012; Spence, 1973).

Stiglitz (2000) explained that information asymmetries occur between two parties who have access to different information (Spence, 2002). With management (signaller) being the party who holds the sustainability-related information and the users (receiver) being the party who could potentially make better decisions if they had it (Spence, 2002). Signalling theory posits that management can reduce information asymmetry between the company and its stakeholders through disclosing sustainability-related information (Hahn & Kühnen, 2013; Hahn & Lülfs, 2014; Lys et al., 2015). Prior research has provided evidence that companies disclose their sustainability-related information to signal their commitment to sustainability efforts (Akisik & Gal, 2017; Hahn & Lülfs, 2014), differentiate themselves (Hahn & Kühnen, 2013; Lys et al., 2015), and gain competitive advantage (Hahn & Kühnen, 2013; Lys et al., 2015). According to the signalling theory, companies with good sustainability performance will be more likely to engage in voluntary reporting of their sustainability efforts (Braam & Peeters, 2018). This is an attempt to avoid adverse decision-making from the users whilst also maintaining the company as a legitimate member of society (Akisik & Gal, 2020; Braam & Peeters, 2018; Mock et al., 2007).

Prior research has identified two main characteristics of effective signals for the receiver, signal cost and signal observability (Connelly et al., 2011; Karasek III & Bryant, 2012; Spence, 1973). Signal cost refers to the fact that some signallers are in a better position than others to absorb the associated costs (Connelly et al., 2011; Karasek III & Bryant, 2012; Spence, 1973).

The cost of signalling refers to both the monetary expense incurred to send signals as well as the value that is derived from the signal (Braam & Peeters, 2018; Hahn & Kühnen, 2013; Hahn & Lülfs, 2014; Lys et al., 2015; Mahoney et al., 2013). Prior research has found that large companies are more likely to report and assure their sustainability efforts despite the expense of reporting or assuring being high because the benefits exceed the costs incurred (Braam & Peeters, 2018; Hahn & Kühnen, 2013; Hahn & Lülfs, 2014; Lys et al., 2015). Additionally, it is argued that companies with good sustainability will gain more value on the reporting and assurance of such information and companies with weak sustainability efforts will avoid reporting and assuring the information as that might adversely affect their reputations (Akisik & Gal, 2020; Braam & Peeters, 2018; Mock et al., 2007).

Signal observability refers to the extent to which outsiders can notice the reliability (credibility) of the signal (Connelly et al., 2011; Karasek III & Bryant, 2012; Spence, 1973). Signal observability has a direct link to the legitimacy theory. Companies strive to align their sustainability efforts with societal norms, values, and expectations to maintain their social licence and become a recognised member of society (Ashforth & Gibbs, 1990; Suchman, 1995; Thomas & Lamm, 2012). Companies with good sustainability efforts are more susceptible to report on their sustainability actions (Alsahali & Malagueño, 2022; Braam & Peeters, 2018; Coram et al., 2009; Pasko et al., 2021). This is an attempt to send a signal to their stakeholders on the good efforts on sustainability, distinguishing themselves from companies with less efforts on sustainability (Alsahali & Malagueño, 2022; Braam & Peeters, 2018; Coram et al., 2009; Pasko et al., 2021). In addition, the adoption of external assurance over sustainability-related information serves as a signal for the credibility of the information (Ackers, 2009; Gal & Akisik, 2020; Hasan et al., 2005; Simnett et al., 2009). The credibility signal enhances the company's legitimacy through providing stakeholders with enhanced confidence that the sustainability-related information is a true reflection of the actions of the reporting organisation (Wallage, 2000). Ultimately, by sending a signal through sustainability reporting and the assurance thereof, companies are able to benefit from the enhanced legitimacy (Spence, 1973; Suchman, 1995).

The paper makes a significant contribution by addressing existing research gaps in the field of sustainability assurance. While prior research has largely focused on determining the factors that drive the adoption of sustainability assurance (Alsahali & Malagueño, 2022; Beets & Souther, 1999; Kolk & Perego, 2010), defining the assurance process for sustainability-related information (Braam & Peeters, 2018; Farooq & De Villiers, 2020; Hasan et al., 2005; Tarquinio & Posadas, 2020) and recommending potential changes to assurance frameworks to accommodate the assurance of sustainability-related information (Farooq & De Villiers, 2020; Perego & Kolk, 2012; Wallage, 2000; Yan et al., 2022). This paper goes further by

answering the call by Perego and Kolk (2012) by investigating how standardised assurance practices are adopted and implemented differently in different companies, specifically within the ASX and JPX.

3. METHODOLOGY

As mentioned prior, the aim of the study is to gain insights into the assurance practices of sustainability-related information of companies listed on the ASX and JPX by drawing inferences on the different aspects of the assurance process such as the subject matter, the suitable criteria, the type of auditor and the level of assurance provided. To achieve this aim, the following research question is poised:

> RQ 1: What insights can be ascertained from the sustainability assurance practices of companies that are listed on the ASX and JPX?

Furthermore, the exploratory research aims to gain insights into how the sustainability assurance practices are being operationalised in different companies by analysing the differences in the assurance practices between ASX and JPX. Accordingly, the following research question was formulated:

> RQ 2: What insights can be ascertained from analysing the differences in the sustainability assurance practices between companies listed on the ASX and JPX?

4.1 RESEARCH DESIGN

A quantitative content analysis was used to identify the voluntary disclosures that are assured and the criteria characteristics of the voluntary disclosures (Boiral & Heras-Saizarbitoria, 2020; Krippendorff, 2018). To address the research questions descriptive and inferential statistics were used to analyse the data collected (see Section 3.4).

4.2 POPULATION AND SAMPLING

The population of this study were companies in the Top 100 by market capitalisation of the ASX and the JPX as of 31 December 2022. The Top 100 was considered for this study because the companies are considered to have better access to financial capital and resources to support the adoption of sustainability-related information assurance (Farooq & De Villiers, 2020; Perego & Kolk, 2012). Given the nature of the study, only companies that have adopted assurance on their sustainability reports were considered. The research concentrated on the assurance practices that were adopted by companies, rendering those without assurance irrelevant. The sample consisted of 52 companies for the ASX and 61 companies for the JPX.

This was to ensure that the research is based on the most up-to-date sustainability assurance practices (Akisik & Gal, 2017; McNally et al., 2017).

4.3 DATA COLLECTION INSTRUMENTATION

4.3.1 DATA SOURCES

The audit reports of the companies within the scope of the study were downloaded from the respective company's official website. Additionally, the sustainability reports which contain the voluntary disclosures that are selected for assurance were downloaded from the organisation's official website. The sustainability reports included stand-alone sustainability reports, sustainability data books[11], integrated reports[12] and annual reports. It is worth noting that some companies provided the full account of the voluntary disclosures assured on the company's official website. In such a case, the researcher collected information from the downloaded reports, and where additional information was required that was not on the report, , the researcher referred to the respective website that contained the sustainability data.

4.3.2 DATA COLLECTION

Data was collected from the audit report and sustainability reports using content analysis. The disclosure collection instrument is a Microsoft Excel document, and a list of all the data collection points were are provided in Appendix 1. The data was collected for each company using the subject matter assured by the company as the unit of account. As the subject matter that was assured by each company is used as the unit of account, this led to an analysis of 1822 cases for the 113 companies selected for research as depicted in Table 2. The researcher used a disclosure checklist that was developed based on general information about the company (such as the name of the company, the exchange listed on, the type of industry) and the assurance process (such as the name of the assurance provider, type of assurance provider, subject matter, subject criteria). The checklist was developed in this manner identify insights into the assurance practices of the different companies.

The researcher read the audit report to gain an understanding of the structure and content. The core information about the company, assurance provider and elements of the audit report was captured on the disclosure instrument. This information was repeated for each subject

[11] The sustainability data book acts as an additional document to the sustainability report that provides more specific information about the sustainability activities of the reporting organisation that was not provided in detail in the sustainability report. The sustainability data book usually includes the sustainability activity, the unit of measurement, the reporting criteria used and the assessed measurement of the activity for the current year and previous years IBM. (2024). *Sustainability Data* https://www.ibm.com/think/topics/sustainability-data.

[12] An integrated report is a concise communication about how an organisation's strategy, governance, performance, and prospects, in the context of its external environment, lead to the creation of value in the short, medium, and long term IIRC. (2021). International <IR> Framework In *International <IR> Framework*

matter. Additionally, the subject matter and its related criteria characteristics were identified and captured into the disclosure instrument from the audit report and the sustainability reports referred to by the audit report.

The name of the company, the exchange in which the company is listed and the industry in which the company operates were captured directly from the respective exchanges' websites. The following data was copied from the audit report into the data instrument:

- The name of the assurance provider.
- The type of assurance engagement.
- The assurance standard (General or specific audit standard used).
- The subject matter items are assured.
- The reporting framework used.

To gain an understanding of the type of assurance provider, the researcher used the name of each assurance provider to do an internet search and understand the primary focus and expertise of the assurance provider (Financial auditor or sustainability auditor). The researcher counted the number of general assurance standards, specific assurance standards and the total number of assurance standards used by the auditor based on the assurance standards that were captured directly from the audit report.

The unit of measurement used by the company, the current year measurement of the subject matter and the prior year measurement of the subject matter were directly copied from the audit report if provided there or from the sustainability report that the audit report referred to. Where a company did not disclose the unit of measurement used for the subject matter item, the researcher captured the non-existence as 0 and the existence as 1. Some subject matter items that were selected for sustainability assurance overlapped with information assured in the financial statements and the subject matter items that have a monetary unit of measurement (for example, Australian dollars and Japanese Yen) were identified as overlapping items. The existence of such items will be captured as 1 and the non-existence of such items will be captured as 0.

When the company did not provide current year and prior year measurements, the researcher captured the information as "N/A". The researcher captured all instances of "N/A" in the prior and current year measurement as 0 to indicate the lack of comparative information and all instances with the lack of "N/A" as 1 to indicate the existence of comparative information. The existence of assured prospective were inspected from the audit report and captured as 1 for existence and 0 for non-existence.

The subject matter items that were captured at a granular level were examined to identify assured items that are similar. Such items were categorised according to their nature to provide a more interpretable position and such categories will be referred to as 'subject matter category'. The categorisation of the data does not alter the data and is used to organise the data into sets of information that will provide a concise representation of the underlying information (Krippendorff, 2004; Steenkamp & Northcott, 2007). An example of the categorisation of similar assured items is depicted in Table 1. The unit of account for the data collection was based one each subject matter item that was assured, the aggregation of these subject matter items was to achieve the same purpose of maintaining the aggregated subject matter categories as the unit of account for the finding's discussions.

Table 1: Example of categorisation of assured items.

Category	**Assured item**
Energy	Total renewable energy consumption
	Total non-renewable energy consumption
	Total energy produced
	Energy intensity
	Reduction of energy consumption
Health and Safety Environment	Total recordable injury frequency rate
	Number of workplace incidents
	Severity rate of health and safety incidents
	Days away from work injury frequency rate

After capturing the reporting frameworks that were used by the companies, a list was compiled on the Excel sheet of all the reporting frameworks used. The researcher downloaded the reporting frameworks from the internet. The researcher read and understood whether the frameworks guide the sustainability items to be disclosed and the measurement of such items. Frameworks that do not guide the disclosures to be reported on and the measurement of the disclosures were captured as 0. Frameworks that provide guidance on the disclosures to be reported on but do not provide guidance on how to measure the disclosures were captured as 1. Frameworks that provide guidance on what items to disclose and how to measure those items were captured as 2.

Specific examples of disclosure depicting assurance practices were captured and included as part of the analysis to provide context to the findings and highlight emerging trends in the assurance of sustainability-related information.

4.4 DATA ANALYSIS

The data analysis of the study was exploratory based on prior literature and the audit process. A combination of descriptive and inferential statistics was used to explore differences, associations and possible relationships in the data collected between the ASX and JPX. Descriptive statistics were run to summarise, contextualise, and analyse the large set of data through the creation of pivot tables that were depicted visually. The research emphasises that it does not aim to test causality. Nevertheless, in line with prevailing practices in the field of accounting (Abdul-Baki et al., 2014; Anh et al., 2019; Ikediashi et al., 2012; Nkhi et al., 2021), the Kruskal-Wallis and Mann-Whitney U tests were used to investigate whether there are statistically significant differences in the data. The chi-squared test was used to investigate whether there are statistically significant associations in the data. Specifically, these tests were applied when the independent variable is nominal, and the dependent variable falls within the categories of ordinal or scale data.

To answer the research questions, the following hypotheses were developed for a Kruskal Wallis H-test:

- **H1.** There is no statistically significant difference in the number of subject matter items that are assured in a category between the subject matter category in the ASX and JPX.
- **H2.** There is no statistically significant difference in the number of subject matter items that are assured in a category between the industries in the ASX and JPX.
- **H3.** There is no statistically significant difference in the number of subject matter items that are assured in a category between the six capitals in the ASX and JPX.
- **H4.** There is no statistically significant difference in the total number of reporting frameworks adopted in a subject matter category among different specific numbers of reporting frameworks between the ASX and JPX.

To answer the research questions, the following hypotheses were developed for a Mann-Whitney U-test:

- **H5.** There is no statistically significant difference in the number of subject matter items that are assured in a category between the ASX and the JPX.
- **H6.** There is no statistically significant difference in the number of subject matter items that are assured in a category between the financial auditor and the sustainability auditor.

Additionally, the Pearson’s chi-square test of association was under the following hypotheses:

- **H7.** There is no statistically significant association between the type of auditor engaged by companies and the exchange in which the companies are listed.
- **H8.** There is no statistically significant association between the type of auditor engaged by companies and the type of assurance engagement adopted in the ASX and the JPX.

To evaluate the statistically significant differences for more than two independent variables, a Kruskal-Wallis H-test was run and the results are presented in the data analysis. Furthermore, a Pairwise Comparison test between the variables analysed, adjusted by the Bonferroni correction for multiple tests was performed. For only 2 independent variables, a Mann-Whitney U test was conducted to observe the statistically significant differences in the dependent variables and the results are discussed in the data analysis. Pearson Chi-square test of association was run over the variables and discussed in data analysis. In all the Pearson Chi-square tests that were run, the test assumptions regarding expected cell counts were reasonably met as none of the cells (0%) have expected counts less than 5. For all considered tests, the entire data set was considered with the valid number of cases being 1822 (100%) and there being no missing cases. All the statistical tests were run using a 5% level of significance to control for the possibility of a type of 1 error.

4.5 VALIDITY AND RELIABILITY

The Statistical Package for the Social Sciences (SPSS) was used to run the data analysis. Before performing any inferential tests, the researcher examined the data to ensure that it was categorical (nominal or ordinal) and ran statistical tests such as the Kolmogorov-Smirnov test and the Shapiro-Wilk tests to evaluate that the data was non-parametric.

For robustness, ANOVAs and pairwise comparison tests were performed for all Kruskal Wallis tests. Where a Mann-Whitney U was used a T-test was performed. Additionally, the Wilcoxon signed-rank test was used to assess the degree to which the findings of the study remain valid and reliable under different conditions or assumptions (Leedy et al., 2014; McKight & Najab, 2010). Lastly, a Fisher's Exact test was used in instances where there were doubts regarding the validity of the Chi-squared test of association.

To ensure the validity and reliability of the study, the same researcher was responsible for the data collection throughout the study. This promotes familiarity with the data collection procedures, protocols and instruments which reduces the likelihood of procedural error (Roberts & Priest, 2006). The data collection procedures followed were methodical which produced reliable and consistent findings if the research had been duplicated another year or by a different researcher.

The researcher used a checklist that consisted of variables informed by prior literature and the assurance process to collect data. The checklist promoted consistency and comparability of the information collected as the variables remained consistent for all companies. The variables were based on an in-depth literature review and the assurance process according to assurance standards. This lowered the level of subjectivity involved in the data collection process.

4. RESULTS AND DISCUSSION

To evaluate the statistically significant differences for more than two independent variables, a Kruskal-Wallis H-test was run and the results are presented in Table 3 below. The Kruskal Wallis H-Test was run for H1 (Section 5.1.1 Subject matter assured per subject matter category) , H2 (Section 5.1.3 Subject matter assured within each industry) , H3 (Section 5.2 Subject matter assured within the six capitals) and H4 (Section 5.7 Number of sustainability reporting frameworks adopted). Furthermore, a Pairwise Comparison test between the variables analysed, adjusted by the Bonferroni correction for multiple tests was performed.

For only 2 independent variables, a Mann-Whitney U test was conducted to observe the statistical significant differences in the dependent variables to address H5 (Section 5.1.2 Subject matter assured per listing) and H6 (Section 5.8.1 Subject matter assured and the type of auditor) . The results are presented in Table 4 below.

A Pearson Chi-square test of association was run over the variables to address H7 (Section 5.8.1 The type of auditor and the listing) and H8 (Section 5.9 Auditor and the type of assurance engagement). The test was also run to identify the association between the auditor and the 6 capitals assured (Section 5.8.2). The results of the test are presented in Table 5 below. In all the Pearson Chi-square tests that were run, the test assumptions regarding expected cell counts were reasonably met as none of the cells (0%) have expected counts less than 5.

Table 3: Analysis of stastical significant differences using a Kruskal Wallis with further stratification by listing

Dependent variable	Independent variable	H-test value	Pairwise comparisons value	
Number of subject matter items assured in a category	Subject matter category	24.470**	ASX JPX	18.000** 16.000**
Number of subject matter items assured in a category	Industries	35.038*	ASX JPX	38.949* 23.713*
Number of subject matter items assured in a category	Six capitals	20.163*	ASX JPX	11.613* 9.789**

The total number of reporting frameworks adopted in a subject matter category	The specific number of reporting frameworks	5.423**	ASX JPX	13.635* 4.198**

Note: * significant at 5% level-Reject null hypothesis; ** significant at less than 1% level-Retain null hypothesis.

Table 4: Analysis of statistical significant differences using a Mann-Whitney U-test

Dependent variable	Independent variable	Overall U-test value	Exchange	U-test value
Number of assured subject matter items in a category	Listing	117.500**	N/A	
The number of assured subject matter items in a category	The type of auditor	217.000*	ASX JPX	6.500* 96.000**

Note: * significant at 5% level-Reject the null hypothesis; ** significant at less than 1% level-Retain the null hypothesis

Table 5: Analysis of statistical significant associations using Pearson's chi-square of association.

Associations	X^2 value	Likelihood ratio	Phi value	Cramer's V value
Type of auditor and the exchanges (ASX and JPX)	367.391**	386.521**	0.449**	0.449**
Type of auditor and the type of assurance engagement	16.410**	13.896**	0.095**	0.095**
Type of auditor and the six capitals	105.600**	121.750**	0.241**	0.241**

Note: *Significant at 5% level (above)-Reject the null hypothesis; **Significant at less than 1% level-Retain the null hypothesis

5.1 SUBJECT MATTER ASSURED

5.1.1 Per subject matter category

Table 2 provides a visualisation of the subject matter categories that were gleaned from the data collection and the frequency of the items within such categories.

Table 2: Frequency of assured subject matter items in a category between the ASX and JPX

FREQUENCY OF SUBJECT MATTER ASSURED				
Row Labels	**ASX**	**JPX**	**Grand Total**	**Percentage total**
AIR POLLUTANTS	31	81	112	6.15%
BIODIVERSITY AND CONSERVATION	12	2	14	0.77%
DIGITAL INCLUSION, DATA PRIVACY AND CYBERSECURITY	22		22	1.21%
DIVERSITY, EQUITY, AND INCLUSION	132	70	202	11.09%
ENERGY	93	115	208	11.42%
GHG EMISSIONS	158	195	353	19.37%
GOVERNANCE AND FEEDBACK	54	8	62	3.40%
HEALTH AND SAFETY ENVIRONMENT	86	76	162	8.89%
MATERIALS	14	13	27	1.48%
PRODUCT SAFETY AND QUALITY	17	3	20	1.10%
RECRUITMENT, TRAINING AND DEVELOPMENT	28	21	49	2.69%
SAFE AND SOUND WORKPLACE	19	46	65	3.57%
SECTIONS OF SUSTAINABILITY REPORT	25		25	1.37%
SOCIAL INVESTMENT	83	7	90	4.94%
SUSTAINABILITY APPROACH ON DISCLOSURES	97	5	102	5.60%
SUSTAINABILITY POLICIES AND STANDARDS	28	4	32	1.76%
SUSTAINABILITY SPENDS AND RECEIPTS	27	12	39	2.14%
WASTE	60	67	127	6.97%
WATER	36	75	111	6.09%
Grand Total	**1022**	**800**	**1822**	**100.00%**

The study has found that certain subject matter categories are assured more than others, depicted by the frequency illustrated in Table 2. These categories include GHG emissions (19.37%), energy (11.42%), diversity, equity, and inclusion (11.09%), health and safety environment (8.89%), waste (6.97%), air pollutants (6.15%) and water (6.09%). The study identified that the items in these categories have quantifiable measures, allowing them to be capable of being measured against suitable criteria. This suggests that quantifiable items are most likely to be assured (AUASB, 2014; IAASB, 2013). This might be attributable to the level of precision that could be applied during the assurance process and the persuasiveness of the evidence obtained (AUASB, 2014; IAASB, 2013). An increased level of precision and

persuasive evidence allows the auditors to provide better credibility on the sustainability-related information (AUASB, 2014; IAASB, 2013).

Additionally, these categories are in the shared focus of companies, stakeholders as well as specific reporting framework sources (CDP, 2021; GRI, 2023; ISO, 2006; TCFD, 2021). As a result, companies could be adopting assurance on these subject matters as an attempt to signal that they are active participants in the global consensus on the significance of addressing climate change and transitioning to sustainable energy sources. Furthermore, being active participants allows companies to appear as a legitimate part of society as their actions align with the beliefs of society.

In contrast, the study identified that highly qualitative items have also been assured. These subject matter categories include sustainability approach on disclosures (5.60%), sustainability policies and standards (1.76%) and sections of sustainability reports (1.37%). However, as the information reported in these categories is highly qualitative, the items assured in these categories do not have a unit of measurement (See Section 5.4).

Based on the nature of these items, they might not be capable of being measured against suitable criteria which might not make them appropriate subject matter to be assured (IAASB, 2010b). This is in line with prior literature which indicated that the challenge with sustainability assurance is that the subject matter items can be qualitative and difficult to measure (Akisik & Gal, 2017; De Villiers & Maroun, 2017). As a result, companies seem to have identified that users are concerned about the information in those subject matter categories assured and consequently adopt assurance on these. The adoption of assurance on these subject matters could be a strategic tool adopted by management to influence the legitimacy of the information reported (Ballou et al., 2006; Bebbington et al., 2008; Boiral & Heras-Saizarbitoria, 2020; Cohen & Simnett, 2015; Kolk, 2010).

The study found that certain subject matter that is assured is highly dependent on the type of company that is being assured. The majority (67%) of the companies that assure the biodiversity and conservation subject matters are in the industrial, materials and Healthcare industries. The companies in the industrial industry engage in business activities that often have a substantial impact on ecosystems (Cho et al., 2015; del Mar Alonso-Almeida et al., 2014; Simnett et al., 2009). The companies in healthcare industries rely on biodiversity and natural compounds found in plants and animals for drug discovery (Adler et al., 2017).

This implies that specific subject matter is adopted for assurance based on the materiality of that information on the operations of the company (Edgley et al., 2015; Grewal et al., 2021; O'Dwyer & Owen, 2005). This also indicates that there is bound to be a lack of consistency in

the subject matter that is assured by companies because of the type of businesses and industries they operate (Alsahali & Malagueño, 2022). This is further substantiated by the emphasis that is being made by reporting frameworks for companies to consider the materiality of the disclosures that they report on (Edgley et al., 2015; Grewal et al., 2021; O'Dwyer & Owen, 2005).

Interestingly, the study has found that matters that have already been subject to rigorous risk management and mitigation processes through well-established internal controls, policies, and procedures during the audit of financial statements are also being assured (Commission, 2012; IAASB, 2022). These subject matter items include product safety and quality; digital inclusion, data privacy and cybersecurity; materials; and governance and feedback. The audit of financial statements encompasses the examination of internal controls, policies, and procedures as an integral part of the process (Delfgaauw, 2000; IAASB, 2022).

Delfgaauw (2000) argues that an effective internal control system reduces the need for assurance on other types of disclosures, such as sustainability reports. This suggests that there might be an overlap of information that is being audited in financial statements and sustainability reports. With assurance being a costly process, the reason for adopting sustainability assurance on subject matter items that have already been subject to financial statement assurance might not be altruistic. The reason could be an indication of companies using these to signal their high quality of sustainability reporting by expanding the scope of their assurance, distinguishing themselves from low-quality companies (Braam & Peeters, 2018; Hahn & Kühnen, 2013; Hahn & Lülfs, 2014; Lys et al., 2015). This is in line with Braam and Peeters (2018) who argue that companies with good sustainability performance are more likely to signal their efforts by selecting a broader assurance scope.

5.1.2 Subject matter assured within the listing.

Prior studies have argued that companies in Japan are more likely to adopt assurance on sustainability-related information in comparison to companies in (Kolk & Perego, 2010; Simnett et al., 2009; Zhou, 2022). This is found to be attributable to the type of country that the company is domiciled in with Japan being a stakeholder-oriented country and Australia being a shareholder-oriented country (Kolk & Perego, 2010; Simnett et al., 2009; Zhou, 2022). The results from this study contradict the arguments. The study has found that ASX has 50% more subject matter items assured per company in comparison to the JPX. This could be a result of the level of comfort that the companies in each exchange have towards the adoption of external assurance. Companies listed on the ASX are found to be more comfortable with external assurance while there is hesitancy in the JPX (Deegan et al., 2006a; Haider &

Nishitani, 2020; Heenetigala et al., 2016; Junior et al., 2014; Kolk & Perego, 2010; Mock et al., 2013; Nishitani et al., 2020; Simnett et al., 2009). This suggests that external assurance signal has different effects in different jurisdictions. Companies listed in the JPX might not see the same value in the signal of assurance as companies listed in the ASX.

The subject matter categories that contribute to the high frequency for companies in the ASX are biodiversity and conservation; product safety and quality; digital inclusion, data privacy and cybersecurity; sections of sustainability report; sustainability policies and standards; governance and feedback; social investment; and sustainability approach on disclosures. With stakeholders being concerned with the sustainability efforts of companies, companies in the ASX have identified that providing external assurance on these items can be a signal that stakeholders can observe. The providence of assurance on these items despite the challenges addressed on these subject matters above (Section 5.1.1) suggests that companies in the ASX are strategically adopting assurance as a signalling tool.

The Mann-Whitney U test (Table 4) provides further analysis of the data, indicating that despite there being differences in the number of subject matter items assured in categories between the ASX and the JPX, they are not statistically significant (U-test=0.165, $p>0.05$). The differences, although not statistically significant, indicate that there is a lack of consensus on the subject matter that needs to be disclosed and assured (Ackers, 2009; Deegan et al., 2006b; Farooq & De Villiers, 2020; O'Dwyer & Owen, 2005). As a result, there is room for management (signaller) to specifically emphasise specific subject matters (signals). These would be subject matters that are positive or have no findings, increasing the efficacy of the signal and enhancing the legitimacy of the company. With the differences not being statistically significant and the possibility of management bias, the call for the convergence of reporting frameworks on what should be reported and assurance standards on what should be selected for assurance is made.

5.1.3 Subject matter assured within the industry.

Table 6: Number of companies within each industry for the ASX and JPX

NUMBER OF COMPANIES WITHIN INDUSTRY				
Count of INDUSTRY	**Column Labels**			**Percentage**
Row Labels	**ASX**	**JPX**	**Grand Total**	**total**
Automobile		3	3	3%
Basic materials		3	3	3%
Communication Services	2	2	4	4%
Consumer Discretionary	1	9	10	9%
Consumer Staples	4		4	4%
Energy	4	4	8	7%

Financial services	9	5	14	12%
Health Care	2	7	9	8%
Industrials	8	12	20	18%
Materials	13		13	12%
Real Estate	6	1	7	6%
Technology		11	11	10%
Utilities	3	4	7	6%
Grand Total	**52**	**61**	**113**	**100%**

As indicated in Table 6, the research indicates that companies in the Industrial industry have a majority of companies that have assured their sustainability information (18%) where majority of the companies are domiciled in the JPX (60%). Companies in the financial services industry (12%) follows after the Industrial industry and contrary to the Industrial industry, majority of these companies are domiciled in the ASX (64%). 12% of the companies in the materials industry have assured their sustainability related information. All 12% of the companies in the materials industry are domiciled in the ASX.

Contrary to the lack of a statistical significant difference between the exchanges, the results from the Kruskal Wallis test (Table 3) revealed that there is a statistical significant difference in the number of subject matter items that are assured within categories among industries (H-test is < 0.001, $p<0.05$). Upon stratification between the stock exchanges, the statistically significant difference persisted for the industries listed on the ASX (H-test is <0.001, $p<0.05$) and those on the JPX (H-test=0.008, $p<0.05$).

For the ASX, statistically significant differences were observed for the following pairings, Consumer Discretionary (2%) vs Materials (24%), Consumer Discretionary (2%) vs Financial Services (23%); Communication services (3%) vs Materials (24%); Communication Services (3%) vs Financial Services (23%); and Health Care (4%) vs Financial Services (23%). Materials and Financial Services assure the most items in the ASX while Consumer discretionary, Communication services and Health care assure the least. On the contrary, only the Real Estate (1%) vs industrial industries (18%) were identified as the pair leading to statistical significant differences for the JPX. Mock et al. (2007) have shown that industries that operate in environmentally and economically sensitive areas are assured the most reports. Considering that companies in industries that have a great environmental impact (Material and Industrial) and economic impact (Financial Services) have the most assured items, the results are in line with prior literature (Mock et al., 2013).

This is considered to be a result of the companies in these industries needing to legitimise their business operations due to the level of environmental and social risks experienced by the companies (Simnett et al., 2009). Additionally, as the majority of the reporting frameworks

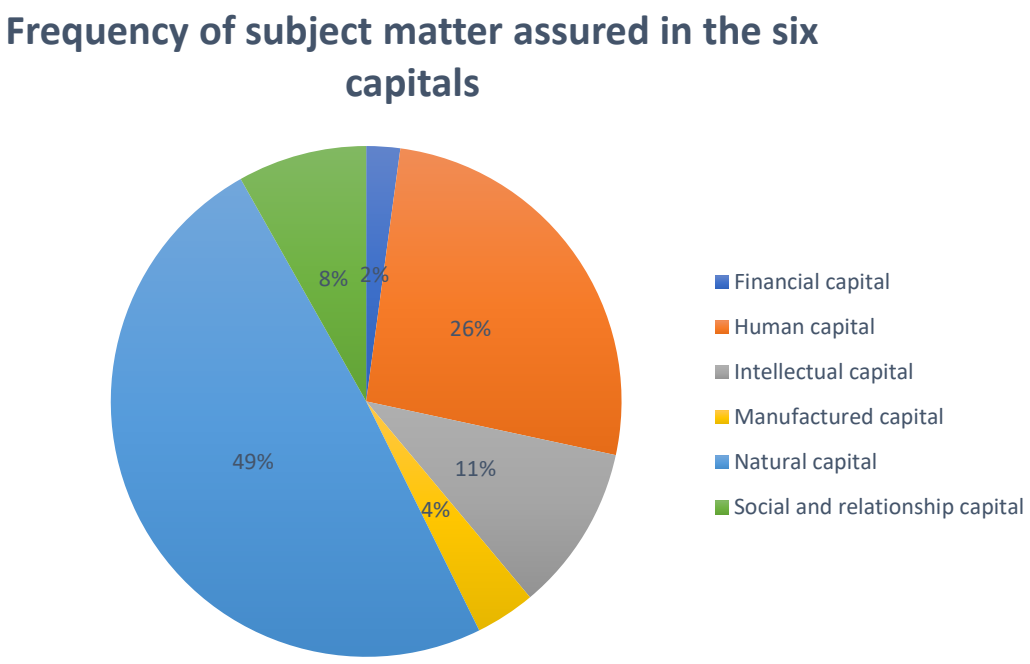
currently adopted guide environmental information, it is suggested that the reporting frameworks play an indirect role in the emphasis on assuring such information (Ballou et al., 2006; Mock et al., 2013). The differences in the assurance practices of industries underscore the importance of considering industry-specific standards when evaluating assurance practices. Standard-setting bodies should be prompted to develop tailored guidance that recognises and accommodates the distinct characteristics of different industries in the audit and assurance field.

5.2 ASSURED SUBJECT MATTER AND THE SIX CAPITALS

Hasan et al. (2005) found that the assurance of environmental performance is the widely adopted assurance of sustainability-related information. In line with the six capitals as defined by the IIRC, the study has found that natural capital is the most assured (49%), which is in line with Hasan et al. (2005) findings. As illustrated in Figure 1, Human capital is the second most assured capital (24%). The domination of these capitals could be attributable to the emphasis that is being placed on the reporting of sustainability-related information related to these capitals (Ballou et al., 2006; Mock et al., 2013). As a result, companies can be seen to be adopting assurance on these capitals as it seems to be information that the stakeholders are concerned about (Ballou et al., 2006; Mock et al., 2013). Allowing the company to legitimise its sustainability efforts by providing credibility on the information that aligns with societal norms and beliefs (Ashforth & Gibbs, 1990; Suchman, 1995; Thomas & Lamm, 2012). Additionally, as the six capitals are used to create value in the company (IIRC, 2021), natural and human capital being the most assured might be used to send a signal to users about these capitals being the biggest contributor to the company's value creation.

Interestingly, while this study has found that there are subject matter items that are assured that overlap with information that would have otherwise been assured in the financial statements (See Section 5.3), the frequency of subject matter items under financial capital is the lowest (2%). This might be attributable to these items being directly assured in the audit of the financial statement. Despite the number being small, it is worth considering the value that is being derived from providing sustainability assurance on information that has already been assured in the financial statements audit.

Figure 1: Frequency of subject matter assured for the 6 capitals.



Further analysis of the results using the Kruskal Wallis (Table 3), observed that the difference in the number of items assured in a subject matter category is statistically significant between the six capitals (H-test=0.001, $p<0.05$). The statistically significant pairings identified by the pairwise comparison test are Intellectual capital vs Natural capital and Intellectual capital vs Human capital. Intellectual capital often involves intangible items which might be challenging to measure whilst natural and human capital involves more tangible and measurable items, making it easier to measure (IIRC, 2021). As a result, these findings strengthen the argument above that the measurability of items plays a role in the adoption of assurance for those items (Ballou et al., 2006).

When controlling for stock exchanges, the test identified that there is a statistically significant difference in the number of assured items among the six capitals for the ASX (H-test=0.040, $p<0.05$) but not for the JPX (H-test=0.081, $p>0.05$). This difference in the assurance practices between the exchanges could be attributable to the hesitancy that companies in the JPX have towards the adoption of external assurance as a form of credibility (Haider & Nishitani, 2020; Junior et al., 2014; Kolk & Perego, 2010; Nishitani et al., 2020).

5.3 SUBJECT MATTER THAT OVERLAPS WITH FINANCIAL STATEMENTS

The results from this study indicate that 95% of the subject matter items assured do not overlap with information that is assured in the financial statements. The 5% overlap with financial assurance is not a substantial amount, however, it is worth considering as this information

would have been audited in the financial statements, and the overlapping assurance might be a place of concern in terms of relevant professional codes of ethics (IESBA, 2022). Furthermore, the study found that in proportion to the subject matter that is being assured by each exchange, companies in the ASX provide sustainability assurance on 7.5% of overlapping information. At a much lower proportion, companies in the JPX are found to provide 1.75% assurance on overlapping items. In line with the analysis that the ASX has more subject matter items assured per company, this provides emphasis that companies listed on the ASX might be seeing a different value in the signal sent through assurance. The value, in this instance, is seen through the adoption of overlapping assurance on subject matter items.

The subject matter categories relate to money that was invested, spent, or received for sustainability efforts and is accounted for in the annual financial statements of the companies. These categories are the least assured subject matter categories in general however they have the most assured items that overlap with information in the financial statements. The assurance of the above subject matter categories in the sustainability report might not be necessary as such items would have been assured in the audit of financial statements. The overlap of the information might also indicate that it is impossible to completely separate the audit of financial statements from that of sustainability as a company is a complex and interconnected system that comprises numerous processes and functions (Gal & Akisik, 2020).

The overlapping assurance on certain subject matter items indicates that there is a need for clear and concise guidance on the assurance of such sustainability-related information as there is resource waste in the overlapping assurance of subject matter (Gal & Akisik, 2020). Additionally, the overlapping assurance on certain subject matter items might be a result of management (signaller) using the assurance of these items to send a signal on the credibility of the sustainability efforts of the company. Management might have the desire to undertake assurance for these items for self-serving reasons by establishing a clear connection between financial information and sustainability efforts (Gal & Akisik, 2020; O'Dwyer & Owen, 2005).

Additionally, the study revealed that in both the ASX and JPX, the financial auditors (93%) assure most of the subject matter items that overlap with information that is in the financial statements while sustainability auditors are responsible for the remaining 7%. The analysis provides support to prior research that provided evidence that there might be professional bias involved in the determination of the information that will be chosen for assurance (Gal & Akisik, 2020; O'Dwyer & Owen, 2005). The professional bias can be attributed to financial auditors including such information in the scope due to their expertise in the field of auditing financial

statements (Alsahali & Malagueño, 2022; Deegan et al., 2006a; Farooq & De Villiers, 2020; Prinsloo & Maroun, 2021). The financial auditors could be more familiar with the assurance processes and procedures that relate to such information as they are experts in the audit of financial statements.

5.4 SUBJECT MATTER AND THE UNIT OF MEASUREMENT

A unit of measurement provides a common language for expressing quantities in measurable terms. According to the descriptive statistics, 186 subject matter items do not have a disclosed unit of measurement (10.2%). Due to the lack of generally accepted standards, the auditor has to specifically consider the appropriate criteria at the onset to ensure that the subject matter items chosen for assurance are auditable (Wallage, 2000). The fact that assurance is extended to subject matter items that lack a clear measurement criterion raises questions about the effectiveness of the assurance process (Akisik & Gal, 2020; Deegan et al., 2006a; McNally et al., 2017). If there is no clear measurement to evaluate the subject matter against, it becomes challenging to determine whether the subject matter is truly credible and whether the trust of users can be enhanced (Akisik & Gal, 2020; Deegan et al., 2006a; McNally et al., 2017).

The findings from the study revealed that in proportion to the total subject matter items assured in the exchange, companies in the ASX assure 17.7% of the subject matter items that do not have a unit of measurement whilst companies in the JPX assured 0.625%. These findings suggest that the auditors in the ASX are willing to adopt assurance on subject matters that are not measurable which might indicate that despite the lack of guidance, the auditors might be more concerned with increasing the scope of the engagement (O'Dwyer & Owen, 2005). Braam and Peeters (2018) indicate that there is a direct correlation between the fees and the comprehensive work effort applied. On the contrary, in the JPX, auditors adopt a more stringent approach that emphasises their reluctance to provide audit services to subject matter that is not quantifiable or measurable and this might be attributable to their technical expertise in sustainability-related information(the subject matter) (Edgley et al., 2015; Farooq & De Villiers, 2020; Gillet, 2012). The difference between the ASX and JPX raises concerns about the consistency and the reasons for the adoption of some subject matter items for assurance (Akisik & Gal, 2017, 2020; Deegan et al., 2006a; McNally et al., 2017).

5.5 PROSPECTIVE INFORMATION ASSURED

Of the 1822 assured items, 1659 (91%) relate to historic information however the remaining 163 (9%) items relate to prospective information. Furthermore, the study revealed that the ASX assured 15.36% of subject matter items that are prospective in proportion to the total subject matter items assured in the exchange. The JPX is found to assure 0.75% of subject

matter items that are prospective in proportion to the total subject matter items assured in the exchange. These subject matter items provide an account of anticipated future developments, goals and impacts that have not yet occurred in the company (AccountAbility, 2020; IAASB, 2013; Roebuck et al., 2000; Schelluch & Gay, 2006). This information has limitations such as the inherent uncertainty of future events, reliance on management's estimates and bias, and limited historical data to rely on (AccountAbility, 2020; IAASB, 2013; Roebuck et al., 2000; Schelluch & Gay, 2006). The account of this information is considered to be useful to users as they can use the information to make informed decisions regarding the future of the company (AccountAbility, 2020; IAASB, 2013; Roebuck et al., 2000; Schelluch & Gay, 2006). As a result of this, companies are likely to adopt assurance on this information to signal the credibility of the information, providing trust for the users to rely on the information.

The top subject matter categories that have prospective information that is assured are sustainability approach on disclosures (37%), sections of sustainability reports (15%) and sustainability policies and standards (9%). The existing assurance standards acknowledge that some subject matter that can be assured might be prospective however there is an inherent limitation that such matter might not be verifiable yet there is no guidance on how to conduct the assurance of such prospective information (AccountAbility, 2020; IAASB, 2010a, 2013; Schelluch & Gay, 2006). This further substantiates the area of contention related to subject matter that is being assured yet has no suitable criteria for it to be measured against. As a result, assurance standards should work in collaboration with reporting frameworks to establish improved guidance on the measurement of the prospective information which will in turn improve the ability of the auditor to assure the information (Roebuck et al., 2000; Schelluch & Gay, 2006)

Roebuck et al. (2000) hold that a higher level of assurance (reasonable) is ascribed to historical subject matter which implies that limited assurance is the most likely type of assurance to be adopted for prospective information. The findings from this study corroborate the findings by Roebuck et al. (2000) as 100% of all prospective information is assured with limited assurance.

Interestingly, financial auditors are the only auditors in the ASX who provided assurance over such information and in contrast, only sustainability auditors assured this information in the JPX. The findings suggest that there are distinct assurance approaches by the different assurance providers in each country with sustainability auditors being less comfortable assuring prospective information in the ASX and financial auditors being less comfortable in the JPX.

5.6 LACK OF COMPARATIVE INFORMATION

956 subject matter items of the total assured (1822) do not have comparative information provided by the reporting organisation. In proportion with the total subject matter items assured in the ASX, the study found that 64.58% of the subject matter items assured by companies in the ASX does not have comparative information. In comparison, only 37% of the subject matter items assured in the JPX do not have comparative information. The subject matter categories that have the most items without comparative information are GHG emissions (18%), Diversity, equity, and inclusion (12%) and energy (11%).

Comparative information is crucial for users to make informed decisions as they can use the information to identify trends and changes to the reported information (AccountAbility, 2020; GRI, 2023; TCFD, 2021). Without this information, users might have less confidence in the reliability of the information despite the assurance being provided as they might not be able to benchmark the company against other market players (AccountAbility, 2020; GRI, 2023; TCFD, 2021). Reporting frameworks hold that for sustainability-related information to be useful, it must be trusted and comparable with disclosures from competitors and peers which does not seem to be the case (AccountAbility, 2020; GRI, 2023; TCFD, 2021). The absence of such information may hinder stakeholder's ability to assess the company's performance or progress towards sustainability over time (AccountAbility, 2020; GRI, 2023; TCFD, 2021).

The existence of comparable information in sustainability reports allows auditors to assess the reasonability and consistency of this information from one year to the next (AccountAbility, 2020; IAASB, 2013). By assessing this information, auditors may be able to identify discrepancies or material differences that might have an impact on their audit opinion (AccountAbility, 2020; IAASB, 2013). Auditing standards hold that an auditor ordinarily obtains a high level of assurance (Reasonable assurance) from obtaining additional corroborative evidence which may include information cross-checking or comparison with other information (AccountAbility, 2020; IAASB, 2013). The lack of comparative information on these subject matter categories suggests that limited assurance should be the most adopted type of assurance based on the auditing standards. The findings provide evidence that is in line with the auditing standards as 97% of the information that does not have comparative is assured with limited assurance for the ASX and 93% for the JPX.

Additionally, Hasan et al. (2005) noted that financial auditors consider subject matter and the type of audit procedures performed to be the most important determinants of the level of assurance. Due to the lack of comparatives, auditors might not have sufficient data sources to perform additional procedures and as a result, according to Hasan et al. (2005), financial

auditors are expected to undertake more limited assurance for these subject matters (AccountAbility, 2020; IAASB, 2013). This is in line with the findings from this study as financial auditors provide 72% of the limited assurance.

5.7 SUSTAINABILITY REPORTING FRAMEWORKS

Prior studies have found that there is a lack of generally accepted reporting frameworks for sustainability reporting which has caused a manifold of implications and this has led to a fragmented landscape for sustainability reporting (Eccles et al., 2011; Zrnić et al., 2020). In line with prior research, this study has found that 27 reporting frameworks in total were adopted by companies in ASX and JPX. A list of these reporting frameworks and their level of guidance is provided in Appendix 2. The study found that of the 27 reporting frameworks adopted, 7 frameworks do not guide the disclosures that need to be reported on and the measurement of such disclosures while 11 standards guide disclosures that need to be reported but not the measurement of such disclosures.

All reporting companies were found to be adopting more than one reporting framework which suggests that there might be diversity in the reporting boundaries, disclosure requirements and measurement criteria in one company which might contribute to the inconsistency and incomparability of sustainability reports (Beets & Souther, 1999; De Villiers & Maroun, 2017; Farooq & De Villiers, 2020; McNally et al., 2017). The absence of guidance on disclosure and measurement in these reporting frameworks contributes to the freedom that companies have to selectively report on certain information while neglecting others which might contribute to management bias and impression management (Ackers, 2009; Bebbington et al., 2008; Deegan et al., 2006b; Farooq & De Villiers, 2020; Gal, 2018; Moir, 2001; O'Dwyer & Owen, 2005).

Different frameworks often have varying criteria, terminologies and disclosure requirements which have led to the adoption of various reporting frameworks that contribute to the lack of understandability of the reporting frameworks that the company used (Beets & Souther, 1999; Farooq & De Villiers, 2020; McNally et al., 2017). This would not be in line with assurance standards as criteria are required to be understandable as they contribute to conclusions that are clear, comprehensive and not subject to significantly different interpretations (AccountAbility, 2020; IAASB, 2019; ICMM, 2023). The existence of multiple reporting frameworks indicates that there is a great need for regulatory convergence and harmonisation in sustainability reporting standards (Eccles et al., 2011; Jose, 2017; Zrnić et al., 2020).

Lastly, only 9 reporting frameworks guide what disclosures to report on and how to measure these disclosures. The existence of these 9 frameworks with comprehensive guidance can

enhance the clarity and consistency of sustainability reporting (Akisik & Gal, 2017, 2020; Deegan et al., 2006a; McNally et al., 2017). Companies operating under these frameworks have a clear understanding of what information to disclose and how to measure it, leading to more standardised reporting practices (Akisik & Gal, 2017, 2020; Deegan et al., 2006a; McNally et al., 2017).

The Kruskal Wallis test analysis indicated that the subject matter categories present a similar pattern to the specific number of reporting frameworks that are adopted. The analysis reveals that there is no statistically significant difference (H-test=0.247, $p>0.05$) in the number of subject matter categories that have adopted a specific number of reporting frameworks, such as 1, 2, 3 or 4. This suggests that, irrespective of the specific number of reporting frameworks chosen within a subject matter category, the overall distribution of reporting frameworks remains comparable.

Furthermore, an in-depth examination of the findings identifies a noteworthy exchange-specific distinction. Specifically, there is a statistically significant difference in the specific number of reporting frameworks that were adopted in a subject matter category in the ASX (H-test=0.009, $p<0.05$). The pairwise comparison indicated further that the statistically significant pairings lie in the majority adoption of 1 reporting framework vs 4 frameworks. This suggests that companies in the ASX are more likely to provide more consistent reporting boundaries, disclosure styles and measurement criteria by adopting one reporting standard (Beets & Souther, 1999; De Villiers & Maroun, 2017; Farooq & De Villiers, 2020; McNally et al., 2017).

In contrast, there is no statistically significant difference observed in the JPX (H-test=0.241, $p>0.05$). Together with the lack of a generally accepted reporting framework, the existence of the statistical significant difference further reflects the diverse approaches that companies listed on the ASX and JPX adopt to inform their sustainability reporting practices (Beets & Souther, 1999; De Villiers & Maroun, 2017; Farooq & De Villiers, 2020; McNally et al., 2017).

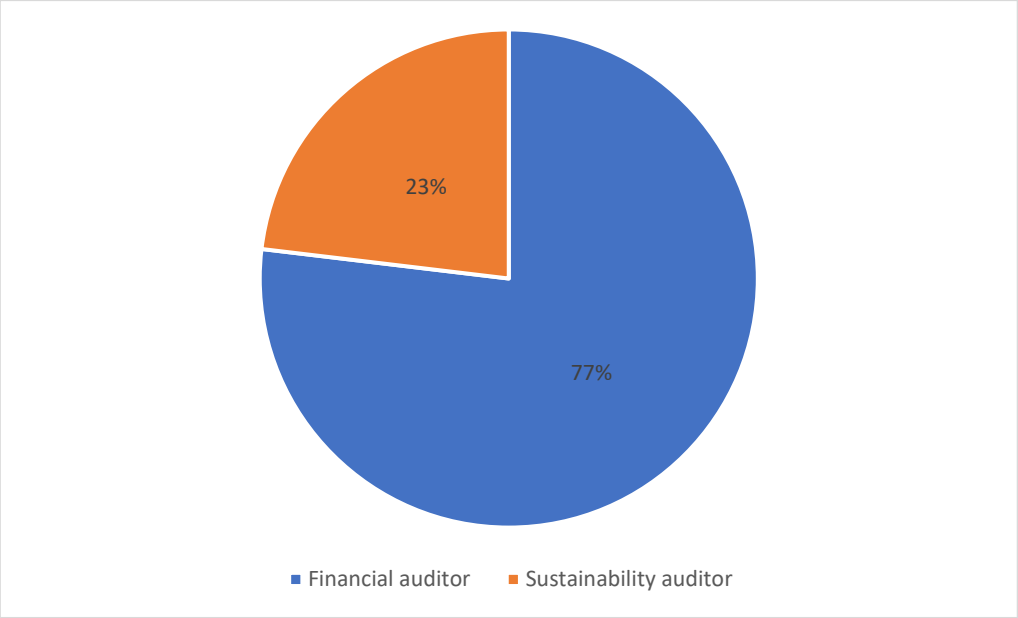
5.8 THE TYPE OF AUDITOR

5.8.1 The type of auditor and the listing

In line with Alsahali and Malagueño (2022) there are statistical significant variations in the scope of sustainability assurance items based on the type of assurance provider. There is a statistically significant difference in the number of items assured by the type of assurance provider (U-test<0.001, $p>0.05$). This statistically significant difference persists for the ASX (U-test<0.001, $p>0.05$) but not for the JPX (U-test=0.246, $p>0.05$). This suggests that assurance

providers between the ASX and JPX might also be placing different values on the external assurance that is provided on sustainability-related information. The value placed by the external assurance provider might be that of a signalling and legitimising effect. Assurance providers might be attempting to signal their ability to provide assurance on the sustainability-related information that is still an area of contention, enhancing the legitimacy of their functions as assurance providers.

Figure 2: Frequency of subject matter assured with the type of assurance provider.



As depicted in Figure 2, the study has found that the financial auditor has assured more subject matter (77%) in comparison to the sustainability auditor (23%). This is consistent with prior literature as KPMG (2020) reviewed 1400 companies across 22 jurisdictions which included Australia and Japan and found that 63% of the assurance engagements were conducted by a financial auditor or audit affiliate firms. The dominance of the financial auditors can be attributed to their global networks and their experience in financial auditing allows them a broad reach in the market (Alsahali & Malagueño, 2022; Simnett et al., 2009). With the existence of credibility that is being extended to financial auditors due to their experience in the audit market, companies might contract financial auditors for the assurance of sustainability-related information for signalling purposes. By engaging financial auditors, companies signal to their users that they take the independent scrutiny of sustainability-related information seriously by willingly engaging with the most experienced professionals.

Achmad et al. (2017) indicate that sustainability auditors provide assurance statements that are of a higher quality than those that are provided by financial auditors. Achmad et al. (2017) believe that the quality is attributable to the sustainability auditors being more elaborate and informative in formulating recommendations and it is lower for financial auditors because they

take a more cautious and conservative approach. The findings suggest that despite the financial auditors holding a dominant position in the market, sustainability auditors are slowly climbing the ladder as well and this might be a consequence of Achmad et al. (2017)'s stance on quality.

Kolk and Perego (2010) found that financial auditors are more likely to be chosen in a country that is shareholder-oriented (Australia). As indicated Table 7, the ASX is heavily dominated by financial auditors (94%), particularly the Big 4 firms. The Big 4 audit firms (KPMG, EY, PWC and Deloitte respectively) dominate the financial auditors' market in the ASX and BDO only has a 1% share of the market. Sustainability auditors are underrepresented (6%) with only two players identified in the research (Bureau Veritas and Intertek Health Sciences respectively). This is in line with KPMG (2020), with a slight variance, who found that of the Australian sample, 100% used a financial as the assurance provider.

The findings by Kolk and Perego (2010) are contradicted by those of Simnett et al. (2009) who found that companies in a stakeholder-oriented country (Japan) are more likely to choose financial auditors as their assurance provider. The findings from this research indicated that there is a more distribution between the auditors in the JPX, with financial auditors dominating 56% of the market and the sustainability auditor following closely with 44%. In contrast to the ASX, the financial auditor market is dominated by only 3 of the Big 4 audit firms (KPMG, Deloitte, and EY respectively). In the JPX, nine sustainability auditors are engaged which are dominated by LRQA, SGS, SOCOTEC, Apex companies and Bureau Veritas respectively. In contrast, Japan which is stakeholder-oriented has financial auditors currently holding a dominant position in the sustainability assurance market, holding a substantial 55% share of the market while sustainability auditors account for the remaining 45%. As a result, the contrasting views of Kolk and Perego (2010) and Simnett et al. (2009) are found to be true for both the stakeholder- and shareholder-oriented countries

Table 7: Frequency of the type of auditor and their names in the ASX and JPX

FREQUENCY OF THE TYPE AND NAME OF AUDITOR IN THE ASX AND JPX			
Count of NAME OF AUDITOR	**Column Labels**		
Row Labels	**ASX**	**JPX**	**Grand Total**
Financial auditor	**957**	**444**	**1401**
BDO	9		9
PWC	195		195
Deloitte	165	107	272
EY	269	70	339
KPMG	319	267	586
Sustainability auditor	**65**	**356**	**421**
SCS Global Services		3	3

Japan Audit and Certification Organisation for Environment and Quality (JACO)		7	7
Intertek Health Sciences	16		16
Sustainability Accounting Co. Ltd (SusA)		21	21
Japan Quality Assurance Organization (JQA)		23	23
Apex companies		40	40
SOCOTEC		52	52
SGS		64	64
Bureau Veritas	49	35	84
LRQA		111	111
Grand Total	**1022**	**800**	**1822**

The information in Table 7 is further substantiated by the results from the Mann-Whitney U test. The Mann-Whitney U test (Table 4) observed that there is a statistically significant difference in the number of subject matter items that are assured by each type of auditor in the ASX (U test is <0.001, $p<0.05$). These findings support that there is a strong reliance on financial auditors (Table 7) for assurance services in shareholder-oriented environments (Kolk & Perego, 2010). Furthermore, the results indicate that companies listed on the ASX benefit from the financial auditor's expertise in assurance (Edgley et al., 2015; Farooq & De Villiers, 2020; Gillet, 2012).

On the contrary, despite there being a difference between the financial and sustainability auditor in the JPX, the statistical analysis indicates that it is not statistically significant (U-test=0.246, $p>0.05$). Provided that there is a balanced distribution between the financial and sustainability auditors in the JPX (Table 7), the lack of a statistically significant difference is unsurprising. As a result, the findings from this study indicate that companies listed on the JPX, have a more balanced advantage in expertise as financial auditors contribute assurance expertise and sustainability auditors provide subject matter (sustainability information) expertise (Edgley et al., 2015; Farooq & De Villiers, 2020; Gillet, 2012). The difference in the statistical analysis between the ASX and the JPX portrays a diverse approach to the choice of the auditor between the ASX and JPX.

The diverse approach is further emphasised by the Pearson Chi-square test of association (Table 5) which observed a statistically significant association between the type of auditor and the stock exchanges (X^2 is <0.001, $p<0.05$). Based on the positive adjusted residual values, a statistically significant association was identified between the ASX and the financial auditor. In contrast, a statistically significant association was identified between the JPX and the sustainability auditor. The findings from Pearson's test were in line with the descriptive statistics for the ASX however were in contradiction for the JPX. This indicates that the relationship between the JPX exchange and the type of auditor may be more complex than a

simple association. Furthermore, it was discovered that the technology industry in the JPX exhibits a substantial preference for sustainability auditors (71%) over financial auditors (29%).

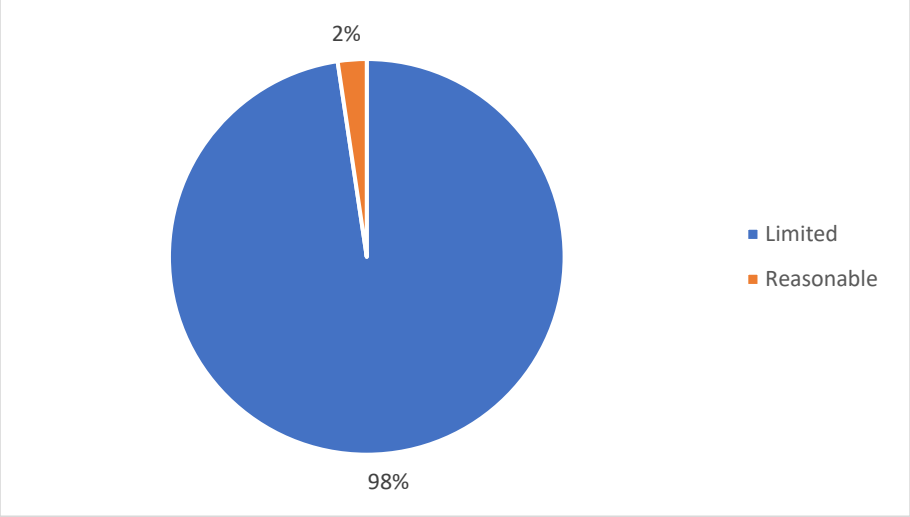
5.8.2 The type of auditor and the six capitals

The results from the Pearson Chi-square test of association (Table 5) indicated that there is a statistically significant association between the type of auditor and the six capitals that are assured (X^2 is <0.001, p<0.05). Based on the descriptive statistics, the study found that in the ASX and JPX financial auditors dominate all capital categories, with sustainability auditors playing a less dominant role in the ASX and playing catch up with financial auditors in the JPX. In both the ASX and JPX, the financial auditor dominates the Natural capital (ASX-33% and JPX-66%) and Human capital (ASX-27% and JPX-25%). Natural and Human capital are the most dominant capitals as addressed in Section 5.2.

The dominance of the financial auditors can be attributed to all the factors mentioned in Section 5.8.1. The study discovered that the more balanced distribution between the sustainability auditor and the financial auditor in the JPX can also be attributed to the type of capital that is being assured. The balanced distribution in the JPX lies in Human capital, Natural capital, Manufactured capital, and Social and relationship capital. This indicates that in the assurance of the above capitals, companies listed on the JPX are gradually leaning towards sustainability auditors in comparison to companies in the ASX. The companies in the ASX are still primarily reliant on financial auditors as indicated by the Intellectual capital in the ASX being handled by financial auditors only. Intellectual capital encompasses intangible assets which may be in the line of expertise of financial auditors as such intellectual capital has been dealt with in the audit of financial statements.

5.9 TYPE OF ASSURANCE ENGAGEMENT

Figure 3: Frequency of the type of assurance engagement (Limited vs Reasonable assurance)



Auditing standards provide that the difference between limited and reasonable assurance is the nature, timing and extent of audit procedures that are performed (AccountAbility, 2020; IAASB, 2010b; ICMM, 2023). Limited assurance involves a more restricted approach, scope and depth of audit work whilst reasonable assurance involves a more comprehensive and extensive audit (AccountAbility, 2020; IAASB, 2010b; ICMM, 2023).

This study finds that limited assurance is the most frequent type of assurance engagement (98%) in comparison to reasonable assurance (2%). The study also found that for the ASX and JPX limited assurance is the most frequent type of assurance engagement, with ASX at 98% and the JPX at 97%. Reasonable assurance is the least type of assurance engagement with ASX at 2% and JPX at 3%. These findings contrast those of Mock et al. (2007) who found that reasonable assurance is the most prevalent at 74% followed by limited assurance with 17% and 9% were classified as hybrid (One subject matter was assured with both limited and reasonable assurance). The prevalence of limited assurance as the more frequently chosen engagement in both exchanges might be influenced by the subjective nature of sustainability-related information that may pose challenges in conducting extensive audits (Akisik & Gal, 2017; De Villiers & Maroun, 2017).

The findings from Hasan et al. (2005) reveal an interesting contrast in the adoption and perceived levels of confidence associated with limited and reasonable assurance in the realm of assurance services. Hasan et al. (2005) found that limited assurance is perceived to provide on average, a 60% confidence level while reasonable assurance is considered to provide an average percentage of confidence of 88%. According to the findings of this study and those by Hasan et al. (2005) indicate that limited assurance emerges as the more commonly adopted approach, however reasonable assurance is considered to enjoy a considerably higher level of confidence at 88% (Hasan et al., 2005). This might suggest that the choice between limited and reasonable assurance is not driven by the perceived confidence that the assurance engagement aims to achieve for the users (Hasan et al., 2005).

Mock et al. (2007) found that the key factor associated with the level of assurance is the type of assurance provider that is providing the service. Prior studies revealed that sustainability auditors are more likely to provide reasonable assurance while financial auditors are more likely to adopt limited assurance (Ackers, 2009; Alsahali & Malagueño, 2022; O'Dwyer & Owen, 2005; Rhianon Edgley et al., 2010; Romero et al., 2014). This study found that financial auditors (ASX-94% and JPX-57%) provide more limited assurance in comparison to sustainability auditors (ASX-6% and JPX-43%) in the ASX and JPX. The financial auditors providing more limited assurance is in line with prior research (Ackers, 2009; Alsahali & Malagueño, 2022; O'Dwyer & Owen, 2005; Rhianon Edgley et al., 2010; Romero et al., 2014).

The findings above are further substantiated by Pearson's Chi-square test of association (Table 5) which observed that there is a statistically significant association between the type of auditor that is engaged and the type of assurance engagement that is adopted (X^2 is <0.001, p<0.05). The test observed the association of the financial auditor to lie with limited assurance (positive adjusted residual value=4.1). Additionally, the positive association with limited assurance may reflect the financial auditor's specialised expertise and experience in the audit of information (Ackers, 2009; Simnett et al., 2009). Considering that the assurance of sustainability-related information is still in its development years, the financial auditors may be adopting a cautious approach by adopting a less extensive assurance engagement (AccountAbility, 2020; IAASB, 2010b; ICMM, 2023).

Furthermore, the study found that in the ASX, financial auditors are the only ones who provide reasonable assurance (100%). In contrast, sustainability auditors are the only ones who provide reasonable assurance (100%) in the JPX. The findings concerning the ASX do not align with prior literature that holds that financial auditors are more likely to adopt limited assurance (Ackers, 2009; Alsahali & Malagueño, 2022; O'Dwyer & Owen, 2005; Rhianon Edgley et al., 2010; Romero et al., 2014). However, the findings for the JPX align with prior literature that argues that sustainability auditors are more likely to adopt reasonable assurance, more specifically with the study by Ackers (2009) found that 100% of sustainability auditors in the study provide reasonable assurance.

Further analysis using the Pearson Chi-square test of association (Table 5), indicated that there is a statistically significant association between the sustainability auditor and reasonable assurance (positive adjusted residual=4.1). Sustainability auditors are considered to be experts in sustainability-related information (Alsahali & Malagueño, 2022; Yan et al., 2022). The observed preference for reasonable assurance, which is a higher level of scrutiny and assurance in comparison to limited assurance, aligns with their specialised knowledge and understanding of the intricate nuances associated with sustainability information. The statistical analysis revealed that certain subject matter items, notably those falling within the subject matter categories of diversity, equity, and inclusion; health and safety environment and safe and sound workplace, were exclusively assured by sustainability auditors using reasonable assurance in the JPX. Intriguingly, financial auditors, who might be expected to adopt more reasonable assurance, did not provide any assurance for these specific subject matter items in the JPX. This nuanced discrepancy indicates the different assurance practices between the ASX and JPX for the type of assurance engagement that is adopted by the type of auditor for certain subject matter items. The subject matter items related to social responsibility and workplace well-being appear to be subjected to a more robust audit by sustainability auditors specifically in the JPX.

5. CONCLUSION

6.1 SUMMARY OF FINDINGS

Some subject matter categories have more subject matter items assured than others with companies in the ASX assuring more items than companies in the JPX. The difference between the listings highlights that companies in the JPX might not see the same value in assurance as those in the ASX do. The quantifiability of the items allows an increased level of verifiability to be applied in the assurance process which increases the credibility that can be provided over the subject matter items. These subject matter items are also a consequence of the shared focus placed on them by companies, stakeholders, and reporting frameworks. This focus incentivises companies to adopt assurance on these items to enhance the legitimacy of the company. Another role is played by the type of industry in which the company operates in. More subject matter items are assured by companies operating in environmentally or economically sensitive industries. Due to the level of risks faced and the materiality of these items in these industries, the companies are seen to be adopting assurance on more items to legitimise their business operations. The differences in the number of subject matter items assured in a category indicate that there is a lack of consensus on the scope of assurance. Consequently, there is opportunity for management to specifically assure subject matter items for signalling and legitimising purposes.

Subject matter items that are difficult to provide assurance over have also been identified to be a part of the scope of sustainability assurance of companies in the ASX and JPX. The difficulty of these items is attributable to qualitative and prospective information, which is challenging to verify, reducing the level of confidence that can be provided to users. Additionally, the adoption of assurance on these items could be seen as a legitimising tool adopted by the reporting company. The value of assuring subject matter items that do not have comparative information is also questioned as stakeholders might not be able to rely on this information to make decisions. Overlapping assurance has been adopted on other subject matter items which is found to be a signal for a direct connection of the companies' efforts and the financial spendings towards the efforts. The overlapping assurance is also found to be a signal for high quality sustainability reporting by the companies through the expansion of the assurance scope.

The lack of generally accepted reporting frameworks for sustainability reporting has been substantiated by results from this study. The study found that there are 27 reporting frameworks in total that were adopted by companies in the ASX and JPX to guide the reporting of sustainability-related information. The existence of numerous reporting frameworks gives management the freedom to selectively decide on what sustainability-related information to

report on while neglecting information. The selective decision of information to report on might be for self-serving purposes such as achieving a signalling or legitimising effect. Additionally, these multiple frameworks highlight the need for regulatory convergence and harmonisation of sustainability reporting frameworks and the pressing requirement for comprehensive guidance.

Financial auditors are found to be the most dominant in the ASX whilst there is a more balanced distribution in the JPX. The dominance of financial auditors is unsurprising considering their existing global networks and dominance in the financial information assurance market (Alsahali & Malagueño, 2022; Simnett et al., 2009). The rise of sustainability auditors could potentially add to the complexity and confusion of the process of assurance as these auditors are unlikely to have professional training on assurance. By engaging financial auditors, companies signal to their users that they take the independent scrutiny of sustainability-related information seriously by willingly engaging with the most experienced professionals. Lastly, limited assurance is the mostly adopted type of assurance engagement for companies in the ASX and JPX. The prevalence of limited assurance is influenced by the subjective nature of sustainability-related information that may pose challenges in conducting extensive audits. The perceived confidence that is associated with reasonable assurance might not be achieved for sustainability-related audits as companies are inclined towards limited assurance. This suggests that the choice of the type of assurance does not lie in the perceived confidence that is achieved by the assurance but in the persuasiveness of the evidence obtained.

6.2 RESEARCH CONTRIBUTIONS, IMPLICATIONS AND RECOMMENDATIONS

This paper is poised after the consideration of prior literature and added empirical evidence to the existing literature on the assurance of sustainability-related information in the ASX and JPX. The study explored various dimensions related to the subject matter; the criteria, the type of auditor engaged and the type of assurance engagement that is adopted. The empirical approach enhanced the depth of understanding and provided tangible insights into the practice of sustainability assurance in the ASX and JPX.

The research on sustainability assurance in Australia and Japan is still emerging and further studies are needed to explore the development of sustainability assurance and examine the practices adopted for the assurance (Alsahali & Malagueño, 2022; Bepari & Mollik, 2016; Haider & Nishitani, 2020; Heenetigala et al., 2016; Perego & Kolk, 2012). Australia and Japan share similar sustainability reporting cultures however they have different sustainability assurance cultures (Deegan et al., 2006a; Haider & Nishitani, 2020; Junior et al., 2014; Mock

et al., 2007; Nishitani et al., 2020; Perego & Kolk, 2012). This study addressed this research gap by providing knowledge regarding the sustainability-related matters that are being assured specifically in Australia and Japan. Using data from two different jurisdictions provided a comparative insight into the practice of sustainability assurance related to the subject matter, criteria, the type of auditor and the type of assurance engagement.

The study contributed to the practical aspect of sustainability assurance as regulators such as AccountAbility and the IAASB may find it beneficial for more focused interventions as it provided insights into the assurance practices of sustainability-related information. Additionally, researchers may find it useful as it highlighted areas (subject matter, criteria, the type of auditor and the type of assurance engagement) in sustainability assurance that need advancement. Future research efforts could focus on these dimensions to enhance the understanding of sustainability assurance and contribute to the ongoing development of best practices. The study identified gaps in knowledge and offers potential avenues for future research that will encourage the contribution to the continuous development of the field.

6.3 LIMITATIONS AND AREAS FOR FUTURE RESEARCH

The study's focus on the ASX and JPX may pose a scope delimitation as the study may lack generalisability to a broader global context because the findings from the ASX and JPX may not be universally applicable or reflective of sustainability assurance practices in other major stock exchanges. The contrasting assurance practices in the ASX and JPX provided fertile ground for comparative studies. Future studies can conduct a comparative analysis of sustainability reporting assurance practices across different countries, industries, and company sizes. Additionally, future research can consider the coverage of sustainability assurance in different jurisdictions and investigate the underlying reasons for the difference in coverage.

The study aimed to focus on the reporting organisations that are in the Top 100 by market capitalisation of the ASX and the JPX that have acquired assurance on sustainability-related information. This set a limitation as not all organisations in the Top 100 have their sustainability-related information assured, which led to a smaller sample. Additionally, the study excluded companies outside the Top 100, which might have different sustainability assurance practices, potentially limiting the generalisability of the study's findings. Further research could consider expanding the sample to include companies beyond the top 100 by market capitalisation and explore different market capitalisation tiers to bias a more complete picture.

This study assumed that all assurance undertaken has been performed in terms of the relevant assurance standards and the assurance was provided by an auditor who is an expert. The

research did not consider the audit procedures that were performed by the assurance provider to obtain sufficient and appropriate audit evidence over the subject matter. As such, no inference regarding the quality of the audit work will be made.

Mandated disclosures required by the assurance standards to be included in the assurance statement were not considered for this research as the disclosures are uniform and may not vary between assurance engagements.

It is worth noting that there may be combined assurance on the sustainability-related information however this research is delimited to external assurance only. The study only considered items that are specifically referred to in the external assurance report.

Lastly, this study found disparities and similarities that were in line and some in contrast with prior research. As a result, future studies can investigate examining the factors that influence management and auditor's choices, if any, in the selection of disclosures to be assured. Future research can investigate the influence of reporting frameworks on the content and assurance practices of sustainability-related information. This could include an examination of how these frameworks drive the disclosure of specific subject matter categories and whether they enhance or hinder auditability. Future research could explore the impact of the various dimensions of the subject matter on the credibility of assurance. Longitudinal research could be undertaken to explore how the assurance of sustainability-related information has evolved. Understanding the trends and changes in assurance practices can provide valuable insights into the dynamics of sustainability reporting and the assurance thereof.

6. ACKNOWLEDGEMENTS

I humbly acknowledge the divine presence of God, whose boundless grace and steadfast blessings have illuminated my path and provided me with the strength, resilience, and opportunity to pursue my passion for knowledge.

My grandmother, Eunice Nkosi, I am profoundly grateful for your unwavering love, wisdom, and encouragement that has been a guiding light throughout my academic journey. To my dear family, Nomsa, Jacob, Bafana, Khosi, Themba, Leornard, Kabelo and Sinothando. Your boundless love, encouragement, and sacrifices have propelled me forward in the pursuit of my academic goals and I am immensely grateful.

To my closest friends, Shadi, Hlatsi, Lerato, William, and Mmathabo and all my other friends who carried me throughout this journey. Your unwavering support and camaraderie have lifted my spirits during both the challenges and triumphs of this research endeavour.

To my supervisor, Dannielle Cerbone, I am forever indebted to you for your guidance, expertise, and unwavering support that has been invaluable throughout this journey.

7. REFERENCES

Abdul-Baki, Z., Uthman, A. B., & Sanni, M. (2014). Financial ratios as performance measure: A comparison of IFRS and Nigerian GAAP. *Journal of Accounting & Management Information Systems/Contabilitate si Informatica de Gestiune*, *13*(1).

AccountAbility. (2020). AA1000 ASSURANCE STANDARD v3. In *Account Ability*.

Achmad, T., Faisal, F., & Ulum, M. B. (2017). Nature of information provided and quality of sustainability reports assurance statements of Fortune Global 500 companies. *Journal of Applied Business Research (JABR)*, *33*(5), 1023-1034.

Ackers, B. (2009). Corporate social responsibility assurance: how do South African publicly listed companies compare? *Meditari: Research Journal of the School of Accounting Sciences*, *17*(2), 1-17.

Adams, C. A., & Evans, R. (2004). Accountability, completeness, credibility and the audit expectations gap. *Journal of Corporate Citizenship*(14), 97-115.

Adler, R., Mansi, M., Pandey, R., & Stringer, C. (2017). United Nations Decade on Biodiversity: A study of the reporting practices of the Australian mining industry. *Accounting, Auditing & Accountability Journal*, *30*(8), 1711-1745.

Akisik, O., & Gal, G. (2014). Financial performance and reviews of corporate social responsibility reports. *Journal of Management Control*, *25*, 259-288.

Akisik, O., & Gal, G. (2017). The impact of corporate social responsibility and internal controls on stakeholders' view of the firm and financial performance. *Sustainability Accounting, Management and Policy Journal 8.3 (2017)*, 246-280.

Akisik, O., & Gal, G. (2020). Integrated reports, external assurance and financial performance: an empirical analysis on North American firms. *Sustainability Accounting, Management and Policy Journal*, *11*(2), 317-350.

Alsahali, K. F., & Malagueño, R. (2022). An empirical study of sustainability reporting assurance: current trends and new insights. *Journal of Accounting & Organizational Change*, *18*(5), 617-642.

Anh, T. C., Thi, N. B., & Tu, O. L. T. (2019). Relationship between experts and enterprises viewed via the IFRS application: An empirical study in Vietnam. *Asian Economic and Financial Review*, *9*(8), 946-963.

Ashforth, B. E., & Gibbs, B. W. (1990). The double-edge of organizational legitimation. *Organization science*, *1*(2), 177-194.

AUASB. (2014). ASAE 3000: Assurance Engagements Other than Audits or Reviews of Historical Financial Information. In *Auditing and Assurance Standards Board*.

Ball, A., Owen, D. L., & Gray, R. (2000). External transparency or internal capture? The role of third-party statements in adding value to corporate environmental reports1 1. *Business strategy and the environment*, *9*(1), 1-23.

Ballou, B., Heitger, D., & Landes, C. (2006). The rise of corporate sustainability reporting: A rapidly growing assurance opportunity. *Journal of Accountancy*, *202*(6), 65-74.

Bebbington, J., Larrinaga, C., & Moneva, J. M. (2008). Corporate social reporting and reputation risk management. *Accounting, Auditing & Accountability Journal*, *21*(3), 337-361.

Beets, S. D., & Souther, C. C. (1999). Corporate environmental reports: The need for standards and an environmental assurance service. *Accounting Horizons*, *13*(2), 129-145.

Bepari, M. K., & Mollik, A. T. (2016). Stakeholders' interest in sustainability assurance process: An examination of assurance statements reported by Australian companies. *Managerial Auditing Journal 31.6/7 (2016):*, 655-687.

Boiral, O., & Heras-Saizarbitoria, I. (2020). Sustainability reporting assurance: Creating stakeholder accountability through hyperreality? *Journal of Cleaner Production*, *243*, 118596.

Bollas-Araya, H. M., Polo-Garrido, F., & Seguí-Mas, E. (2019). Determinants of CSR reporting and assurance: an analysis of top cooperative and mutual organisations. *Australian Accounting Review*, *29*(4), 692-707.

Bonetti, P., Cho, C. H., & Michelon, G. (2023). Environmental disclosure and the cost of capital: Evidence from the Fukushima nuclear disaster. *European Accounting Review*, 1-29.

Braam, G., & Peeters, R. (2018). Corporate sustainability performance and assurance on sustainability reports: Diffusion of accounting practices in the realm of sustainable development. *Corporate Social Responsibility and Environmental Management*, *25*(2), 164-181.

CDP. (2021). Carbon Disclosure Project In *CDP Worldwide*.

Chakravarthy, J., DeHaan, E., & Rajgopal, S. (2014). Reputation repair after a serious restatement. *The accounting review*, *89*(4), 1329-1363.

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic management journal*, *35*(1), 1-23.

Cho, C. H., Laine, M., Roberts, R. W., & Rodrigue, M. (2015). Organized hypocrisy, organizational façades, and sustainability reporting. *Accounting, organizations and society*, *40*, 78-94.

Cohen, J. R., & Simnett, R. (2015). CSR and assurance services: A research agenda. *Auditing: A journal of practice & theory*, *34*(1), 59-74.

Commission, C. o. S. O. o. t. T. (2012). Internal Control—Integrated Framework: Internal Control over External Financial Reporting: A Compendium of Approaches and Examples, September 2012.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of management*, *37*(1), 39-67.

Coram, P. J., Monroe, G. S., & Woodliff, D. R. (2009). The value of assurance on voluntary nonfinancial disclosure: An experimental evaluation. *Auditing: A journal of practice & theory*, *28*(1), 137-151.

De Villiers, C., & Maroun, W. (2017). *Sustainability accounting and integrated reporting*. Routledge.

Deegan, C., Cooper, B. J., & Shelly, M. (2006a). An investigation of TBL report assurance statements: Australian evidence. *Australian Accounting Review*, *16*(39), 2-18.

Deegan, C., Cooper, B. J., & Shelly, M. (2006b). An investigation of TBL report assurance statements: UK and European evidence. *Managerial Auditing Journal 21.4 (2006)*, 329-371.

del Mar Alonso-Almeida, M., Llach, J., & Marimon, F. (2014). A closer look at the 'Global Reporting Initiative'sustainability reporting as a tool to implement environmental and social policies: A worldwide sector analysis. *Corporate Social Responsibility and Environmental Management*, *21*(6), 318-335.

Delfgaauw, T. (2000). Reporting on sustainable development: A preparer's view. *Auditing: A journal of practice & theory*, *19*(s-1), 67-74.

Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The accounting review*, *86*(1), 59-100.

Dhaliwal, D. S., Radhakrishnan, S., Tsang, A., & Yang, Y. G. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The accounting review*, *87*(3), 723-759.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American sociological review*, 147-160.

Eccles, R. G., Serafeim, G., & Krzus, M. P. (2011). Market interest in nonfinancial information. *Journal of Applied Corporate Finance*, *23*(4), 113-127.

Edgley, C., Jones, M. J., & Atkins, J. (2015). The adoption of the materiality concept in social and environmental reporting assurance: A field study approach. *The British Accounting Review*, *47*(1), 1-18.

EFRAG. (2022). ESRS 1 General Requirements In *European Commission*.

El Ghoul, S., Guedhami, O., Kwok, C. C., & Mishra, D. R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of banking & finance*, *35*(9), 2388-2406.

Eugénio, T., Gomes, S., Branco, M. C., & Morais, A. I. (2022). Non-Financial Reporting and Assurance: A New Opportunity for Auditors? Evidence from Portugal. *Sustainability*, *14*(20), 13469.

Farooq, M. B., & De Villiers, C. (2017a). Assurance of sustainability and integrated reports. In *Sustainability accounting and integrated reporting* (pp. 149-162). Routledge.

Farooq, M. B., & De Villiers, C. (2017b). The market for sustainability assurance services: A comprehensive literature review and future avenues for research. *Pacific Accounting Review*.

Farooq, M. B., & De Villiers, C. (2017c). The market for sustainability assurance services: A comprehensive literature review and future avenues for research. *Pacific Accounting Review*, *29.1 (2017)*(1), 79-106.

Farooq, M. B., & De Villiers, C. (2020). How sustainability assurance engagement scopes are determined, and its impact on capture and credibility enhancement. *Accounting, Auditing & Accountability Journal*, *33*(2), 417-445.

Gal, G. (2018). Are sustainability disclosures fraudulent? *Sustainability and Social Responsibility of Accountability Reporting Systems: A Global Approach*, 51-64.

Gal, G., & Akisik, O. (2020). The impact of internal control, external assurance, and integrated reports on market value. *Corporate Social Responsibility and Environmental Management*, *27*(3), 1227-1240.

Gao, L., & Zhang, J. H. (2015). Firms' earnings smoothing, corporate social responsibility, and valuation. *Journal of Corporate Finance*, *32*, 108-127.

Gerwing, T., Kajüter, P., & Wirth, M. (2022). The role of sustainable corporate governance in mandatory sustainability reporting quality. *Journal of Business Economics*, *92*(3), 517-555.

Gillet, C. (2012). A study of sustainability verification practices: the French case. *Journal of Accounting & Organizational Change*, *8*(1), 62-84.

Green, W., & Li, Q. (2011). Evidence of an expectation gap for greenhouse gas emissions assurance. *Accounting, Auditing & Accountability Journal*, *25*(1), 146-173.

Grewal, J., Hauptmann, C., & Serafeim, G. (2021). Material sustainability information and stock price informativeness. *Journal of Business Ethics*, *171*, 513-544.

GRI. (2023). Consolidated Set of the GRI Standards. In *Global Reporting Initiative*.

Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, *59*, 5-21.

Hahn, R., & Lülfs, R. (2014). Legitimizing negative aspects in GRI-oriented sustainability reporting: A qualitative analysis of corporate disclosure strategies. *Journal of Business Ethics*, *123*, 401-420.

Haider, M. B., & Nishitani, K. (2020). Views of corporate managers on assurance of sustainability reporting: evidence from Japan. *International Journal of Disclosure and Governance*, *17*, 1-19.

Haller, A., Link, M., & Groß, T. (2017). The term 'non-financial information'–a semantic analysis of a key feature of current and future corporate reporting. *Accounting in Europe*, *14*(3), 407-429.

Hasan, M., Maijoor, S., Mock, T. J., Roebuck, P., Simnett, R., & Vanstraelen, A. (2005). The different types of assurance services and levels of assurance provided. *International Journal of Auditing*, *9*(2), 91-102.

Heenetigala, K., De Silva Lokuwaduge, C., Armstrong, A., & Ediriweera, A. (2016). *Investigation of criteria used for assurance practices of sustainability reporting in Australian listed companies*. Victoria University.

Herda, D. N., Taylor, M. E., & Winterbotham, G. (2014). The effect of country-level investor protection on the voluntary assurance of sustainability reports. *Journal of International Financial Management & Accounting*, *25*(2), 209-236.

Hodge, K., Subramaniam, N., & Stewart, J. (2009). Assurance of sustainability reports: Impact on report users' confidence and perceptions of information credibility. *Australian Accounting Review*, *19*(3), 178-194.

IAASB. (2010a). International Framework For Assurance Engagements. In *International Audit Standards*.

IAASB. (2010b). International Framework For Assurance Engagements. In.
IAASB. (2013). Assurance Engagements Other than Audits or Reviews of Historical Financial Information. In *International Audit Standards*.
IAASB. (2019). Assurance Engagements. In *International Audit Standards*.
IAASB. (2022). ISA 315 (Revised 2019), Identifying and assessing the risks of material misstatements In *International Audit Standards*.
IAASB. (2023). Proposed International Standard on Sustainability Assurance 5000 In *The International Auditing and Assurance Standards Board*.
IBM. (2024). *Sustainability Data* https://www.ibm.com/think/topics/sustainability-data
ICMM. (2023). Assurance and validation procedure In *Assurance and validation procedure*
IESBA. (2022). Code of Professional Conduct In *The International Ethics Standards Board for Accountants*.
IIRC. (2021). International <IR> Framework In *International <IR> Framework*
Ikediashi, D. I., Mendie, A., Achuenu, E., & Oladokun, M. G. (2012). Key performance indicators of design and build projects in Nigeria. *Journal of human ecology*, *37*(1), 37-46.
ISO. (2006). ISO 14064-3: Greenhouse Gases—Part 3: Specification with Guidance for the Validation and Verification of Greenhouse Gas Assertions. In: ISO Geneva.
ISSB. (2022). [Draft] IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information. In.
Jose, T. (2017). Need for harmonisation of sustainability reporting standards. *Journal of Finance and Economics*, *5*(6), 253-258.
Junior, R. M., Best, P. J., & Cotter, J. (2014). Sustainability reporting and assurance: A historical analysis on a world-wide phenomenon. *Journal of Business Ethics*, *120*, 1-11.
Karasek III, R., & Bryant, P. (2012). Signaling theory: Past, present, and future. *Academy of Strategic Management Journal*, *11*(1), 91.
Kawahara, N. (2017). Current trends and challenges in sustainability reporting practices in Japan-Literature review. *商経学叢*, *64*(2).
Kolk, A. (2010). Trajectories of sustainability reporting by MNCs. *Journal of world business*, *45*(4), 367-374.
Kolk, A., & Perego, P. (2010). Determinants of the adoption of sustainability assurance statements: An international investigation. *Business strategy and the environment*, *19*(3), 182-198.
KPMG. (2022). Big shifts, small steps. Survey of Sustainability Reporting 2022.
KPMG, I. (2020). The time has come: The KPMG survey of sustainability reporting 2020. *KPMG Impact*.
Krippendorff, K. (2004). Measuring the reliability of qualitative text analysis data. *Quality and quantity*, *38*, 787-800.
Krippendorff, K. (2018). *Content analysis: An introduction to its methodology*. Sage publications.
Leedy, P. D., Ormrod, J. E., & Johnson, L. R. (2014). *Practical research: Planning and design*. Pearson Education.
Liao, L., Lin, T., & Zhang, Y. (2018). Corporate board and corporate social responsibility assurance: Evidence from China. *Journal of Business Ethics*, *150*, 211-225.
Low, J., & Siesfeld, T. (1998). Measures that matter: Non-financial performance. *Strategy & Leadership*, *26*(2), 24-38.
Lys, T., Naughton, J. P., & Wang, C. (2015). Signaling through corporate accountability reporting. *Journal of accounting and economics*, *60*(1), 56-72.
Mahoney, L. S., Thorne, L., Cecil, L., & LaGore, W. (2013). A research note on standalone corporate social responsibility reports: Signaling or greenwashing? *Critical perspectives on accounting*, *24*(4-5), 350-359.
Manetti, G., & Becatti, L. (2009). Assurance services for sustainability reports: Standards and empirical evidence. *Journal of Business Ethics*, *87*, 289-298.
Manetti, G., & Toccafondi, S. (2012). The role of stakeholders in sustainability reporting assurance. *Journal of Business Ethics*, *107*, 363-377.

Maroun, W. (2017). Assuring the integrated report: Insights and recommendations from auditors and preparers. *The British Accounting Review*, *49*(3), 329-346.

Marx, B., & Mohammadali-Haji, A. (2014). Emerging trends in reporting: an analysis of integrated reporting practices by South African top 40 listed companies. *Journal of Economic and Financial Sciences*, *7*(1), 231-250.

Marx, B., & van Dyk, V. (2011). Sustainability reporting and assurance: An analysis of assurance practices in South Africa. *Meditari Accountancy Research*, *19*(1/2), 39-55.

McKight, P. E., & Najab, J. (2010). Kruskal-wallis test. *The Corsini encyclopedia of psychology*, 1-1.

McNally, M.-A., Cerbone, D., & Maroun, W. (2017). Exploring the challenges of preparing an integrated report. *Meditari Accountancy Research*, *25*(4), 481-504.

Mock, T. J., Rao, S. S., & Srivastava, R. P. (2013). The development of worldwide sustainability reporting assurance. *Australian Accounting Review*, *23*(4), 280-294.

Mock, T. J., Strohm, C., & Swartz, K. M. (2007). An examination of worldwide assured sustainability reporting. *Australian Accounting Review*, *17*(41), 67-77.

Moir, L. (2001). What do we mean by corporate social responsibility? *Corporate Governance: The international journal of business in society*, *1*(2), 16-22.

Nations, U. (2021). The Sustainable Development Goals, (SDGs). In.

Nishitani, K., Haider, M. B., & Kokubu, K. (2020). Are third-party assurances preferable to third-party comments for promoting financial accountability in environmental reporting? *Journal of Cleaner Production*, *248*, 119199.

Nkhi, N., Varachia, Z., & Cerbone, D. (2021). Impression management techniques employed by listed companies on the Johannesburg Stock Exchange when using Twitter. *Communicare: Journal for Communication Sciences in Southern Africa*, *40*(2), 129-151.

O'Dwyer, B., & Owen, D. (2007). Seeking stakeholder-centric sustainability assurance: An examination of recent sustainability assurance practice. *Journal of Corporate Citizenship*(25), 77-94.

O'Dwyer, B., & Owen, D. L. (2005). Assurance statement practice in environmental, social and sustainability reporting: a critical evaluation. *The British Accounting Review*, *37*(2), 205-229.

Pasko, O., Zhang, L., Bezverkhyi, K., Nikytenko, D., & Khromushyna, L. (2021). Does external assurance on CSR reporting contribute to its higher quality? Empirical evidence from China. *Investment Management & Financial Innovations 18.4 (2021)*, 309.

Patten, D. M. (1992). Intra-industry environmental disclosures in response to the Alaskan oil spill: A note on legitimacy theory. *Accounting, organizations and society*, *17*(5), 471-475.

Perego, P., & Kolk, A. (2012). Multinationals' accountability on sustainability: The evolution of third-party assurance of sustainability reports. *Journal of Business Ethics*, *110*, 173-190.

Peters, G. F., & Romi, A. M. (2015). The association between sustainability governance characteristics and the assurance of corporate sustainability reports. *Auditing: A journal of practice & theory*, *34*(1), 163-198.

Plumlee, M., Brown, D., Hayes, R. M., & Marshall, R. S. (2015). Voluntary environmental disclosure quality and firm value: Further evidence. *Journal of Accounting and public policy*, *34*(4), 336-361.

Prinsloo, A., & Maroun, W. (2021). An exploratory study on the components and quality of combined assurance in an integrated or a sustainability reporting setting. *Sustainability Accounting, Management and Policy Journal*, *12*(1), 1-29.

Rhianon Edgley, C., Jones, M. J., & Solomon, J. F. (2010). Stakeholder inclusivity in social and environmental report assurance. *Accounting, Auditing & Accountability Journal*, *23*(4), 532-557.

Roberts, P., & Priest, H. (2006). Reliability and validity in research. *Nursing standard*, *20*(44), 41-46.

Roebuck, P., Simnett, R., & Ho, H. L. (2000). Understanding assurance services reports: A user perspective. *Accounting & Finance*, *40*(3), 211-232.

Romero, S., Fernandez-Feijoo, B., & Ruiz, S. (2014). Perceptions of quality of assurance statements for sustainability reports. *Social Responsibility Journal*, *10*(3), 480-499.

Saunders, S. (2009). Costly signalling: a work in progress: William A. Searcy, Stephen Nowicki: The Evolution of Animal Communication: Reliability and Deception in Signaling Systems, Princeton University Press, New Jersey, 2005, 270+ xii pp, ISBN: 0-691-07095-4. In: Springer.

Schelluch, P., & Gay, G. (2006). Assurance provided by auditors' reports on prospective financial information: implications for the expectation gap. *Accounting & Finance*, *46*(4), 653-676.

Segal, M. (2024). Australia Proposes New Law Requiring Mandatory Climate Reporting for Companies. *ESG TODAY*

Simnett, R., Vanstraelen, A., & Chua, W. F. (2009). Assurance on sustainability reports: An international comparison. *The accounting review*, *84*(3), 937-967.

Spence, M. (1973). l the MIT press. *The Quarterly Journal of Economics*, *87*(3), 355-374.

Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *American economic review*, *92*(3), 434-459.

Steenkamp, N., & Northcott, D. (2007). Content analysis in accounting research: The practical challenges. *Australian Accounting Review*, *17*(43), 12-25.

Stiglitz, J. E. (2000). The contributions of the economics of information to twentieth century economics. *The Quarterly Journal of Economics*, *115*(4), 1441-1478.

Stolowy, H., & Paugam, L. (2018). The expansion of non-financial reporting: an exploratory study. *Accounting and business research*, *48*(5), 525-548.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of management review*, *20*(3), 571-610.

Tarquinio, L., & Posadas, S. C. (2020). Exploring the term "non-financial information": an academics' view. *Meditari Accountancy Research*, *28*(5), 727-749.

TCFD. (2021). Implementing the Recommendations of the Task Force on Climate related Financial Disclosures. In.

Thomas, T. E., & Lamm, E. (2012). Legitimacy and organizational sustainability. *Journal of Business Ethics*, *110*, 191-203.

Wallage, P. (2000). Assurance on sustainability reporting: An auditor's view. *Auditing: A journal of practice & theory*, *19*(s-1), 53-65.

Wang, R., Wai Fong, C., Simnett, R., & Zhou, S. (2021). Economic Impact of the Move to Strategic Reporting in the UK. *Roger and Zhou, Shan, Economic Impact of the Move to Strategic Reporting in the UK (June 13, 2021)*.

Yan, M., Jia, F., Chen, L., & Yan, F. (2022). Assurance process for sustainability reporting: Towards a conceptual framework. *Journal of Cleaner Production*, 134156.

Zhou, S. (2022). Reporting and Assurance of Climate-Related and Other Sustainability Information: A Review of Research and Practice. *Australian Accounting Review*, *32*(3), 315-333.

Zrnić, A., Starčević, D. P., & Crnković, B. (2020). Recent trends in sustainability reporting: Literature review and implications for future research. *Ekonomski vjesnik/Econviews-Review of Contemporary Business, Entrepreneurship and Economic Issues*, *33*(1), 271-283.

8. APPENDIX 1: DISCLOSURE CHECKLIST

NAME OF COMPANY	LISTED ON THE ASX OR JPX?	INDUSTRY OF COMPANY	NAME OF ASSURANCE PROVIDER	TYPE OF ASSURANCE PROVIDER	TYPE OF ASSURANCE ENGAGEMENT	ASSURANCE STANDARD	SUBJECT MATTER ASSURED
The name of the reporting organisation is provided	The stock exchange where the company is listed. ASX or JPX	The industry in which the company operates	The name of the assurance provider contracted to provide assurance	The type of assurance provider. Qualified auditor or non-qualified auditor	The type of assurance engagement that is adopted for the subject matter	The assurance standard used by the assurance provider	The assured voluntary disclosure

CATEGORY OF SUBJECT MATTER	UNIT OF MEASUREMENT USED BY COMPANY	REPORTING FRAMEWORK USED	UNIT OF MEASUREMENT REQUIRED BY FRAMEWORK	CURRENT YEAR MEASUREMENT	PRIOR YEAR MEASUREMENT	EXISTENCE OF ASSURED PROSPECTIVE INFORMATION
The category of the 6 capitals that the subject matter belongs to	The unit of measurement that is used by the company for the subject matter	The reporting framework that is adopted by the company for the subject matter	The unit of measurement that is recommended by the reporting framework for the subject matter	The current year measurement of the subject matter	The prior year's measurement of the subject matter	Does the subject matter that is assured include prospective information? Yes /No

9. APPENDIX 2: REPORTING FRAMEWORKS AND LEVEL OF GUIDANCE

REPORTING FRAMEWORK	**LEVEL OF GUIDANCE** Level 0-No guidance on disclosures and measurement Level 1-Guidance on disclosures and no guidance on measurement Level 2-Guidance on disclosures and measurement
HESTA	Level 0
Alberta Emissions Management and Climate Resilience Act	Level 0
International Labour Organisation	Level 0
IPIECA's Oil and gas industry guidance on voluntary sustainability reporting	Level 0
ISO 9001	Level 0
Occupational Safety and Health Administration (OSHA Standards)	Level 0
Principles for Sustainable Insurance (PSI) index	Level 0
Corporate Emissions Reduction Transparency (CERT)	Level 1
Equator Principles Implementation Manual	Level 1
GHG Protocol Corporate Value Chain Standard	Level 1
ICMM	Level 1
International Integrated Reporting Framework (IIRC)	Level 1
IPCC Guidelines for National Greenhouse Gas Inventories	Level 1
ISO 26000	Level 1
Japan's Ministry of the Environment Environmental Reporting Guidelines (2018)	Level 1

National Greenhouse and Energy Reporting Act 2007	Level 1
TCFD	Level 1
UN Sustainable Development Goals (SDG)	Level 1
ISO 14064-1	Level 2
ISO 14064-2	Level 2
Alberta Greenhouse Gas Quantification Methodologies	Level 2
CDP	Level 2
Climate Active Electricity Accounting, April 2021.	Level 2
GRI Universal Standards	Level 2
National Greenhouse and Energy Reporting Act 2008	Level 2
RE100 Reporting Guidance 2021	Level 2
SASB	Level 2