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Trends in reporting on climate change, water and COVID-19 by JSE listed companies

A research report submitted by

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to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of

Master of Commerce in Accountancy

ABSTRACT

Environmental, social and governance (ESG) information is increasingly demanded by stakeholders as companies face risks and opportunities due to ESG issues, such as climate change, water and COVID-19. ESG disclosure helps reduce information asymmetry for users of company reports and helps companies maintain their social licence to operate. Disclosure is voluntary and this introduces differences in the information disclosed by companies.

This study analysed the annual, integrated and ESG reports of the top 40 Johannesburg Securities Exchange (JSE) listed companies. These reports were analysed following an interpretive approach to determine the extent of disclosure on climate change, water and COVID-19 in 2018, 2019 and 2020. This study also considered the change in disclosure on climate change and water over these three years. A disclosure checklist has been developed using professional literature. Content analysis has been used to codify the disclosed information with disclosures being scored using an ordinal scale. Descriptive statistics have been used to analyse and graphically present the data. Exploratory factor analysis has been used for the identification of major disclosure themes.

This study contributes to existing research by considering the current state of ESG disclosure at a time when notable developments in the reporting environment have occurred. The findings indicate that companies have focused on quantitative and strategy-related disclosure, indicating the adoption of similar reporting practices by companies. The study also found that there was no significant change in climate change and water disclosure from 2018 to 2020.

KEYWORDS: ESG reporting, sustainability reporting, climate change, water, COVID-19, South Africa

DECLARATION

I, Zakiyyah Seedat, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Commerce in Accountancy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

_____

Zakiyyah Seedat

28 February 2022

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CHAPTER 1: INTRODUCTION

Companies have a responsibility beyond the creation of economic value. They must manage their impacts on the environment and society responsibly (Carroll & Shabana, 2010; Hoang, 2018). The current study focuses specifically on three issues that are widely regarded as posing the greatest challenges when it comes to balancing economic objectives with organisations' social and environmental responsibilities. These issues are climate change, water usage and COVID-19 (Atkins et al., 2020).

Companies emit anthropogenic emissions which have sharply increased from 1970, contributing to increases in global temperatures (Stern & Kaufmann, 2014). Companies have impacts on climate change and also face risks and opportunities due to it (CDP, 2021; TCFD, 2021). Investors and other stakeholders have called for information regarding the impact of companies on climate change (CDP, 2021; TCFD, 2021). Climate change presents a significant threat to humanity (Hoegh-Guldberg et al., 2019). As global surface temperatures continue to rise, there have been severe impacts on global food production, natural systems and weather patterns (Hoegh-Guldberg et al., 2019; Ray et al., 2019).

All industries depend on water, directly or indirectly, to operate (Liu, Su, & Zhang, 2021). In 2015, companies consumed more than 60% of water resources and were involved in the pollution of water (CDP, 2015). Billions of people do not have access to water for drinking, sanitation and hygiene and many countries are experiencing challenges due to water stress (United Nations, 2018). The reporting of water information is crucial in identifying and addressing water risks by companies (CDP, 2020).

COVID-19 was first detected in December 2019 and poses a material threat to human health (Fauci, Lane, & Redfield, 2020). The COVID-19 pandemic has received significant attention globally and has disrupted the global economy (Akhtaruzzaman, Boubaker, & Umar, 2021; McKibbin & Fernando, 2020). The pandemic has inevitably affected companies (Loughran & McDonald, 2020).

1.1. Statement of the problem and purpose

The purpose of this study is to explore the expansion of company disclosures in their annual, integrated and sustainability reports dealing with climate change, water and COVID-19.

Companies benefit from reporting environmental, social and governance (ESG) information as it provides a competitive advantage (CDP, 2021). Providing ESG information helps investors to consider the company's impacts in their decision-making and reduces information asymmetry (Mervelskemper & Streit, 2017). In a developing country such as South Africa, this

could help attract investment (Herringer, Firer, & Viviers, 2009). Detailed reporting on climate change, water and COVID-19 may also be required to discharge companies' governance responsibilities per the King-IV report (Baboukardos & Rimmel, 2016; Institute of Directors, 2016) and maintain their social licence to operate (Weber, 2014).

1.2. Significance of the study

The study contributes to the literature an assessment of the current state of ESG reporting in respect of climate change, water and COVID-19 at a time when there have been important developments. These developments include the announcement of the International Sustainability Standards Board (ISSB) and the launch of consultation papers by the Johannesburg Securities Exchange (JSE) on its Sustainability and Climate Change Disclosure Guidance (JSE, 2021; VRF, 2021). An analysis of the content of disclosure by companies is useful to standard-setters as it allows for an evaluation of whether companies could realistically implement guidelines, based on the nature of their current disclosure. An assessment of the current state of ESG reporting is also beneficial as it allows for recommendations to be made by academics and for areas of improvement to be identified by standard-setters and preparers of company reports (Jones & Solomon, 2013).

The findings of this study can also help regulators in drafting legislation that is of importance to relevant stakeholders as specific practices by companies have been identified in this study. Understanding what is disclosed by companies also allows for the preparers of financial statements to benchmark disclosure against that of other companies (Bae Choi, Lee & Psaros, 2013). The findings of this study highlight the focus of disclosure by the JSE top 40 companies on quantitative and strategy-related disclosure, aiding the benchmarking of a company's disclosure against the trend noted.

Companies are especially important to consider in addressing potential damage and public concern over ESG issues (Borghei, Leung & Guthrie, 2016). The reporting by companies on ESG issues is of importance in showing the approach taken and the significance that companies place in managing these issues. An examination of the extent of ESG reporting by the top 40 JSE listed companies gives an indication as to whether South African companies are cognisant of the responsibilities they have in addressing ESG issues (Grabsch, Jones & Solomon, 2012).

1.3. Research questions

RQ1: Are South African listed companies expanding their disclosure about climate change, water and COVID-19 in their annual, integrated and sustainability reports?

The following sub-questions are used to address RQ1:

1. What is the extent of disclosure in each year from 2018 to 2020?
2. In which report are companies making disclosure about climate change, water and COVID-19?

RQ2: How do the disclosures on climate change and water change from 2018 to 2020?

1.4. Assumptions, limitations, delimitations

- It is assumed that the companies considered in this study are concerned about climate change, water and COVID-19 and disclosure is made by companies. An assumption has also been made that information disclosed by the companies is valid, accurate and complete.
- The company may be engaging in activities relating to climate change, water and COVID-19 which they do not disclose in any report (Bae Choi et al., 2013).
- The companies in the sample have different reporting suites. Some companies have sustainability reports whereas others do not. Additionally, some companies did not publish a sustainability report in each of the three years considered. The financial year ends of companies may also differ, which could affect the extent of disclosure, especially for disclosure relating to COVID-19.
- The study deals only with South African listed companies. Listed companies were considered as they face noteworthy scrutiny from stakeholders and have the reporting capability to prepare integrated or ESG reports (Maroun & Atkins, 2018). Any information disclosed on company websites will not be considered as this information may be incomplete or misleading, as well as due to difficulties in determining the point at which information was posted or updated (Mansoor & Maroun, 2016).
- This study has selected three ESG issues due to their relevance to the South African context. Climate change is relevant due to South Africa's commitments in terms of the Paris Agreement, as discussed under Section 1.2. South Africa faces extreme water scarcity and quality issues due to changing rainfall patterns and increasing demand for water (Botha & Middelberg, 2016). COVID-19 was declared a global pandemic by the World Health Organisation, causing a significant number of deaths whilst affecting global markets (Just & Echaust, 2020; So, Chu, & Chan, 2021). The South African government implemented several restrictions that affected companies' activities in 2020 (Choi, 2020).

1.5. Definition of terms and abbreviations

The following terms are used in this report:

- Anthropogenic: originating in human activity (Oxford University Press, 2021).

- ESG report: companies refer to their ESG report using various names, such as sustainability report and sustainability development review. The term ESG report will be used to refer to these reports by companies.

The following abbreviations are used in this report:

- ESG: Environmental, social and governance
- JSE: Johannesburg Securities Exchange
- GHG: Greenhouse gases
- GRI: Global Reporting Initiative
- SDGs: Sustainable Development Goals
- TCFD: Task Force on Climate-related Financial Disclosure

CHAPTER II: LITERATURE REVIEW

In this chapter, a theoretical background is considered for ESG reporting. First, a brief overview of prior literature is provided. This is followed by an outline of ESG reporting, with a discussion regarding accountability, legitimacy and institutional theory in consideration of why companies engage in ESG reporting. Then, the relevance of the ESG issues selected for this study is discussed. Lastly, the professional literature that was used to compile the disclosure checklist used for this study (discussed in Chapter 3) is highlighted.

2.1. Introduction

This study considers interrelationships between disclosure and the corporate governance of these issues. It is important to consider the ESG disclosure made by companies in developing countries as there is little information about these practices (Carels, Maroun, & Padia, 2013; Shamil, Shaikh, Ho, & Krishnan, 2014).

It is well established that companies' engagement in ESG reporting is voluntary, as considered in Section 2.5. Prior literature has considered explanation for companies engaging in ESG reporting using accountability, legitimacy and isomorphism as a theoretical framework (Cho et al., 2015; De Villiers & Maroun, 2017; Farooq & De Villiers, 2019). This has led to studies that consider the quality of disclosure made. These studies have considered how factors such as board characteristics, industry and ownership structures influence the quality of ESG disclosure (Aman, Ismail, & Bakar, 2015; Shamil et al., 2014; Vitolla, Raimo, & Rubino, 2020).

Considering the reasons for ESG disclosure is important when considering its expansion as it explains why there are differences in the reporting of companies (De Villiers & Alexander, 2014). As ESG reporting becomes a more established practice, De Villiers and Maroun (2017) regard the focus of research to be directed towards changes in ESG reporting. As reporting on ESG matters continues to develop, disclosure becomes less generic and there are links made between the components of disclosure considered in Section 2.4.1. (De Villiers & Maroun, 2017).

2.2. ESG reporting

Stakeholders are increasingly recognising that financial information does not indicate the sustainability of a company. ESG issues can affect the financial performance of a company and investors also seek to price the effects of ESG activities into their decisions (Mervelskemper & Streit, 2017). Companies are increasingly partaking in ESG disclosure in South Africa and globally as stakeholders increasingly demand details on ESG issues (Carels et al., 2013, Hoang, 2018; Mervelskemper & Streit, 2017; Rahman & Alsayegh, 2021; Viviers et al., 2009; Weber, 2014; Wilburn & Wilburn, 2020).

A company's reports are its means of communicating with its stakeholders (Buniamin & Nik Ahmad, 2015; Rahman & Alsayegh, 2021). ESG reporting emerged as the solution to providing stakeholders with information that may not be financial but is relevant to a company's performance. Environmental reporting reflects the use of resources by a company, as well as the by-products created. Social reporting refers to the impacts a company has on the communities and suppliers with which it engages (Hoang, 2018). This helps a company demonstrate its commitment to ESG issues (Azzone et al., 1997). A company can indicate which issues they perceive as pertinent through their reporting, as important issues are made prominent (Guthrie & Abeysekera, 2006). Companies disclose this information as part of their annual or integrated report, with some companies also disclosing this information in a separate ESG report.

The integrated report presents both financial and non-financial information in a single report. The report provides information to stakeholders about the ability of the company to create and sustain value by integrating ESG disclosures in what is considered the company's primary report (Carels et al., 2013; Solomon & Maroun, 2012). As the primary means of communicating with shareholders, a company's integrated report should include information that is most relevant to understanding the business model of the company (Mansoor & Maroun, 2016). The extent to which an issue is included in the company's integrated report can be used to indicate the emphasis which a company places on a particular issue (Mansoor & Maroun, 2016).

The ESG report is a stand-alone report on the company's impacts and includes information on a wide variety of issues (Cho et al., 2015). Not all companies prepare a separate ESG report, as considered in Section 4.1. The ESG report complements the integrated report and is often cross-referenced (Pitrakkos & Maroun, 2019). An ESG report allows for the information needs of stakeholders that are considered less influential, such as NGOs, to be satisfied without obscuring or contradicting information provided to primary stakeholders (Ecim et al., 2020).

Regulators and standard-setters are also calling for more detailed reporting on ESG matters (GRI, 2019). Apart from requirements by regulation, ESG reporting is adopted to display to stakeholders that the environmental and social performance of the company is appropriate (Azzone et al., 1997; Surty, Yasseen, & Padia, 2018). ESG reporting also offers a competitive advantage to companies that disclose ESG information as they can meet the expectations of shareholders who demand such information (CDP, 2021; Rahman & Alsayegh, 2021).

The influence of accountability, legitimacy and institutional theory on ESG reporting has been considered.

2.2.1. Accountability

Accountability is considered one of the purposes of accounting (Murphy, O'Connell, & Ó hÓgartaigh, 2013). As discussed in Section 1, climate change, water and COVID-19 pose significant threats to society and the sustainability of life on Earth (Fauci et al., 2020; Hoegh-Guldberg et al., 2019; United Nations, 2018), with stakeholders and regulators demanding that companies provide more non-financial information (Hoang, 2018).

Despite this growing move towards a demand for ESG information by stakeholders, financial reporting bodies had not introduced or considered reporting on these impacts until 2021 (Borghei et al., 2016). To provide a basis for consistent reporting to promote greater accountability, there has been a recent consolidation of reporting bodies. There has been a dissolution of the IIRC and Sustainability Accounting Standards Board (SASB) and the formation of the Value Reporting Foundation (VRF) in its stead (Value Reporting Foundation, 2021). The IFRS Foundation has announced that the VRF is set to be consolidated under the International Sustainability Standards Board (ISSB) (IFRS Foundation, 2021). Alternate standards became available prior to this development as other bodies, such as the GRI and TFCD, sought to create more accountability for the impacts that companies have (GRI, 2021; IIRC, 2021).

2.2.2. Legitimacy

The legitimacy theory provides a theoretical perspective to explain why companies engage in ESG reporting and why what is disclosed by companies changes over time. Legitimacy is achieved when the actions of the company are generally perceived or assumed to be appropriate, desirable or proper within the norms, values and beliefs of some socially constructed system (Lokuwaduge & Heenetigala, 2017). The company is granted permission by society to operate and is accountable to society for its actions. The survival of the company is at stake should it breach its social contract by engaging in actions that are not considered appropriate (Alazzani, Wan-Hussin, Jones, & Al-hadi, 2021; Lokuwaduge & Heenetigala, 2017). A company seeks to achieve legitimacy to be seen as credible and trustworthy to society. If a company is not seen as legitimate, it could lose access to resources and could not operate within society, leading to the company's failure (Dowling & Pfeffer, 1975).

ESG reporting is used by companies to display the performance of the company in respect of ESG issues to stakeholders (De Villiers & Maroun, 2017). To legitimise the company, what is reported needs to be in line with the expectations placed on the company by society. The disclosure that is required to legitimise the company is affected by the social, political and economic developments of the time (Sikka, Puxty, Willmott, & Cooper, 1998). Social norms are ever-changing, changing the social construct in which companies operate. It would be

difficult for a company to change social norms and companies would seek to adapt themselves to changes. These changing norms motivate changes in companies and are a source of pressure for the legitimation of a company. The disclosures that a company makes also change over time as developments in the expectations of society occur (Dowling & Pfeffer, 1975).

The areas in which a company makes disclosure are also impacted by the expectations and developments of the social construct (Sikka et al., 1998). By increasing disclosure in these expected areas, the company aligns itself with prevailing social expectations and enhances its reputation (De Villiers & Maroun, 2017). Climate change and water are significant issues that are well-established as matters of concern, as discussed in Section 2.3. The significance of these issues creates an expectation that companies manage their impacts on climate change by controlling their anthropogenic emissions and responsibly using water resources. This expectation creates a demand for information about carbon and water-related impacts (Luo & Tang, 2014).

Unlike climate change and water, COVID-19 is an issue that only emerged recently. The COVID-19 pandemic has been at the forefront of attention due to its significant and far-reaching impacts (Ecim et al., 2020; Fauci et al., 2020), as discussed in Section 2.3.3. Additionally, there is no precedence when it comes to the disclosure of COVID-19 related issues as with the more well-established issues of climate change and water. Due to the topical nature of COVID-19 in 2020, it is expected that companies would disclose their response to the pandemic and how the company has engaged with stakeholders on the impacts of COVID-19 (Ecim et al., 2020). By making disclosure on COVID-19, companies are adapting to changes in the expectations of society and are aligning their disclosure with the developments of the time in 2020 (Dowling & Pfeffer, 1975; Sikka et al., 1998).

2.2.3. Institutional theory

Institutional theory has been used to examine the institutionalisation of ESG reporting as a result of isomorphic pressures (De Villiers & Alexander, 2014; De Villiers & Maroun, 2017). Institutional theory is premised on the behaviour of social actors, such as companies, being influenced by their surrounding institutions (Farooq & De Villiers, 2019). These institutions are a source of pressure for companies, leading to the adoption of behaviour that follows similar patterns (Dowling & Pfeffer, 1975; Venter & de Villiers, 2013). Such institutions include ideas or myths that are taken for granted and the socially accepted manner of doing things (Farooq & De Villiers, 2019; Venter & de Villiers, 2013). These institutional pressures are not simply placed on companies to be followed, rather these institutions are created, maintained and disrupted (Farooq & De Villiers, 2019). Companies behave in ways that are inefficient as

similarity to the institutional structures provides legitimacy to the company (DiMaggio & Powell, 1983; Venter & de Villiers, 2013). The behaviour of companies is not formed by deliberate decisions made with the aim of increasing profits, rather it is influenced by the need to conform to these institutional pressures (De Villiers & Maroun, 2017). A company must conform to these structures to survive and be successful (Wild & van Staden, 2013).

As companies are influenced by institutional pressures to follow rules and structures that enhance legitimacy, companies that occupy a similar position become isomorphic. These structures encourage a change towards conformance by the companies that is difficult to resist (De Villiers & Alexander, 2014). ESG reporting is not merely an exercise of providing information to stakeholders or for the maintenance of legitimacy. Developments and changes in ESG reporting are a reflection of dominating social and institutional forces in operation. Institutions may exert three types of isomorphic pressures on organisations, influencing their behaviour (De Villiers & Maroun, 2017; DiMaggio & Powell, 1983).

The first type is coercive isomorphism, which stems from political influences and the company seeking to maintain legitimacy (DiMaggio & Powell, 1983). Coercive pressures include prescriptions created by laws, regulation or societal pressures (De Villiers & Maroun, 2017). South African companies that are listed on the JSE face such pressure as they are required to prepare an integrated report and consider its non-financial impacts or explain why the company has not prepared an integrated report (JSE, 2018). Developments in reporting by South African companies were important to uphold the appearance of legitimacy as a developing country in light of the racist history of the country (Maroun, Coldwell, & Segal, 2014).

The second type is normative isomorphism (DiMaggio & Powell, 1983), which is the pressure companies experience that compels adherence to norms and generally accepted practices. Sustainability guidelines and standards have been developed and have become widely used, introducing normative pressure to companies. Normative isomorphism becomes increasingly relevant as a field moves towards maturity (De Villiers & Alexander, 2014). ESG reporting is now considered part of best practice (De Villiers & Maroun, 2017). ESG reporting guidelines are widely applied and compliance with these codified practices is expected to attain legitimacy. Leading standards, such as those of the GRI, are a source of normative pressure as compliance with this framework is a signal of quality and credibility (De Villiers & Alexander, 2014; De Villiers & Maroun, 2017).

The third pressure is mimetic (DiMaggio & Powell, 1983), in which companies seek legitimacy by mimicking the behaviour of leading and successful entities that have achieved legitimacy. Companies benchmark their behaviour against each other. Benchmarking by large

multinational companies will be done against their peers and companies that are smaller benchmark against industry leaders (De Villiers & Alexander, 2014). There has been an increase in awareness of the impact of humans on the planet, bringing attention to companies balancing generating financial returns with the sustainability of those returns (Hoang, 2018). This has led to companies including ESG disclosure in their reports even where it is not required, indicative of mimetic and coercive pressures (De Villiers & Maroun, 2017).

To legitimise themselves, companies will adopt rules and structures. Isomorphic pressures could lead to similar disclosure amongst companies as they seek to adapt to local social pressures. Companies use leading frameworks to guide disclosure, as considered in Section 2.4, which might make their disclosure isomorphic. This is relevant to RQ1 as companies may be expected to make disclosure on ESG issues based on the disclosure their peers are making (De Villiers & Alexander, 2014).

The relevance of climate change, water and COVID-19, the ESG issues selected for this study, have been considered in Section 2.3.

2.3. ESG issues

Companies have impacts and responsibility on a wide range of ESG issues (Hoang, 2018). Environmental and social issues have become focal points of society in recent years. This trend has influenced the reporting space as social norms affect company behaviour (Amel-Zadeh & Serafeim, 2018). These issues have been broadly classified into three groups, namely environmental, social and governance issues. Examples of environmental issues include climate change, use of water and the production of waste. Social issues include occupational health and safety, community relationships and employees. Governance issues relate to board diversity, board committees and risk management (Hanson, 2013).

The concept of ESG reporting has existed since as early as the 1960s, with ESG issues being broad-ranging and extensive (De Villiers & Maroun, 2017). This study has focused on three prevalent ESG issues, namely, climate change, water and COVID-19 (CDP, 2021; Ecim et al., 2020). This section first considers climate change as an ESG issue, followed by water and then COVID-19. This section considers links between the issues, what issues each of these ESG areas present, why they are important, impacts on stakeholders and why these issues were selected for this study.

2.3.1. Climate change

As discussed in Section 1, climate change presents a significant threat to humanity as global surface temperatures increase. Increasing temperatures have far-reaching impacts on the planet and its population, with severe impacts on global food production, natural systems and

weather patterns (Ray et al., 2019). Global surface temperature increases are due to anthropogenic emissions, such as emissions of greenhouse gases and aerosols (Karl & Trenberth, 2003). Anthropogenic emissions are caused by activities, such as burning fossil fuels and industrial processes (Intergovernmental Panel on Climate Change, 2018).

The impact of anthropogenic emissions is melting ice caps, raising sea levels and impacts on animals. In South Africa, increases in average temperatures have caused a reduction in the quantity and reliability of crop yields, lowering food security. Food security has also been lowered as rainfall patterns have changed. This reduces crop and livestock yields as there is reduced water availability and deteriorating water quality. Climate change is seen to impact the issue of water, as it has impacted availability and quality (Masipa, 2017). This highlights that ESG issues do not exist in isolation, they are interlinked and have overlap. The governance of these issues cannot be done in isolation (CDP, 2020).

Companies contribute to climate change and are impacted by its effects. The anthropogenic emissions emitted by companies have sharply increased since 1970, which has contributed to increases in global temperatures (Stern & Kaufmann, 2014). Companies have impacts on climate change through their activities and operations and also face risks and opportunities due to it. These impacts are a relevant issue to investors and other stakeholders (CDP, 2021; TCFD, 2021).

Climate change is not a new or recent issue (Intergovernmental Panel On Climate Change, 2001). It has been widely studied and is widely considered the most significant environmental problem (Barnett, 2003; Hornsey & Fielding, 2020). Many companies have been engaging in disclosure of their climate change impacts, but this does not mean their disclosure is the same year on year. Climate change is a well-established issue that companies would be familiar with disclosing but reporting on this issue is not stagnant. Climate change disclosure would expand as the company seeks to create accountability or to enhance its legitimacy (Murphy et al., 2013; Sikka et al., 1998).

The threat posed by climate change affects all of humanity and collective action needs to occur to prevent dire consequences. To address climate change and its impacts, 196 countries have signed the Paris Agreement, which seeks to limit the increase in global temperatures to well below 2 degrees Celsius (United Nations, 2015). South African JSE listed companies are affected by the Paris Agreement as South Africa is a party to the Agreement, with corporate action not seen as sufficient to address climate change (Bae Choi et al., 2013; Department of Forestry, 2016). ESG reporting can be useful to companies in making visible their actions in addressing their climate change impacts. It can also be useful to regulators to hold companies accountable for their impacts (Bae Choi et al., 2013).

2.3.2. Water

The second issue selected was water. Water is a finite resource with limited freshwater sources which are readily available for use. Despite these constraints, water is vital to sustaining life. The production of food requires water and freshwater sources are a habitat to a large portion of animal and fish species (WWF, 2021a). The availability and quality of water present a challenge as water becomes increasingly scarce due to climate change, growing populations and changes in consumption patterns. Billions of people do not have access to water for drinking, sanitation and hygiene and many countries are experiencing challenges due to water stress (United Nations, 2018).

Water is a significant issue in the South African context, with South Africa being one of the driest countries in the world and already being considered water scarce. South Africa is a drought-stricken country and, as previously discussed, climate change has exacerbated the water crisis (WWF, 2021b). In addition to scarcity, quality is also an issue due to contamination of water sources and infrastructure which is old or lacking (National Geographic, 2021).

South Africa faces water scarcity and restrictions have previously been implemented to prevent the depletion of water in a major city and tourist attraction, Cape Town. Despite water restrictions being limited and companies no longer being required to adhere to them, drought and rising demand remain an issue. The reliance on unpredictable rainfall makes the active preservation of water important (City of Cape Town, 2021). As with climate change, collective action is needed to preserve water resources. Companies may not have to adhere to restrictions, but they still have a responsibility to contribute to the preservation of water (National Geographic, 2021).

All industries depend on water, directly or indirectly, to operate (Liu et al., 2021). In 2015, companies consumed more than 60% of water resources and were involved in the pollution of water (CDP, 2015). As water becomes increasingly scarce, competition for it will increase and the World Bank expects a 6% decline in the global GDP growth rate because of it. In 2018, the CDP estimates that companies experienced financial losses of $38,5 billion due to challenges with water. The reporting of water information is crucial in identifying and addressing water risks by companies (CDP, 2020).

2.3.3. COVID-19

COVID-19 was selected as an issue as it poses a significant threat to human health globally. There were over a million confirmed cases of COVID-19 in South Africa at the end of 2020 (South African Government, 2020). The pandemic caused a crisis of health for individuals and companies as employees experiencing symptoms were unable to work and others faced death. Companies had to ensure they had processes in place to adhere to regulations and to

safeguard the health of their stakeholders, such as employees and customers. Employees also faced mental health challenges due to drastic changes to working environments and lockdowns (Arndt et al., 2020).

Many governments, including the South African government, implemented lockdowns and other restrictions to limit the spread of COVID-19. Restrictions on movement impacted many companies as only specified activities were permitted to continue to operate. COVID-19 negatively impacted economic growth and demand decreased for goods and services due to lockdowns (Craven et al., 2020). The pandemic also caused a disruption of supply chains, further disrupting sales activity (Meyer, Prescott and Sheng, 2022). Certain industries, such as tourism and hospitality, face greater impacts than others as demand for these goods and services has been significantly impacted by restrictions and a reluctance by consumers to engage in discretionary spending due to ever-changing and unexpected changes in the business and economic environment (Craven et al., 2020; Pinzaru, Zbuchea & Anghel, 2020).

Such restriction also presented an opportunity for companies, with many accelerating shifts to the digital space and increasing their e-commerce capabilities. COVID-19 has changed the outlook for many companies, whether positively or not, and these effects are of interest to stakeholders (Choi, 2020; McKibbin & Fernando, 2020; So et al., 2021).

Unlike climate change and water, COVID-19 is not an environmental issue and only emerged in December 2019 (Fauci et al., 2020). The disclosure would not be sufficient to establish a trend from 2019 to 2020, especially when considering that the issue of COVID-19 was still in its infancy at the end of 2019. There would not be a change in disclosure on COVID-19 from 2018 to 2020 as considered by RQ2, as with climate change and water disclosures. COVID-19 disclosure is not analysed in terms of RQ2 for this reason.

2.4. Data instrument

The disclosure of ESG issues is voluntary and companies all have different impacts on these issues. Disclosure by companies is guided by well-known frameworks, as discussed in Section 2.4. The professional literature has been used to compile a comprehensive disclosure checklist which has been used to collect data regarding the disclosures by companies about climate change, water and COVID-19. This checklist has been used to analyse the disclosures (discussed in Chapter 3).

In 2015, all United Nations Member States, including South Africa, adopted the 2030 Agenda for Sustainable Development. The 17 Sustainable Development Goals (SDGs) are core to this agenda as they are a crucial call to action in the form of goals, indicators and targets (Hák, Janoušková, & Moldan, 2016; United Nations, 2018). The SDGs will be used by member

states as a framework for their agendas and policies (Hák et al., 2016). The SDGs seek to achieve sustainable growth by ensuring that short-term improvements to the well-being of humans are not at the expense of long-term social and economic capitals. The SDGs address economic growth, social inclusion and the protection of the environment (Stafford-Smith et al., 2017). SDG 13 (Climate change) and 7 (Affordable and clean energy) were used to develop the climate change checklist, SDG 6 (Clean water and sanitation) and 14 (Life below water) for water and SDG 3 (Good health and well-being) for COVID-19 (United Nations, 2018).

The GRI was founded in 1997 in response to public dissent over environmental damage caused by an oil spill by Exxon Valdez (GRI, 2021). The first version of GRI standards was launched in 2000 and provided guidelines to companies for sustainability reporting. The mission of the GRI was to develop economic, environmental, and social performance reporting guidelines (Vigneau, Humphreys, & Moon, 2015). This allowed the reports of companies to be compared (Hedberg & Von Malmborg, 2003). The GRI became widely known and regarded as a well-developed framework for sustainability reporting in the early 2000s (Brown, De Jong, & Lessidrenska, 2009). The GRI made the transition from providing guidelines to setting standards for sustainability reporting globally in 2016. GRI standards continue to be released and updated. The GRI organisation aims to hold companies accountable for their adherence to principles of responsible environmental conduct, as well as economic, social and governance matters (GRI, 2019). Energy and emissions standards were used to develop the checklist for climate change. Water and effluents standards were used for water. Standards for occupational health and safety, consumer health and safety and training and education were used to develop the checklist for COVID 19. The GRI Standards used are indicated in Table 1.

Due to the risks and opportunities that climate change presents to the global economy, the Financial Stability Board considered that clear and comprehensive information of high quality was needed about its impacts (TCFD, 2021). The Task Force on Climate-related Financial Disclosures (TCFD) was created in 2015 to develop recommendations for disclosures relating to climate change. Stakeholder decisions could be better informed by climate-related disclosures that are effective and help stakeholders understand complex and long-term risks relating to climate change. The TCFD released recommendations for climate-related financial disclosures in 2017 with the aim of helping companies in disclosing information that leads to informed capital allocation decisions (O'Dwyer & Unerman, 2020; TCFD, 2021). There is significant pressure from investors to implement the recommendations of the TCFD (Eccles & Krzus, 2018). These recommendations were used to develop the checklist for climate change. The core elements of recommended disclosure were used as themes to classify checklist items for climate change, water and COVID-19. These themes are governance, strategy, risk

management and targets and metrics and are discussed in Section 2.4.1 (Financial Stability Board, 2017).

The Natural Capital Protocol is a framework for decision-making that enables an organisation to identify, measure and value their impacts and dependencies on natural capital, whether direct or indirect. The Natural Capital Protocol follows a three-phased approach to transformative change and for decision-making to include all capitals, especially natural capital. The Protocol provides a recommended approach to improve internal decision-making and is not a formal reporting framework (Natural Capital Coalition, 2016). The Natural Capital Protocol was used to develop the checklist for climate change, water and COVID-19.

The CDP (formerly Carbon Disclosure Project) was founded in 2000 and uses its platform to link the fiduciary duty to environmental integrity (CDP, 2021). The CDP is a global disclosure platform that allows companies to disclose their activities and be scored based on their environmental impacts (CDP, 2021). The CDP has been highly successful in requesting information from companies and uses a reporting process to score each company based on their disclosure, with over 9 600 companies reporting (Ascui & Lovell, 2012; CDP, 2021). The aim of the CDP is to influence the behaviour of companies concerning climate change and water security (CDP, 2021). Investors can use information from the CDP to evaluate strategies and risks. The CDP also allows for reporting to be consistent and allows companies to benchmark peers and discover emissions' reductions opportunities (Pitrakkos & Maroun, 2019). The CDP Climate Change Questionnaire was used to develop the climate change checklist and the Water Security Questionnaire was used for the water checklist.

The IIRC represents many stakeholders with a vision to embed integrated thinking into business practice. The IIRC became a dominant party in policy and practice development for integrated reporting until the organisation was consolidated with SASB to form the VRF (Kılıç & Kuzey, 2018; Value Reporting Foundation, 2021). The IIRC has stated that integrated reporting will facilitate capital allocation that is efficient and productive in its *International Integrated Reporting Framework*. The first *International Integrated Reporting Framework* was published in 2013 and was revised in 2021 (IIRC, 2021). The purpose of the *International Integrated Reporting Framework* is to encourage companies to holistically account for their operations to improve communication about how a company is creating value over time in its external environment (Cheng et al., 2014; Reuter & Messner, 2015). The impacts on six identified capitals are the core of the framework (Cheng et al., 2014). These six capitals are financial, manufactured, intellectual, human, social and relationship, and natural (IIRC, 2021). The *International Integrated Reporting Framework* was used to develop the checklist for climate change, water and COVID-19.

Table 1: Standards used to compile the disclosure checklist	
ESG issue	Standard
Climate change	SDG 7: Affordable and clean energy
	SDG 13: Climate actions
	GRI 302: Energy
	GRI 305: Emissions
	GRI 307: Environmental Compliance
	Recommendations of the Task Force on Climate-related Financial Disclosures
	Natural Capital Protocol
	Climate Change Questionnaire
	International Integrated Reporting Framework
Water	SDG 6: Clean water and sanitation
	SDG 14: Life below water
	GRI 303: Water and Effluents
	GRI 307: Environmental Compliance
	Natural Capital Protocol
	Water Security Questionnaire
	CDP Water Analysis report
	International Integrated Reporting Framework
COVID-19	SDG 3: Good health and well-being
	GRI 205: Anti-corruption
	GRI 206: Anti-competitive behaviour
	GRI 403: Occupational Health and Safety
	GRI 404: Training and Education
	GRI 416: Customer Health and Safety
	International Integrated Reporting Framework

2.4.1. Disclosure checklist themes

The checklist used to codify the reports of companies has been divided under four themes, namely governance, strategy, risk management and targets and metrics. These themes are the core elements of recommended disclosure of the TCFD and the JSE (TCFD, 2021, JSE, 2021).

Governance

The stakeholders of a company, including investors and lenders, take interest in the role that those charged with governance play in the oversight of ESG issues. Information about management's role in assessing and managing these issues provides insight into whether there is sufficient attention given to these issues by those charged with governance (TFCD, 2021). An appropriate governance structure affects the ability of the company to create and sustain value. Disclosure on the governance of ESG issues provides a link for users regarding how these issues impact the business and strategy of the company (PwC, 2014). This allows the company to demonstrate how its governance structure supports the creation of value in the short, medium and long term (IIRC, 2021).

Strategy

Disclosure about the company's strategy in relation to ESG issues allows for stakeholders to understand how these issues affect the company's strategy, business and resource allocation plans in the short, medium and long term. This is relevant when developing expectations about the future performance of the company (TCFD, 2021). Information about the company's strategy informs the decisions and activities of the company as it seeks to create value (PwC, 2014).

Risk management

Stakeholders evaluate the risk profile of the company and its risk management activities. These stakeholders require information about the identification, assessment and management of risks relating to ESG issues and whether existing risk management processes are integrated with those relating to ESG issues (TCFD, 2021). Clear discussion about identified risks informs assessments of the company's ability to create value (PwC, 2014).

Targets and metrics

Information about how the company monitors and measures its impacts, strategy and performance in relation to ESG issues is relevant in assessing whether strategic objectives have been achieved and when assessing outcomes (PwC, 2014; TCFD, 2021). Providing disclosure to stakeholders about targets and metrics that are used by the company allows for users to make a better, more informed assessment about risk-adjusted returns of the company and its capability of meeting financial obligations. The provision of targets and metrics facilitates the comparison of the performance of companies in an industry by stakeholders (TCFD, 2021). Stakeholders have access to information that can be used to assess exposure to ESG issues and the progress of the company in managing ESG issues and impacts (JSE, 2021).

2.5. Voluntary disclosure: development of research questions

ESG disclosure is not a requirement in South Africa and disclosure made is voluntary (Lemma et al., 2019). The standards used by companies as guidelines for reporting on ESG issues, including climate change and water, such as those of the Global Reporting Initiative (GRI) and Task Force on Climate-related Financial Disclosures (TCFD) discussed in Section 2.4., are flexible in their application. What is disclosed by each company differs based on their impacts and what the company chooses to disclose as influenced by factors considered in Section 2.2. (Braam et al., 2016; Cho et al., 2015).

There are no specific guidelines that relate to COVID-19 due to its recent emergence. Companies could not have made use of a specific framework, as they could for climate change and water, to guide their disclosure on COVID-19. The flexibility in disclosure is compounded for COVID-19 (Cho et al., 2015). This study considers what companies are disclosing about their impacts in RQ1. Due to the flexibility and discretion allowed by the guidelines, it is not likely that disclosure will be the same each year.

> RQ1: Are South African listed companies expanding their disclosure about climate change, water and COVID-19 in their annual, integrated and sustainability reports?

When a company prepares both an integrated and ESG report, the company can also choose in which report it will disclose ESG information, with the location of disclosures being guided by the purpose of the report and its intended audience (JSE, 2021). The IIRC's *International Integrated Reporting Framework* considers disclosure in an integrated report, but other standards' guidelines focus on what to disclose without an indication about where disclosure should be made (IIRC, 2021). The company has discretion over whether an integrated report or ESG report will be used in terms of these other frameworks (Financial Stability Board, 2017).

The emphasis that a company places on an issue does not remain the same over time. Section 2.2.2. considers how social constructs influence the information a company discloses. Through a company's reporting on its impacts on climate change, water and COVID-19, its actions become visible (Hopwood, 1987). This can lead to more sustainable decision-making as a company has to be aware of its impacts to report on them. This awareness can lead to action as negative impacts of the company may be acknowledged and corrected (Bae Choi et al, 2013; Solomon & Maroun, 2012). This study looks at what companies are disclosing, which is an indication of the impacts that it is aware of, as well as areas that may be neglected. The impacts that a company is aware of may change over time, leading to a change in the disclosure made, as considered by RQ2 (Bae Choi et al., 2013).

RQ2: How do the disclosures on climate change and water change from 2018 to 2020?

COVID-19 has been excluded from RQ2 as a change in disclosure is not expected. No disclosure occurred in 2018 as COVID-19 had not yet emerged, and disclosure in 2019 was minimal. The exclusion of COVID-19 is considered further in Section 2.3.3.

CHAPTER III: METHODOLOGY

3.1. Overview of method

The purpose of this study is to explore the expansion of company disclosures in their annual integrated and sustainability reports in respect of the following ESG issues: climate change, water and COVID-19. The study explores what South African listed companies are disclosing about climate change, water and COVID-19 in their annual, integrated and sustainability reports from 2018 to 2020.

This study has followed an interpretive approach to examine what companies report and how their disclosures change from 2018 to 2020. Interpretive research requires involvement of the researcher for data collection and analysis, resulting in findings that are subjective (Mansoor & Maroun, 2016). The interpretive approach is guided by the notion of qualitative research aiming to reveal multiple realities, as opposed to searching for an absolute truth relevant to positivism (Leedy & Omrod, 2019). This approach is well-suited as interpretive methods are helpful in explaining the complexities of non-financial reporting (Carels et al., 2013) and is similar to approaches followed by Borghei et al. (2016) and Mansoor and Maroun (2016).

The research method is mixed. A checklist of climate change, water and COVID-19 disclosures was created using professional literature, as discussed in Section 2.4 (Pitrakkos & Maroun, 2019). Data was obtained using qualitative content analysis to systematically codify information disclosed by 40 companies listed on the JSE. The disclosures were scored using an ordinal scale developed by prior literature (De Villiers, Dumay, & Maroun, 2019; Pitrakkos & Maroun, 2019). Data has been analysed using descriptive statistics and has been presented graphically. An exploratory factor analysis of major disclosure themes has also been run.

3.2. Population and study sample

The population of this study is the 342 companies listed on the JSE. The sample for this study is the top 40 companies by market capitalisation, as determined on 1 May 2021. The sample has been purposefully selected to focus on the most prominent companies. These companies represent approximately 80% of the total market capitalisation of all companies. Large, listed companies face more scrutiny from users (Dowling & Pfeffer, 1975) and are expected to have reporting systems that are mature, with the resources to prepare ESG reports. The companies selected were not limited to an industry to explore the overall trends in the expansion of companies into the ESG areas selected (Maroun & Atkins, 2018). This is because the research is exploratory. The objective is to gauge what is being reported and provide recommendations rather than to test determinants of ESG disclosures, generalise results or extrapolate reporting behaviours (Maroun & Atkins, 2018).

The study has considered reports over the financial years for 2018, 2019 and 2020. The study consists of 117 firm years as two firms were not listed for the entire 2018 to 2020 period. The longitudinal approach is important to determine the trends in ESG reporting from 2018 to 2020 to provide insight into any changes in ESG reporting by companies (Curtis & Turley, 2007).

3.3. Sources of data

The reports of the companies were obtained from each company's website. The data was obtained from the integrated report and, where available, the primary sustainability or ESG report of the company. If the company does not have a stand-alone integrated report, the annual report of the company has been used. The reports for 2018, 2019 and 2020 have been examined.

3.3.1. Instrumentation

As discussed in Section 2.4, a checklist of the expected disclosures by companies has been created using professional literature which is commonly used by companies to disclose ESG information. These are the GRI Standards, the United Nation's Sustainable Development Goals, the *International Integrated Reporting Framework* of the IIRC, the Natural Capital Protocol, the CDP's Climate Change and Water Security Questionnaires and the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

A preliminary checklist of expected disclosures was developed using the professional literature (Pitrakkos & Maroun, 2019). Expected disclosures which are repeated or similar have been retained as a single disclosure item. A copy of the expected disclosure checklist with the source from which the disclosure was derived has been included in Appendix A.

3.4. Collection of data

The checklist was created first by reading each of the professional literature sources and recording the expected disclosures in an Excel spreadsheet. The source of the disclosure was recorded in line with the expected disclosure. The disclosures were separated by ESG issue, being climate change, water and COVID-19. The disclosures were then categorised into governance, strategy, risk management and targets and metrics disclosures, as discussed in Section 2.4.1. The disclosure items were then considered, and similar or repeated disclosures were combined or eliminated.

Content analysis was used to assess the level of disclosure of climate change, water and COVID-19 in the companies' reports. For environmental and social reporting, content analysis is the dominant method in collecting and scoring the extent of disclosure by companies (Borghei et al., 2016; Guthrie & Abeysekera, 2006). Information from reports was codified to explore trends and make inferences using predefined categories (Mansoor & Maroun, 2016).

In recording the data, the name of the company, the financial year and the sub-heading under which the disclosure appears were recorded. The disclosure was scored using a rating scale of 0 to 3, following the approach taken by Hassan, Roberts, and Atkins (2020). A score of 0 was awarded for no disclosure. A score of 1 was awarded for disclosures that are generic, minimal or vague and disclosures that are policy related. A score of 2 was awarded for disclosures that are context-specific but are high level. This is where disclosure is specific to the item considered but does not provide any detail in relation to that item. A score of 3 was awarded for disclosures that are context-specific and those which are quantified. This is where disclosure is specific and provides detail relevant to that disclosure item. An example indicating the differences between the scoring levels has been included in Appendix B. The scoring system is treated as ordinal, consistent with the approach followed by Hassan et al. (2020).

3.5. Data analysis

Descriptive statistics have been used to present data on the extent of companies' reporting on climate change, water and COVID-19 per RQ1 (Clarkson, Overell, & Chapple, 2011; Mansoor & Maroun, 2016). A frequency table was created to determine the extent of disclosure by the companies for the various years and themes (Mansoor & Maroun, 2016). Data were then depicted graphically to display the frequency of disclosure, drawing a distinction amongst the disclosure scores.

In addition to descriptive statistics, frequency tables and plots to address RQ1, exploratory factor analysis was used to aggregate the disclosures and identify broader disclosure themes. Factor analysis is a useful tool to determine correlations in disclosure by companies to identify broader themes (Costello & Osborne, 2005). Varimax rotation[1] has been used. Factors with eigenvalues greater than 1 were retained to balance exploratory power with ease of interpretation. The rotated factor matrix has included elements with loading greater than 0.4. The components identified by the factor analysis were labelled interpretively by the researcher and were used to provide additional insights into the nature/dimensions of disclosures dealing with climate change, water and COVID-19.

To address RQ2, trends in disclosures have also been presented graphically using the disclosures grouped according to the results of the factor analysis. This is complemented by a Kruskal-Wallis test with Jonckheere-Terpstra post-hoc assessments. Non-parametric tests

[1] This is a technique used to aggregate a large number of variables. This is done by extracting the maximum variance common to the variables and reducing them to a single factor or score.

were selected because the disclosure scores are ordinal and, as a result, the data are not expected to be normally distributed.

To run the Kruskal-Wallis test, the disclosure scores (based on the sum of the ordinal scales and the frequency of disclosures) for each disclosure item were treated as the dependent variable. The financial years were used as grouping variables. The Kruskal-Wallis test was used to evaluate the null hypothesis that the disclosure scores do not change from 2018 to 2020. The Kruskal-Wallis test does not report year-on-year effects. As a result, the Jonckheere-Terpstra post-hoc assessments were used to test for statistically significant trends in disclosures from 2018 to 2020.

3.6. Validity and reliability

The following have been considered in respect of validity and reliability of the method used:

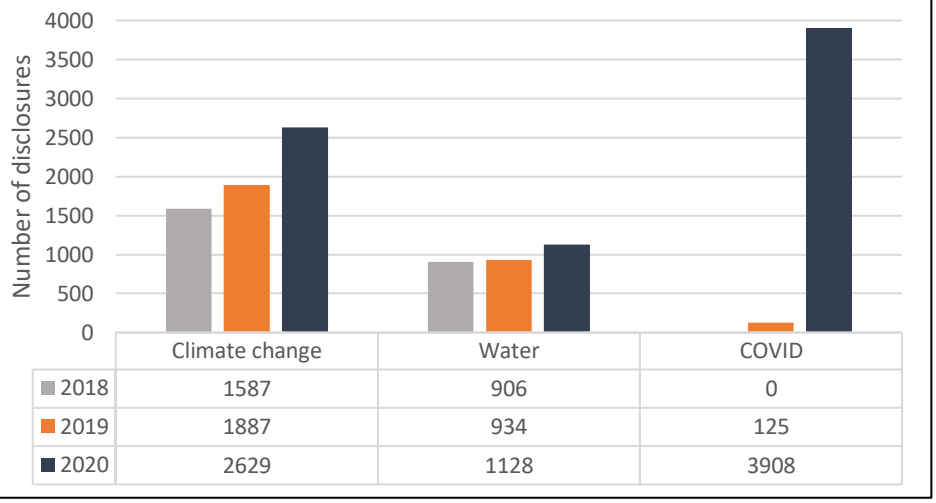
- One coder was responsible for coding disclosures in the reports to enhance consistency and avoid inter-coder reliability issues.
- The disclosure checklist created is grounded in professional literature, enhancing the validity and reliability of the data instrument (Borghei et al., 2016).
- The coding process remains inherently subjective due to the disclosure by each company and across the years being different and the researcher being a key component in the coding (Adams & Simnett, 2011). This is a defining feature of interpretive research as the disclosure checklist was developed using professional literature (Guthrie & Abeysekera, 2006).
- The Kaiser-Meyer-Olkin measure was used to test for adequate sample sizes when running the factor analysis. Bartlett's test of sphericity was used to evaluate the null hypothesis that the variables included in the analysis are uncorrelated.
- Anti-image matrices generated by the factor analysis were reviewed to ensure that scores along the diagonal are greater than 0.5.
- The Kruskal-Wallis test was performed on the disclosure scores calculated using the ordinal scale discussed in Section 3.4 and the frequency of the disclosures.

CHAPTER IV: RESULTS

4.1. Descriptive statistics

An analysis of the disclosures found that the number of disclosures for the period of 2018 to 2020 had 4 550 observations. The increase in the number of disclosures from 2018 to 2020 was 207%. The total number of disclosures increased by 18% from 2018 to 2019 and 160% from 2019 to 2020, as illustrated in Figure 1. The increase in frequency, excluding COVID-19 disclosure, is 151% from 2018 to 2020 and 128% from 2019 to 2020. It is noted that there was a large increase in the total number of disclosures made even when COVID-19 disclosure is excluded. The increase is considered for climate change and water in this section. Figure 1 illustrates the increase in the total number of disclosures for each year from 2018 to 2020.

Figure 1: Total number of disclosures per year



	Climate change	Water	COVID
2018	1587	906	0
2019	1887	934	125
2020	2629	1128	3908

Figure 1 illustrates that climate change disclosure increased by 300 from 2018 to 2019, which is a 19% increase. In 2020 there was an additional 742 disclosures compared to 2019, which is a 39% increase. The overall increase in climate change disclosures from 2018 to 2020 is 66%. The increase in water disclosures from 2018 to 2019 was 28, a 3% increase. In 2020, there were an additional 194 disclosures, a 21% increase. The overall increase in water disclosure was 25%. Disclosure increased from 2019 to 2020 by 3 783 but this does not establish a trend as COVID-19 only emerged in 2019. The level of disclosure on climate change and water increased despite disclosure on COVID-19 being made in 2020.

Companies increasing their disclosure indicates that companies are expanding ESG disclosure rather than trying to maintain conciseness in their reports (PwC, 2014). The extent of disclosure is influenced by public pressure as companies face greater exposure to these issues, indicating that companies face greater exposure to climate change and water issues as time progresses, leading to increased disclosure (Patten, 2002). There is an increase in

demand by stakeholders for more information on companies' impacts on these issues (Hoang, 2018). The impacts of the company are made visible, allowing for such companies to be held accountable (Hopwood, 1987). A factor noted from the factor analysis was the prevalence of forward-looking information for climate change, such as targets and strategies used to manage the performance of the company. This could indicate that the increase in disclosure is underpinned by a sense of accountability by companies as this information may be used to measure the performance of the company against its intended targets and to evaluate if strategies are achieved (Carels et al., 2013).

Climate change was the most disclosed issue in each year as shown by Figure 1. Disclosure on climate change almost doubled from 2018 to 2020. This is different to the disclosure on water-related issues, which slightly increased from 2018 to 2020. Figure 1 shows that COVID-19 was disclosed more than water, despite not being a well-established issue. Given the topical nature of COVID-19 in 2020, this could be attributed to companies and their need for legitimacy. Companies had to align their reporting with the expectations of society and make disclosure about this topical issue (Bae Choi et al., 2013; Ecim et al., 2020).

Climate change disclosure exceeded COVID-19 disclosure in 2020. This is further shown by the results of the exploratory factor analysis. COVID-19 disclosure that was not specific to a theme, along with the disclosure item "Trade-off between capitals in relation to climate change" was identified as the first factor. This indicates the focus that companies have on climate change, even when another major issue, such as COVID-19, arises. Abhayawansa and Adams (2021) note that the impact of climate change is substantially harsher and more enduring than that of a pandemic, warranting greater disclosure. Companies noted in their reports that COVID-19 had major impacts in 2020 but maintained that addressing climate change impacts was a core issue, despite the pandemic. This is an interesting outcome as climate change is subject to greater uncertainty than the pandemic, with its causes being invisible and its impacts distant. The impact of the pandemic was pronounced, as discussed in Section 2.3.3, but the significance of COVID-19 has been undermined by the "politicisation" of the pandemic (Ruiu, Ragnedda, & Ruiu, 2020). When considering the legitimacy theory, the expectations of society upheld climate change as a more pressing issue than COVID-19, leading to more disclosure on climate change. This extends a message to users of company reports about the importance the company places on addressing climate change. As 2020 was the hottest year on record, it is reasonable that extensive climate change disclosure is expected by users and companies seek to meet this expectation to maintain legitimacy (Abhayawansa & Adams, 2021). This is complemented by the findings of Bae Choi et al. (2013) and Pitrakkos and Maroun (2019) that additional disclosure is used to manage legitimacy.

Table 2: Frequency of disclosure in each year										
	2018			2019			2020			Total
Score[2]	1	2	3	1	2	3	1	2	3	
Climate change	418	384	785	518	473	896	628	775	1226	6103
Water	215	316	375	204	334	396	196	422	510	2968
COVID	0	0	0	69	45	11	1397	1711	800	4033
Total	633	700	1160	791	852	1303	2221	2908	2536	13104

The most frequent score for both climate change and water is "3" in each year, as seen in Table 2. This indicates that most disclosure for these issues was quantitative. This is supported by the results of the exploratory factor analysis that identified disclosures that were quantified as a factor. This is further supported by the most disclosed theme being targets and metrics, as discussed in Section 4.2. COVID-19 differed in this regard, with "3" being the least disclosed score. Disclosure around COVID-19 was mostly qualitative. Due to the recent emergence of COVID-19, companies would not have the systems in place to measure its impacts to report them, leading to less quantitative disclosure. This is in line with the findings of prior research that found that companies have difficulty quantifying ESG disclosures when performance systems and accounting infrastructure is not in place (McNally, Cerbone, & Maroun, 2017).

4.2. Extent of disclosure (RQ1)

The extent of disclosures dealing with climate change, water use and COVID-19 are presented below. The results of the descriptive and exploratory factor analysis are considered in this section. Each section presents graphs that show the disclosure for the issue, based on scores, followed by a discussion of the results. Next, there is a breakdown of the distribution of the scores and lastly, the disclosure is considered by sector.

Climate change

The extent of disclosure relating to climate change is considered and discussed below.

[2] A score of 1 was awarded for disclosures that are generic, minimal or vague and disclosures that are policy related. A score of 2 was awarded for disclosures that are context-specific but are high level. A score of 3 was awarded for disclosures which are context specific and those which are quantified.

Figure 2: Disclosure per theme for climate change based on scores

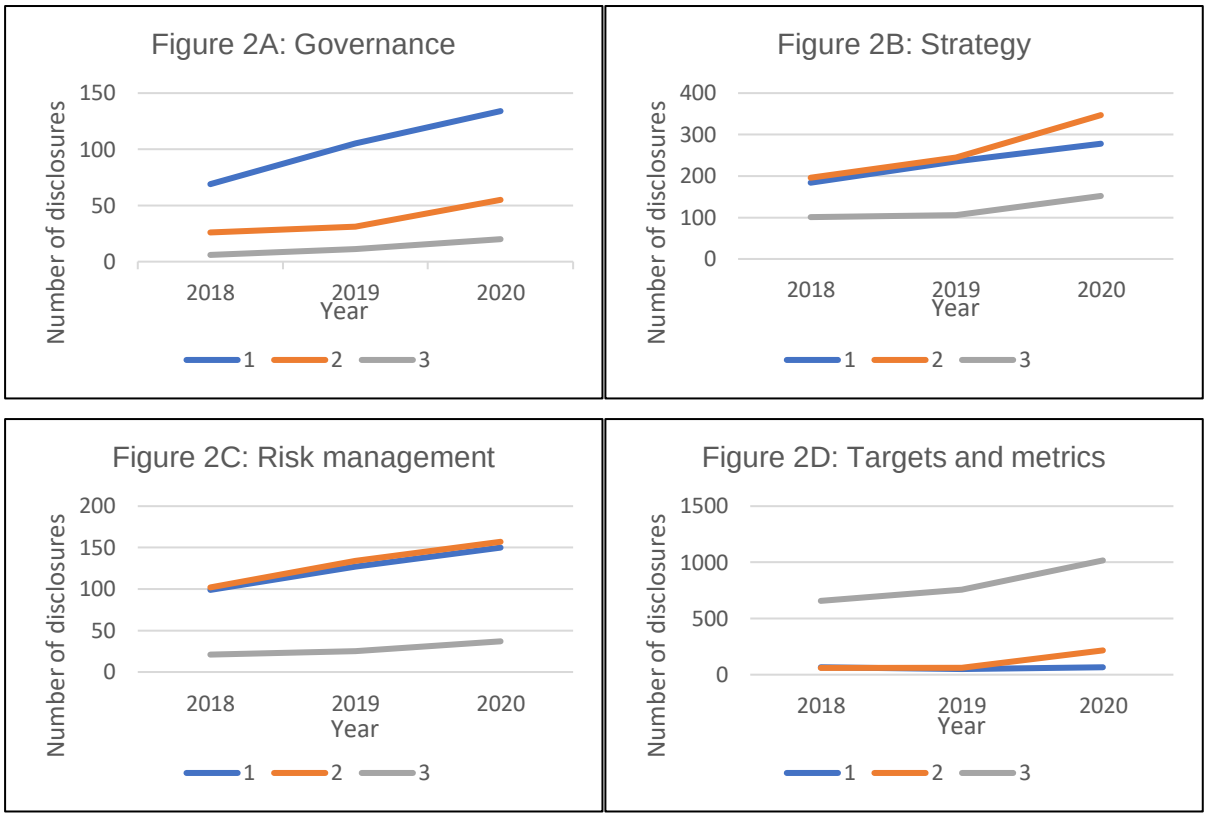


Figure 2A indicates that governance disclosure is poor, supporting the findings by PwC (2014) that governance disclosure is not well-developed. Disclosure about climate change governance has increased but has remained largely generic with scores concentrated to "1". Risk management disclosure did not change significantly as shown in Figure 2C and is not often quantified, as indicated by a lack of "3"s, supporting the findings of McNally et al. (2017) that risk disclosure is usually qualitative. This descriptive analysis is supported by the results of the factor analysis, where a factor identified was disclosure around governance and risk management that was qualitative and generic. Figure 2B shows that strategy disclosure became less generic in 2020 when compared to 2018 and 2019.

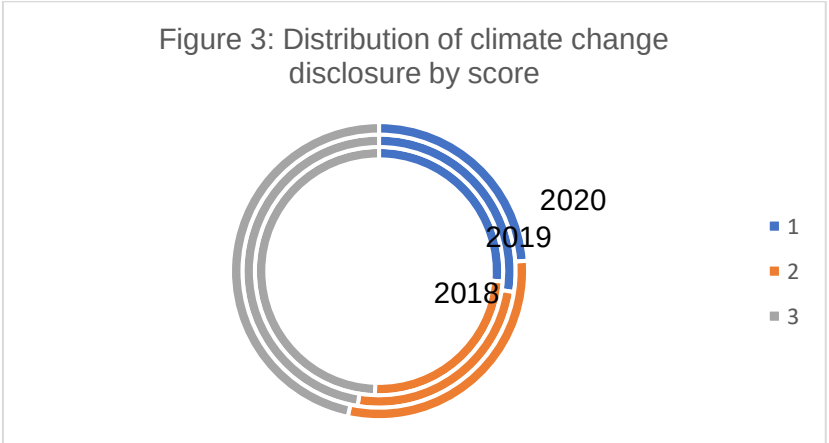
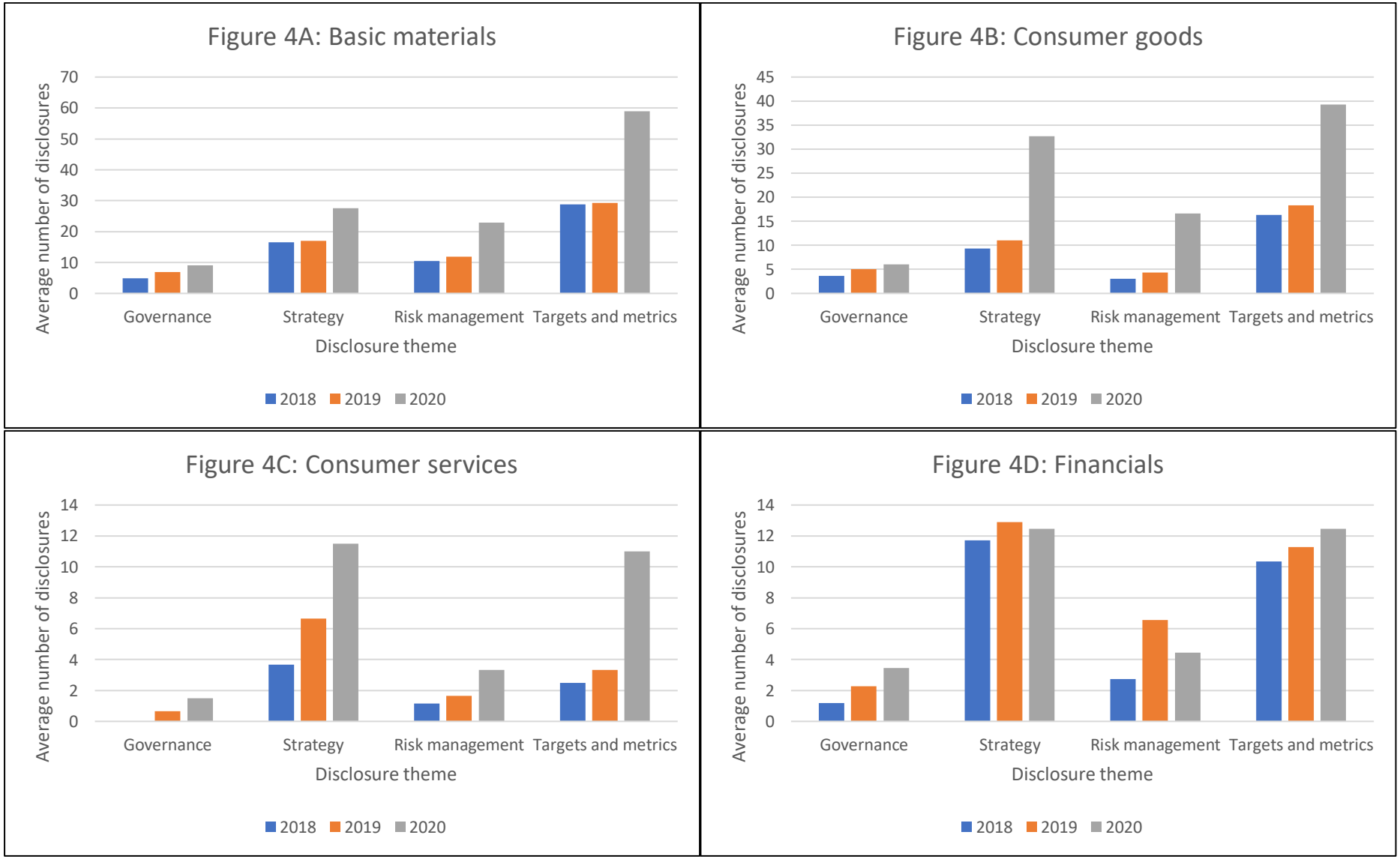


Figure 3 indicates that the most frequent score for climate change was “3”, indicating that disclosure is quantitative or context specific. Most disclosure relates to the targets and metrics theme, as shown in Figure 2D, which encompasses primarily quantitative disclosure items. Climate change disclosure is mostly quantitative, supported by the results of the exploratory factor analysis, as discussed in Section 4.1. The finding that most disclosure (more than 50%) is qualitative, as shown by Figure 3, is in line with the findings of Pitrakkos and Maroun (2019). Pitrakkos and Maroun (2019) also found that most companies rely on qualitative disclosure and the findings of this study differ due to the prominence of the quantitative disclosure noted.

Basic materials is the industry with the most disclosure on climate change as shown by Figure 4A. Disclosure about the themes followed the overall trend, with most disclosure relating to targets and metrics, followed by strategy. All industries followed this trend of focusing on targets and metrics and strategy. Basic materials being the industry with the most disclosure, is followed by industrials (Figure 4F) and oil and gas (Figure 4G). This is expected as these are considered high-carbon impact industries. Pitrakkos and Maroun (2019) found that the difference in quantity between industries only emerged when the sustainability report was excluded, whereas the inclusion of the sustainability report still presented a difference in quantity in this study. This is in line with prior studies by Ofoegbu, Odoemelam, and Okafor (2018) which found that companies with greater impacts face greater scrutiny, leading to the quantity of disclosure being greater. These high-impact companies need to meet the expectations of the users of their reports to maintain legitimacy (Bae Choi et al., 2013). Lemma et al. (2019) also argue that greater disclosure is made by high impact companies to avoid a negative reaction from the market which could occur if the company conceals information.

The overall trend by companies has been to focus on quantitative disclosure, as seen by most disclosure being around targets and metrics across industries (Figure 4). This is followed by qualitative disclosure relating to the strategy of the company in addressing climate change. Arvidsson (2019) notes that information that is comparable, such as quantitative disclosure, is more useful to stakeholders to understand and assess such information. This is in contrast to other studies that indicate that qualitative disclosure enhances the usefulness of information for users (Beattie, McInnes & Fearnley, 2004; Clatworthy & Jones, 2003). McNally et al. (2017) note the difficulty experienced by companies in balancing the level of quantitative and qualitative disclosure when preparing their integrated reports. Preparers of integrated reports also indicate a preference for quantified information as this is seen as higher-quality reporting and a provision of facts (McNally et al., 2017).

Figure 4: Average climate change disclosure by industry



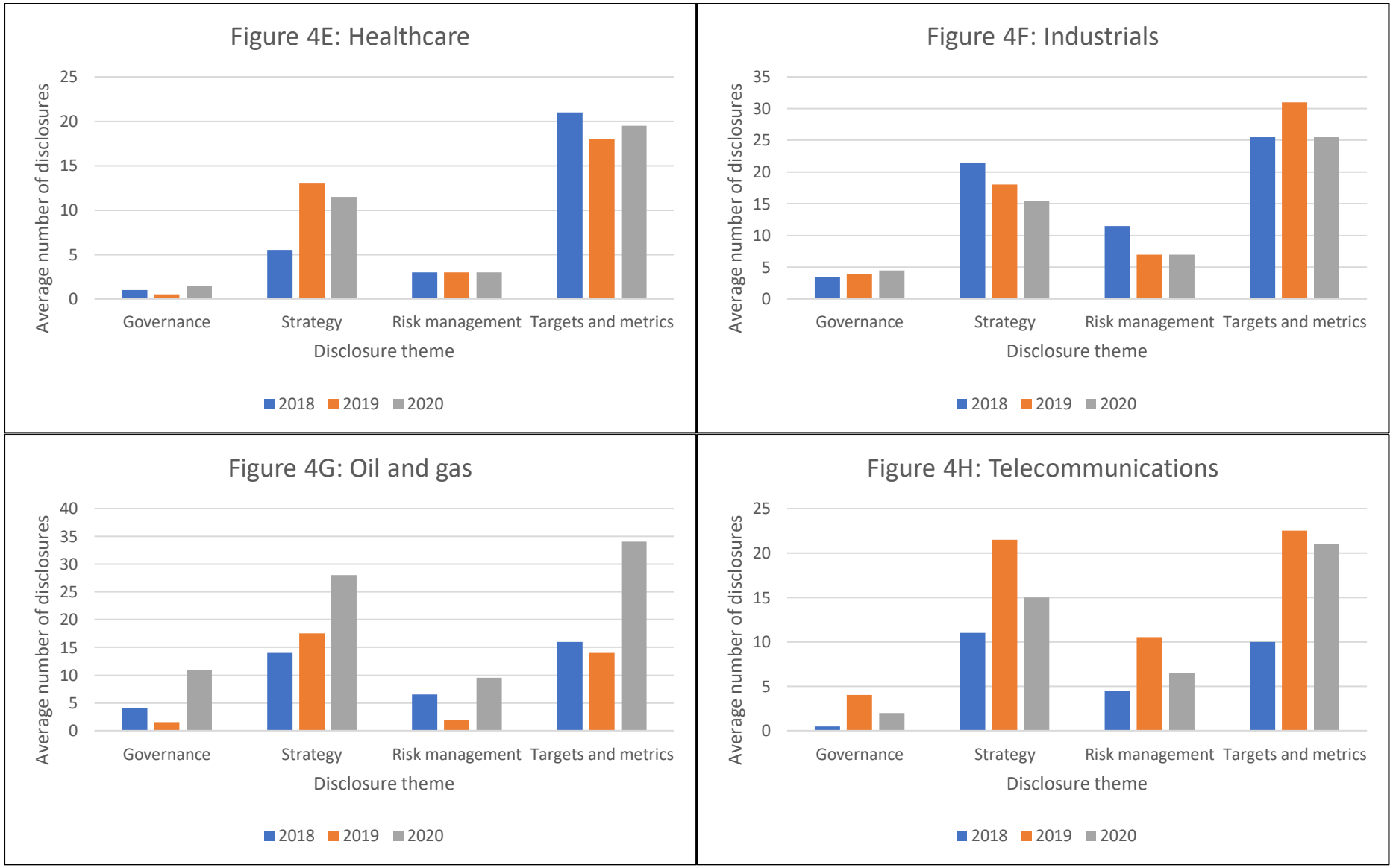
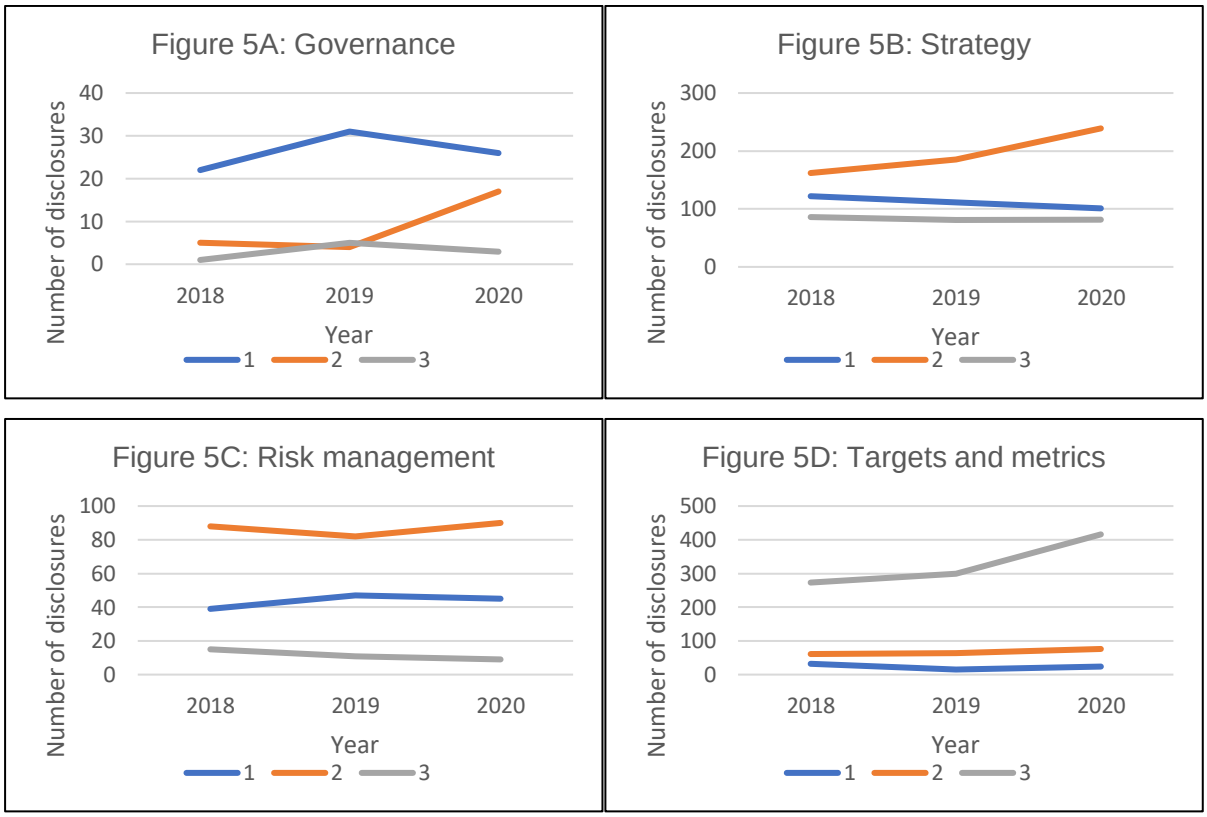


Figure 4E: Healthcare
Average number of disclosures
25
20
15
10
5
0
Governance
Strategy
Risk management
Targets and metrics
Disclosure theme
2018
2019
2020
Figure 4F: Industrials
Average number of disclosures
35
30
25
20
15
10
5
0
Governance
Strategy
Risk management
Targets and metrics
Disclosure theme
2018
2019
2020
Figure 4G: Oil and gas
Average number of disclosures
40
35
30
25
20
15
10
5
0
Governance
Strategy
Risk management
Targets and metrics
Disclosure theme
2018
2019
2020
Figure 4H: Telecommunications
Average number of disclosures
25
20
15
10
5
0
Governance
Strategy
Risk management
Targets and metrics
Disclosure theme
2018
2019
2020

Water

The extent of disclosure relating to water is considered and discussed below.

Figure 5: Disclosure for water by theme based on score



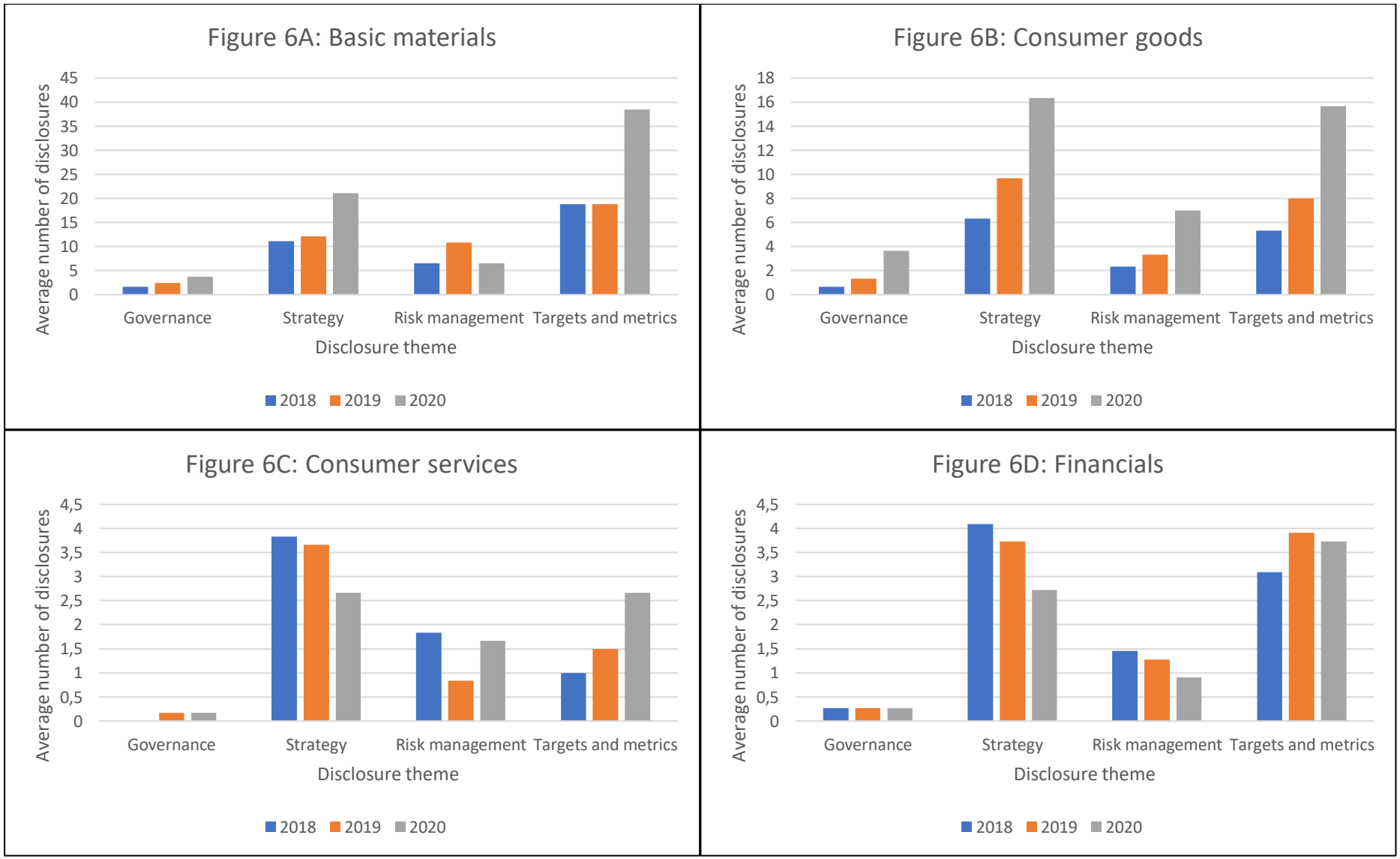
Figures 5A and 5C indicate that governance disclosure is largely generic for water and risk management respectively, as with climate change. This descriptive analysis is again supported by the results of the factor analysis, of which a factor identified was disclosure around governance and risk management that was qualitative and generic. A prior study found that mining companies made substantial disclosure relating to the reputational risks faced as a result of their impact on water (Botha & Middelberg, 2016). This was not found for the period considered in this study, with disclosure relating to the risks companies face due to their dependency on water being significantly more frequent than reputational risks.

The most frequently disclosed theme was targets and metrics. This again follows the same pattern as climate change disclosure. There is a prevalence of quantified disclosure as evidenced by the frequency of "3" scores in Figure 5D being highest for targets and metrics in each year. This is interesting to note as prior research on water disclosures considers qualitative information as imperative to enhancing the quality of reporting and serving the information needs of users (Beattie et al., 2004; Botha & Middelberg, 2016; Clatworthy & Jones, 2003). Strategy disclosure also increased, as shown by Figure 5B, with high-level

qualitative disclosure increasing. Strategy disclosure was the second most disclosed theme for water, indicating a move to a greater balance of qualitative and quantitative disclosure. This balance in disclosure is considered as enhancing the usefulness of information (Botha & Middleberg, 2016).

This study confirms the findings of Botha and Middelberg (2016) that not all sectors disclose the same amount of information in respect of water as seen in Figure 6 which follows. The basic materials (Figure 6A) and oil and gas (Figure 6G) industries had the highest disclosure for water. The disclosure was mostly related to targets and metrics, followed by disclosure relating to strategy. Consumer goods (Figure 6B) also focused on targets and metrics and strategy disclosure as well, whereas healthcare (Figure 6E) and industrials (Figure 6F) focused their disclosure on targets and metrics only. Disclosure on water for the other industries was minimal but still followed the overall trend of disclosing the most on targets and metrics followed by strategy. As with climate change, high impact industries had more disclosure, further indicating that greater impacts lead to more disclosure (Ofoegbu et al., 2018).

Figure 6: Average water disclosure by industry



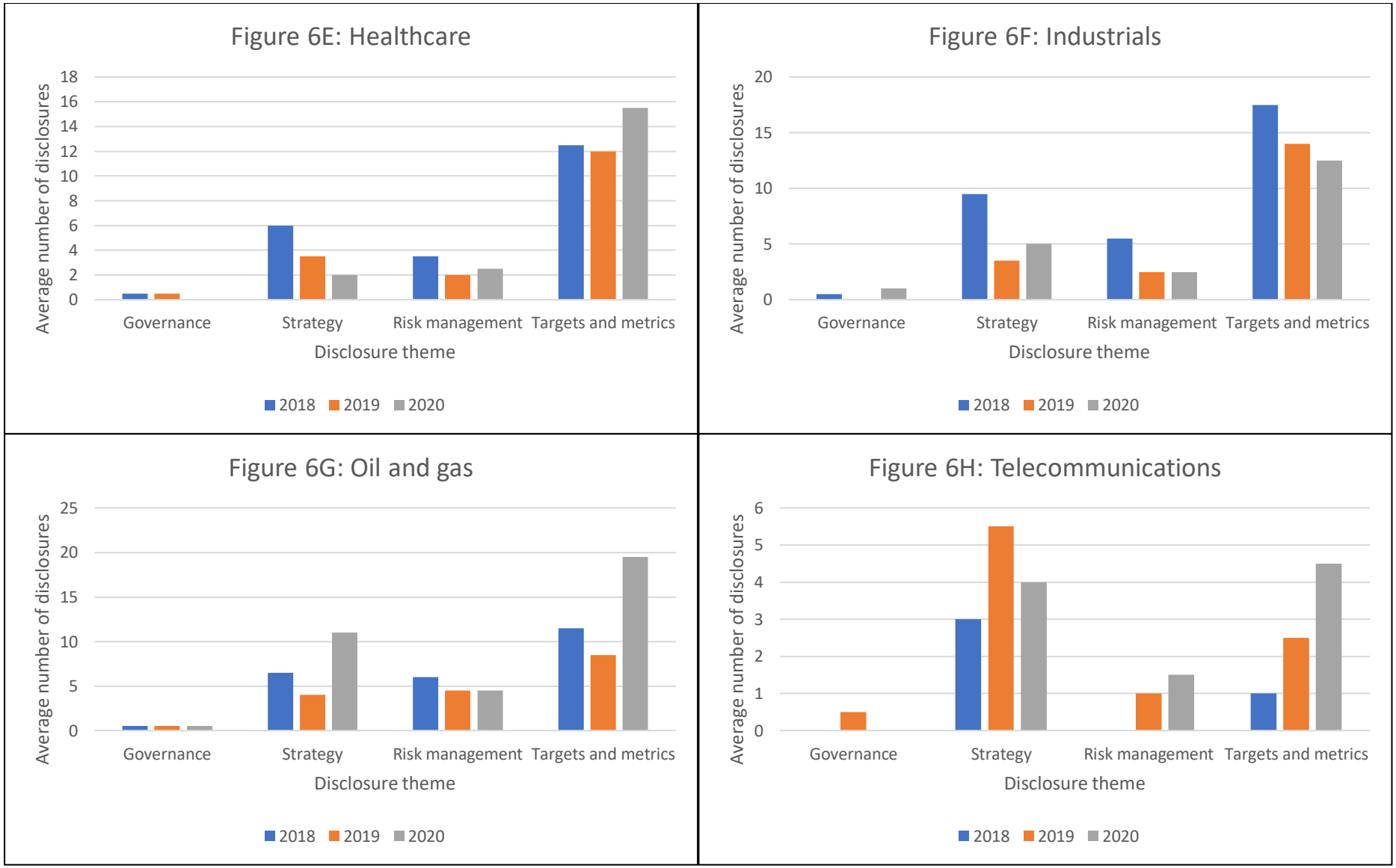


Figure 6E: Healthcare
Average number of disclosures
18
16
14
12
10
8
6
4
2
0
Governance
Strategy
Risk management
Targets and metrics
Disclosure theme
2018
2019
2020
Figure 6F: Industrials
Average number of disclosures
20
15
10
5
0
Governance
Strategy
Risk management
Targets and metrics
Disclosure theme
2018
2019
2020
Figure 6G: Oil and gas
Average number of disclosures
25
20
15
10
5
0
Governance
Strategy
Risk management
Targets and metrics
Disclosure theme
2018
2019
2020
Figure 6H: Telecommunications
Average number of disclosures
6
5
4
3
2
1
0
Governance
Strategy
Risk management
Targets and metrics
Disclosure theme
2018
2019
2020

COVID-19

This section considers the extent of disclosure on COVID-19.

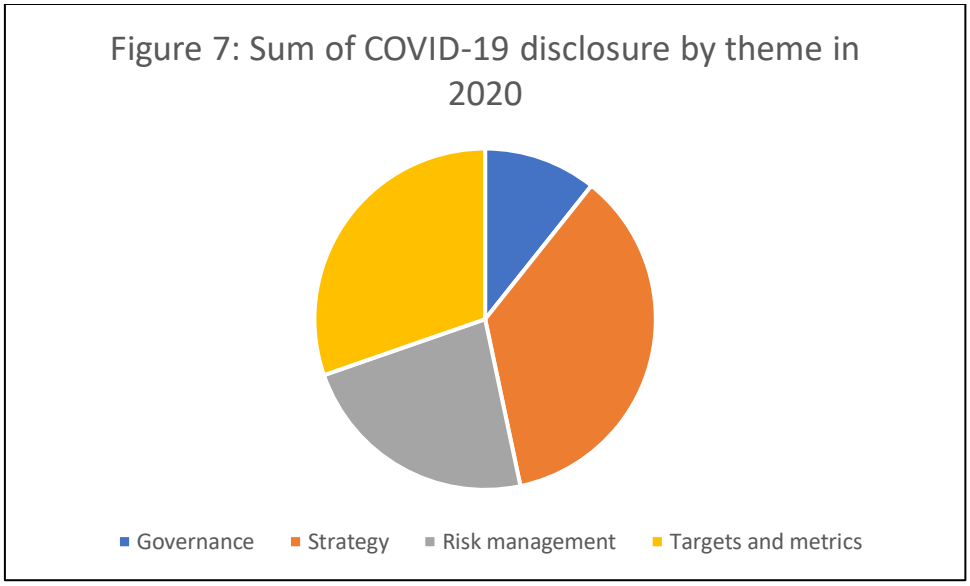


Table 3: Frequency of COVID-19 disclosure in 2019 and 2020							
	2019			2020			
Score	1	2	3	1	2	3	Total
Governance	14	8	0	270	213	26	531
Strategy	18	16	4	575	779	225	1617
Risk management	22	12	4	375	447	100	960
Targets and metrics	15	9	3	177	272	449	925
Total	69	45	11	1397	1711	800	4033

Figure 7 shows that most disclosure is on strategy (36%), followed by targets and metrics with 30% and risk management with 23%. Table 3 shows that there was more frequent disclosure of risk management than targets and metrics but the concentration of “3” scores for targets and metrics increased the sum of disclosure noted in Figure 7. Disclosure for COVID-19 is more evenly distributed by theme than climate change and water. This is highlighted by the factor analysis, in which the first factor identified was COVID-19 disclosure that was not specific to any theme. The disclosure was not overwhelmingly generic, with most disclosure being scored “2” as shown by Table 3. The disclosure for COVID-19 was also not as heavily concentrated to targets and metrics and strategy, as with climate change and water. The information that is expected by users to maintain legitimacy is not well-developed as with climate change and water. Disclosure that is more dispersed about the themes increases the likelihood of the expectations of users of the reports being met (Bae Choi et al., 2013).

Legitimacy is less likely to be compromised as there is coverage of all themes, of which there is greater uncertainty regarding where expectations lie than with climate change and water (Sikka et al., 1998).

The dispersion of COVID-19 disclosure may also be indicative of a lack of isomorphic pressures. A codified practice for disclosure on COVID-19, which introduces normative pressure, is not available and companies do not have a set of generally acceptable practices to which to adhere for the maintenance of legitimacy. As all companies largely only made disclosure on COVID-19 in 2020, it would not have been possible for companies to benchmark the behaviour of their peers, indicating a lack of mimetic pressure on companies (De Villiers & Alexander, 2014).

The differences by industry are not major for COVID-19, with most disclosure relating to strategy for all industries. This is followed by targets and metrics and risk management, with little disclosure relating to governance. Financials and industrials followed the overall trend, but disclosure was more even than other industries across all four themes, as governance disclosure was not minimal. COVID-19 disclosure differed to climate change and water. This could be due to the lack of a mature system in place to account for COVID-19, as discussed in Section 4.1, and considerable uncertainty about what to disclose (McNally et al., 2017).

Figure 8: Average COVID-19 disclosure by industry

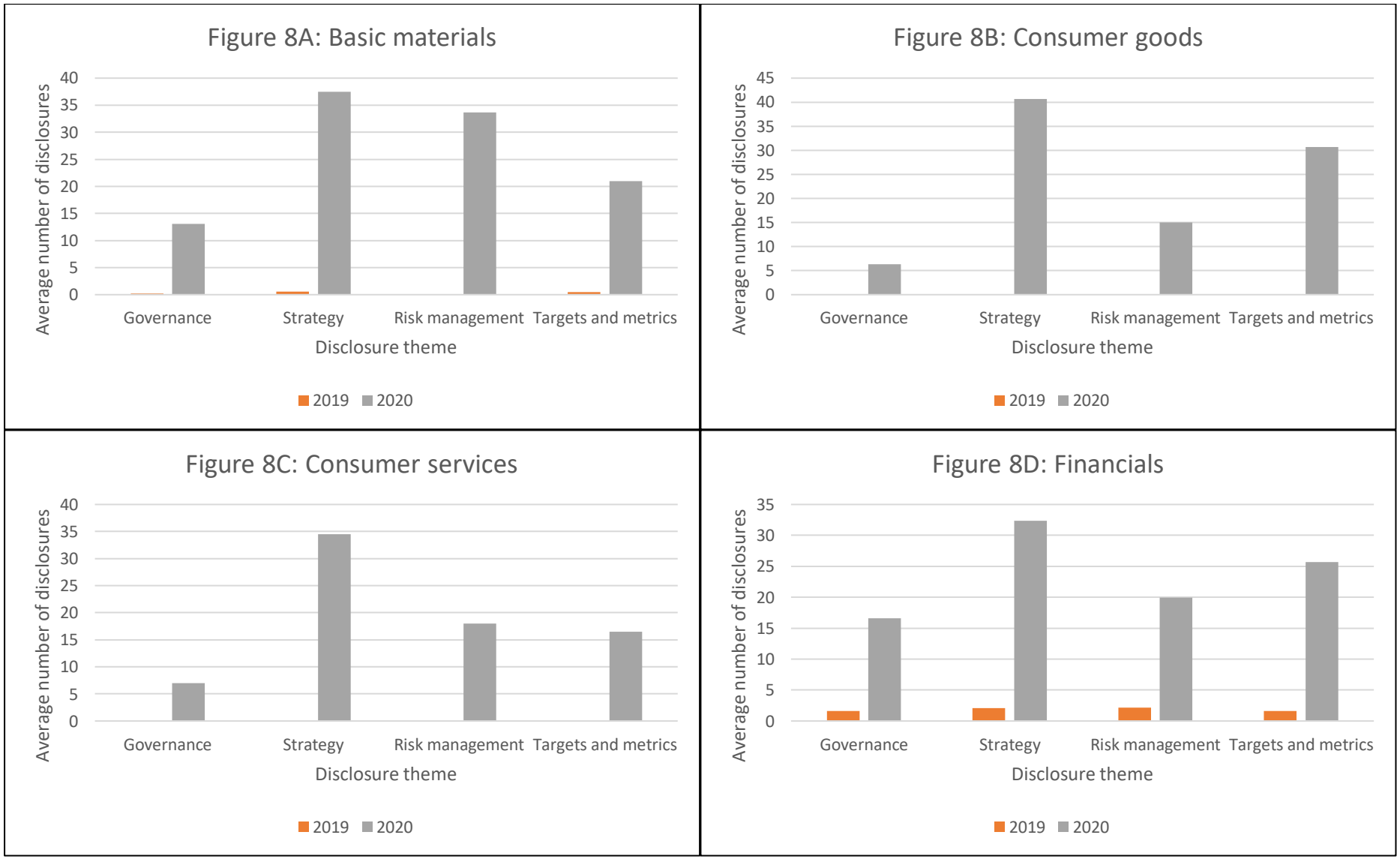


Figure 8E: Healthcare

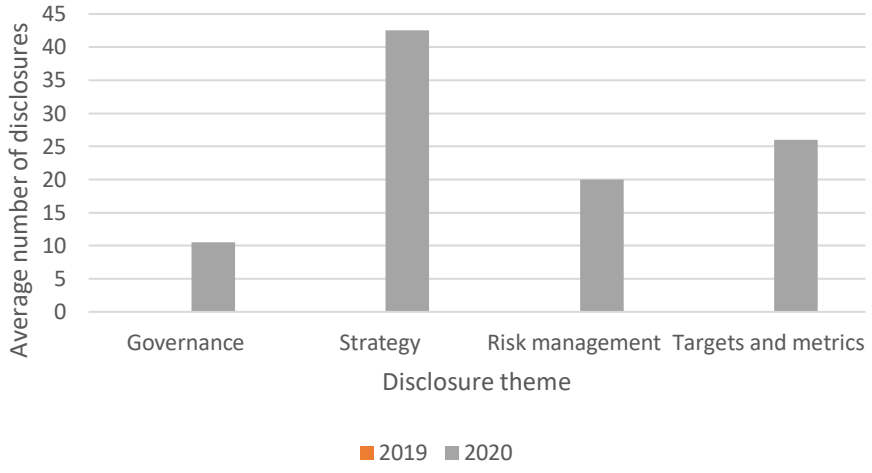


Figure 8F: Industrials

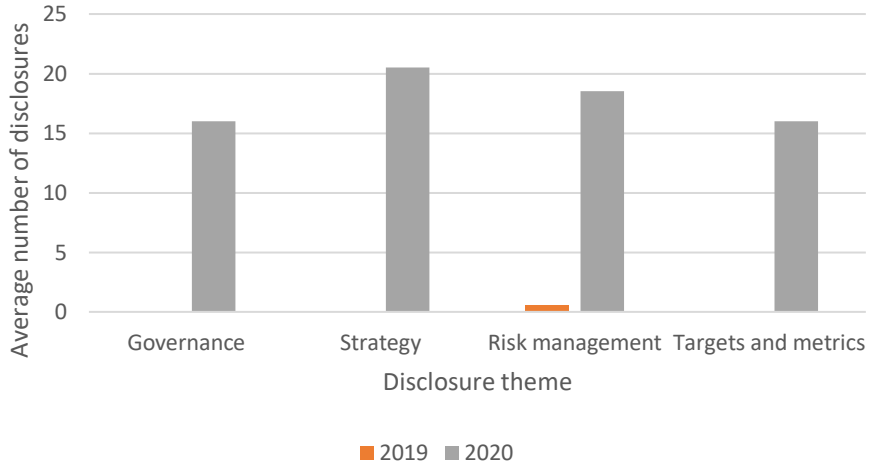


Figure 8G: Oil and gas

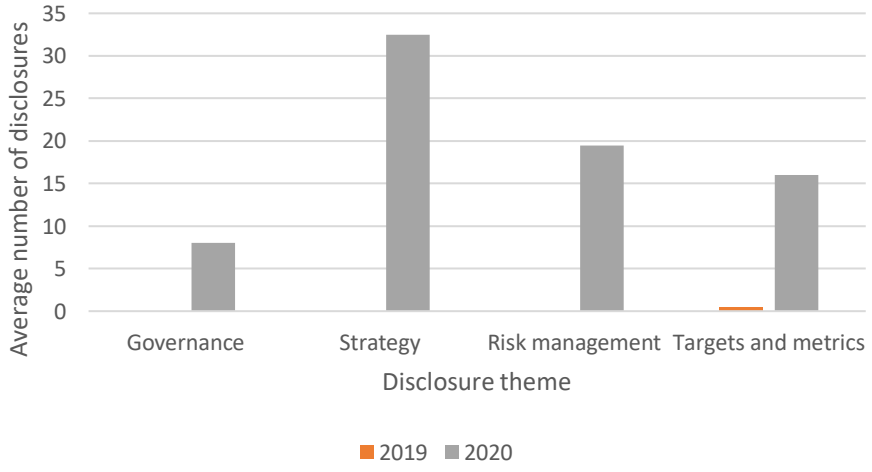
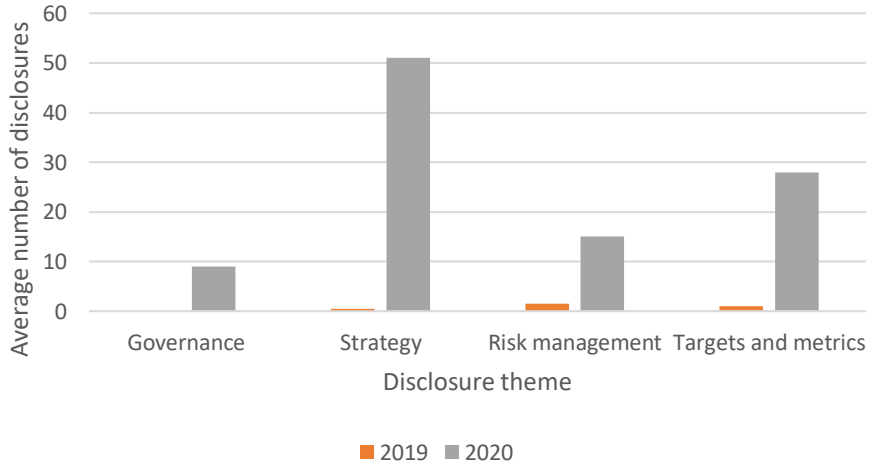


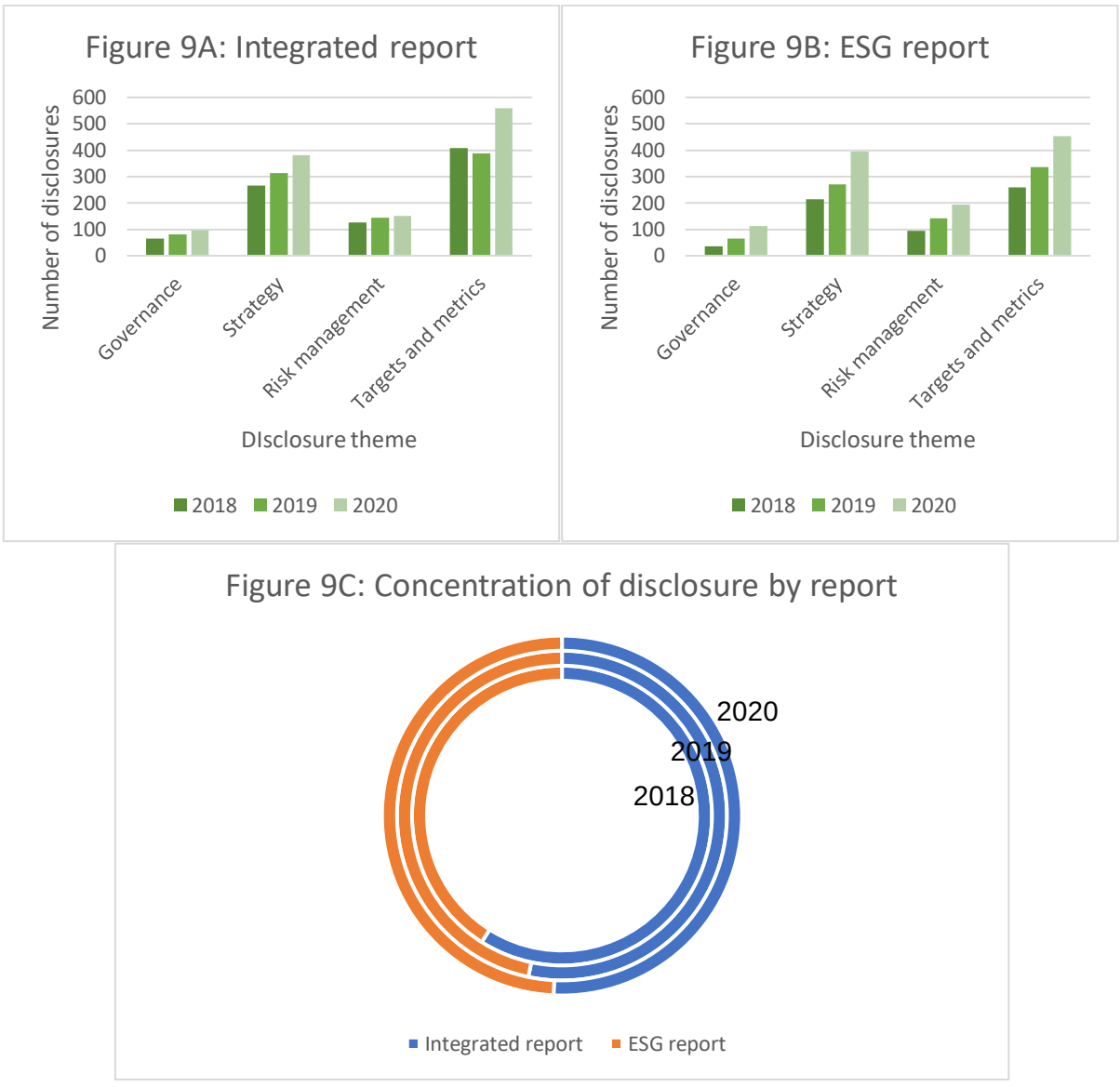
Figure 8H: Telecommunications



Report

This section considers the report in which disclosure for climate change, water and COVID-19 is made. The number of companies preparing an ESG report increased from 18 in 2018 to 24 in 2020, an increase of 33%. This increase is considered when analysing the location of disclosure.

Figure 9: Climate change disclosure in the integrated and sustainability report

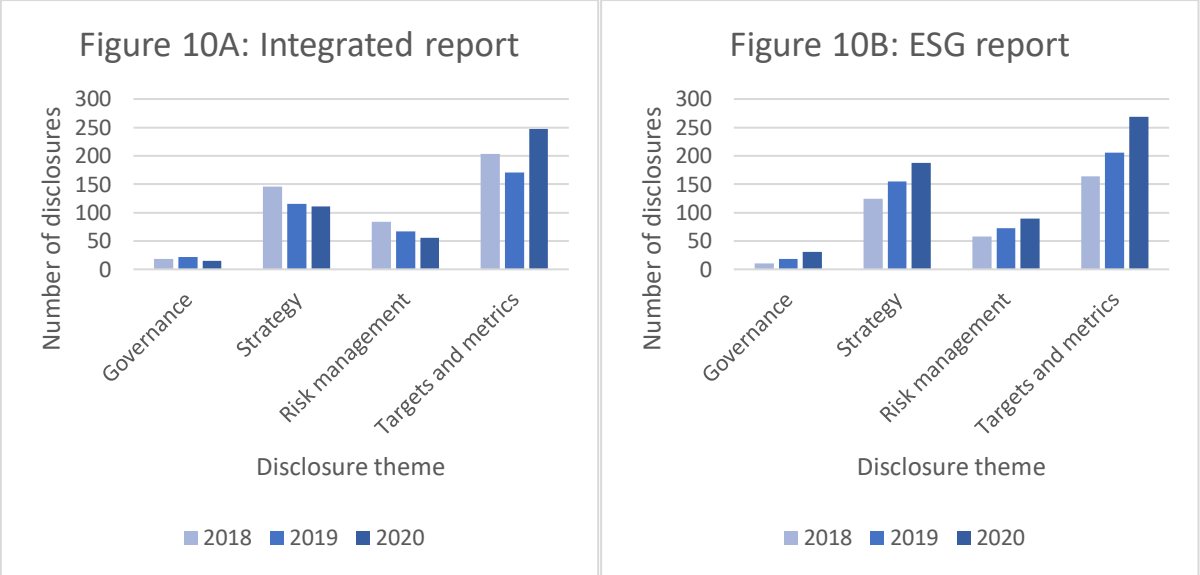


As considered in Section 2.2, the extent to which an issue is included in the company's integrated report can be used to indicate the emphasis which a company places on a particular issue (Mansoor & Maroun, 2016). Disclosure for climate change was made in both reports for all four themes, with slightly more disclosure being made in the integrated report. The emphasis on climate change by companies can be considered "high" as more than 50% of

disclosure is included in the integrated report in each of the three years as indicated by Figure 9C (Mansoor & Maroun, 2016).

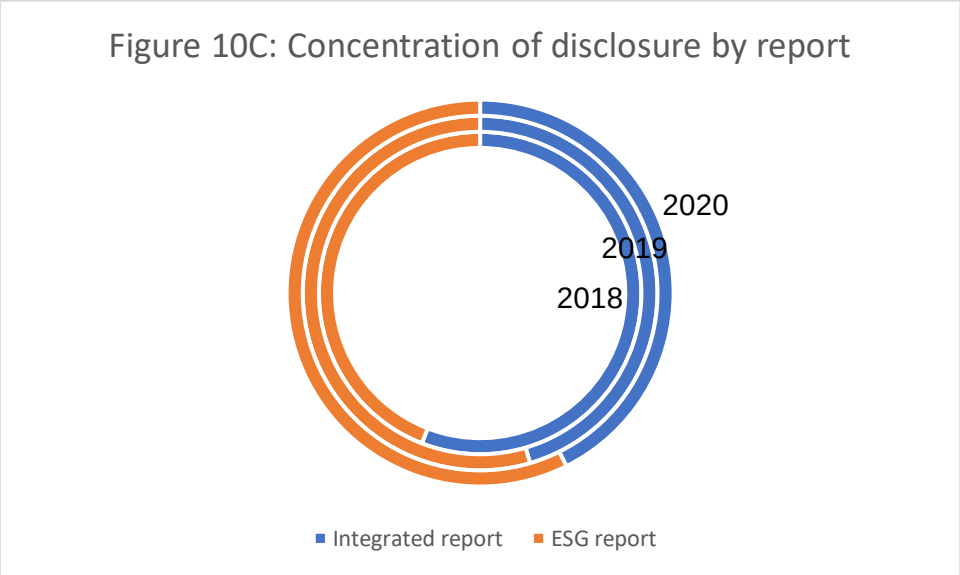
Figures 9A and 9B show that despite the concentration of disclosure in the integrated report decreasing, this is not due to information being moved from the integrated report to the ESG report. The decrease in concentration in the integrated report is rather due to an increase in disclosure made in ESG reports. This emphasis is supported by the finding that climate change is the most frequently disclosed and prioritised issue by companies in Section 4.1. Disclosure in the ESG reports could reasonably be expected to increase by 33% as more companies prepared ESG reports in 2020 than in 2018. The actual increase in disclosure in ESG reports was 14%, indicating that disclosure is not removed from the integrated report in favour of the ESG report. The role of the ESG report as complementary to the integrated report is upheld (Pitrakkos & Maroun, 2019).

Figure 10: Water disclosure in the integrated and sustainability report by theme



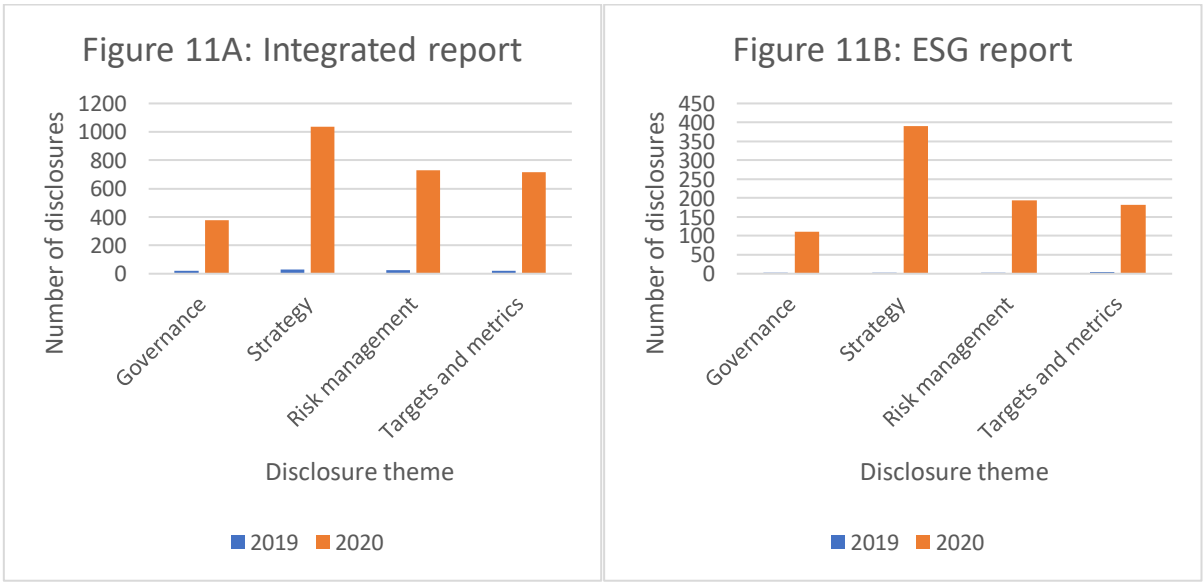
Water disclosure was made in both reports but decreased in the integrated report for all themes but targets and metrics from 2018 to 2020. Disclosure in the ESG report increased from 2018 to 2020 for all themes. This indicates a shift by companies from “high” emphasis to “low” as less than half of disclosure occurs in the integrated report as indicated in Figure 10C below. This is supported by the disclosure in the integrated report decreasing as shown in Figure 10A for strategy and risk management, whilst this disclosure increases in the ESG report as shown in Figure 10B. Whilst the actual increase in disclosure in the ESG report of 23% is lower than the expected increase of 33%, this does not indicate that disclosure in the ESG report is complementary to the integrated report, as with climate change. Disclosure

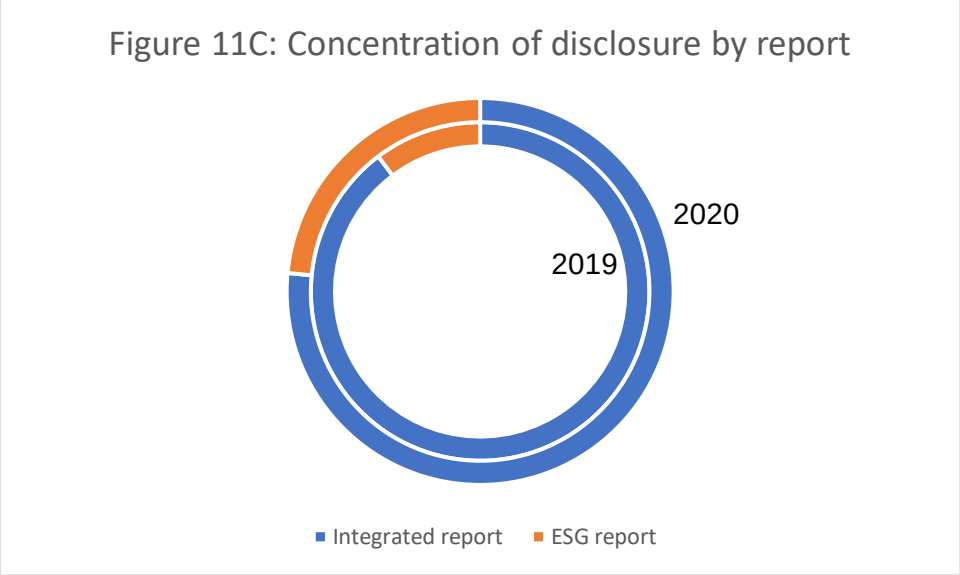
around strategy and risk management is seen to decrease in Figure 10A and increase in Figure 10B, indicating a gradual change in the location of reporting of qualitative information.



ESG reports do not require the integration of information, as with an integrated report. By shifting disclosure on water to the ESG report and reducing the integration of information, companies are de-emphasising the importance of water as an issue in their integrated reports. This raises doubt about the sincerity of ESG reporting on water-related issues and the sustainability of the Top 40 companies (Mansoor & Maroun, 2016). As disclosure on water has increased but has been de-emphasised, this supports findings that reporting on water is done for legitimacy purposes (Askham, 2019).

Figure 11: COVID-19 disclosure in the integrated and sustainability report by theme





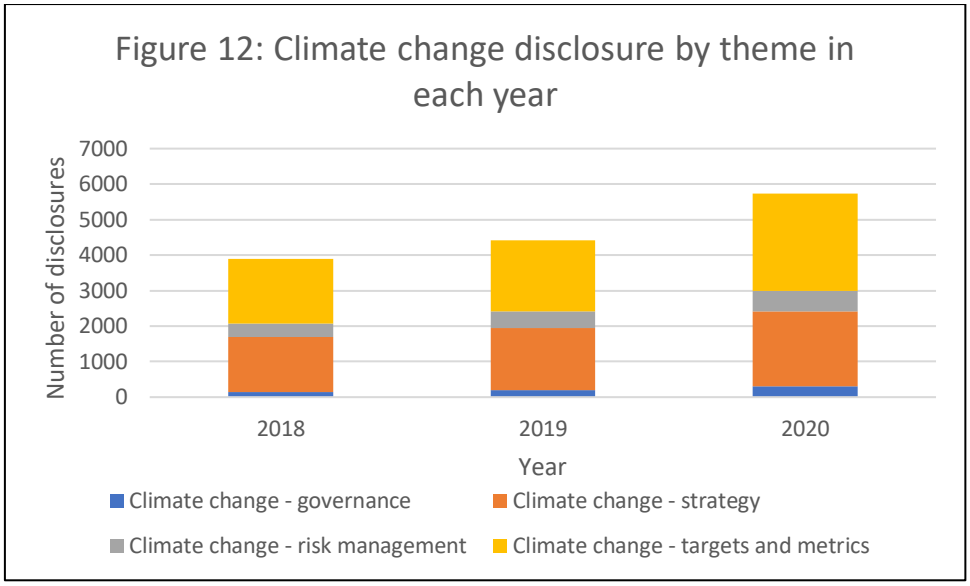
COVID-19 disclosure was highly emphasised by companies (Mansoor & Maroun, 2016), with a majority of disclosure occurring in the integrated report, as indicated by Figure 11C, with most disclosure relating to strategy. This is in line with the expectations of Ecim et al. (2020) that companies would provide details about the financial impact of COVID-19 and their mitigation strategies using their primary means of communication.

4.3. Change in disclosure (RQ2)

The change in disclosure dealing with climate change and water use is presented below. As discussed in Section 2.3.3, COVID-19 disclosure has not been analysed for change due to its emergence occurring in late 2019 (Fauci et al., 2020). The disclosure by theme in each year is considered, followed by a discussion about any changes noted. The results of the descriptive analysis and non-parametric tests used to analyse the data are considered in this section.

Climate change

Climate change disclosure increased from 2018 to 2020. Global temperatures continue to rise and 2020 was the hottest year on record, indicating that stakeholders expect companies to report on the impacts that climate change may have on the company (Abhayawansa & Adams, 2021). Governance disclosure increased by 44% from 2018 to 2019 and 52% from 2019 to 2020. It remains the theme with the lowest frequency of disclosure despite these increases. Strategy disclosure increased by 28% in 2019 and 22% in 2020. Targets and metrics increased by 11% and 36% in 2019 and 2020 respectively. As climate change is seen to become a more significant issue, greater disclosure is expected by users of reports (Ofoegbu et al., 2018).



Despite these increases noted across the themes, Figure 12 shows that the proportion of disclosure of themes largely did not change from 2018 to 2020. Disclosure relating to targets and metrics is the leading theme, with 47% in 2018, 46% in 2019 and 48% in 2020. This is followed by disclosure on strategy, which constituted 40% in 2018, 39% in 2019 and 37% in 2020. On average, disclosure on targets and metrics and strategy constitute 86% of disclosure. Whilst the frequency and extent of disclosure around risk management and governance of climate change did increase, these increases did not lead to a change in the proportion of disclosure by theme from 2018 to 2020.

A Kruskal-Wallis test was run on the frequency of disclosure items from the disclosure checklist with the year as the grouping variable to determine if there was a significant change. A Jonckheere-Terpstra post-hoc assessment was then used to test for statistically significant trends in disclosures from 2018 to 2020. A significance level of 5% was used for both tests. Disclosure items with statistically significant changes in both tests were retained in the disclosure item column, along with the disclosure score for which such change was noted. These results are indicated in Table 4, with “KW” indicating the results of the Kruskal-Wallis test and “JT” those for the Jonckheere-Terpstra post-hoc assessment.

Table 4: Change in climate change disclosure over time with year as the grouping variable

Disclosure item	Test	Test statistic	df	Asymp. Sig.
Description of the board’s oversight of climate-related risks and opportunities, with the highest-level position/committee responsible (1)	KW	6.624	2	.036
	JT	2714.000		.008

Description of the board's oversight of climate-related risks and opportunities, with the highest-level position/committee responsible (2)	KW	9.939	2	.007
	JT	2719.500		.002
Analysis of existing and planned resource allocation to achieve its targeted performance/climate change-related objectives (3)	KW	9.297	2	.010
	JT	2758.500		.003
Description of the organisation's processes for identifying and assessing climate-related risks/impacts, with major limitations outlined and sufficient information to understand the process and results (3)	KW	7.904	2	.019
	JT	2435.000		.014
Engagement with value chain (suppliers, customers, investees and other partners) on climate-related issues and how the supply chain might be affected (3)	KW	7.652	2	.022
	JT	2548.500		.006
Targets used by the organisation to manage climate-related risks and opportunities and performance against target (2)	KW	11.624	2	.003
	JT	2745.000		.004
CDP Climate Change Questionnaire made available (2)	KW	6.120	2	.047
	JT	2687.000		.014

The disclosure checklist for climate change consisted of 48 items, each of which could be scored on a scale of 1 to 3 where disclosure was made by a company. A total of 144 items were considered for a change year-on-year to evaluate the null hypothesis that the disclosure scores do not change from 2018 to 2020. A significant change was noted in the seven disclosure items for the score indicated in brackets in Table 4. These disclosures do not have a common disclosure theme or score. When considering the null hypothesis on an overall level, it is not rejected as the majority of disclosure items did not undergo a statistically significant change. This complements the descriptive analysis, in which the focus disclosure is largely maintained on targets and metrics and strategy from 2018 to 2020.

The disclosure item with the most disclosure in each of the three years was "Targets used by the organisation to manage climate-related risks and opportunities and performance against targets". This indicates a forward-looking focus by companies and allows for the evaluation of performance against a set target. Zenghelis and Stern (2016) note that once commitments

have been made, what matters is that companies formulate strategies for their business models to be transitioned to a global economy that has been impacted by the implementation of serious climate change policies and damages.

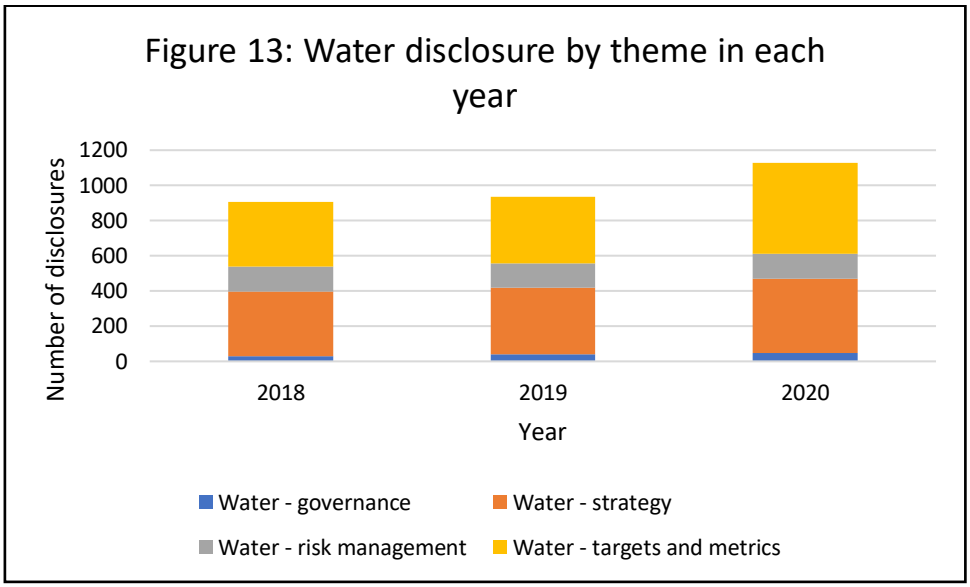
Targets and metrics disclosure increased by 51% for the basic materials industry, as shown by Figure 4A. There were increases in all the themes from 2018 to 2020, with risk management disclosure increasing the most by 56%, bringing it close to the level of strategy disclosure in 2020. There is a 46% increase in governance disclosure shown in Figure 4A but disclosure for this theme remained much lower than the other themes. Increases in all themes from 2018 to 2020 are also seen for the oil and gas (Figure 4G), consumer goods (Figure 4B) and consumer services (Figure 4C) industries. Large increases in disclosure around strategy and targets and metrics can be seen from 2019 to 2020. Strategy disclosure has increased to the point where it is close to the level of targets and metrics disclosure in 2020. This indicates these companies are increasingly focusing on disclosure for these two themes. An increase of 82% is noted for risk management disclosure by consumer goods companies. Despite this increase, risk management in 2020 is on par with the targets and metrics disclosure in 2018. This further indicates that despite disclosure increasing for governance and risk management, there is a focus maintained by companies on targets and metrics and strategy.

The results of the descriptive analysis and non-parametric tests provide evidence that climate change disclosure has reached a certain level of maturity (de Villiers, Low & Samkin, 2014). Companies adopt similar reporting practices as disclosure is driven by the isomorphic pressures considered in Section 2.2.3 (De Villiers & Alexander, 2014). Companies have focused on the same themes, namely targets and metrics and strategy, without developing other areas of disclosure. This is further evidenced by the factor analysis, where a factor identified was disclosure around governance and risk and metrics that were generic and remained that way from 2018 to 2020. Companies did not develop disclosure about these poorly disclosed themes and instead continued to maintain the focus of disclosure on targets and metrics and strategy over the three years considered.

Water

Figure 13 shows that the proportion of disclosure by theme was similar in each year from 2018 to 2020. Targets and metrics are the most disclosed group, with disclosure constituting 56% in 2018, 57% in 2019 and 62% in 2020. Strategy constituted 26% of disclosure on average from 2018 to 2020. On average, disclosure on targets and metrics and strategy together constitute 84% of disclosure. As with climate change, disclosure for water became increasingly quantitative from 2018 to 2020. This is shown by the increase in the frequency of “3” scores

from 2018 to 2020 in Table 2 and the prevalence of targets and metrics disclosure as seen in Figures 13.



Before 2020, disclosure by basic materials companies was mostly on targets and metrics only. Figure 6A shows that in 2020, disclosure increased significantly for targets and metrics and strategy, as with climate change. Increases in disclosure can also be seen for oil and gas (Figure 6G) as well as the consumer goods (Figure 6B) industries. The healthcare industry decreased disclosure relating to strategy and risk management from 2018 to 2020 whilst increasing targets and metrics disclosure as shown by Figure 6E. Industrials decreased disclosure for water overall, with strategy disclosure reducing to be at the same level of risk management as shown by Figure 6F.

As with climate change, a Kruskal-Wallis test and Jonckheere-Terpstra post-hoc assessment was used to assess if there was a statistically significant change in disclosure on water from 2018 to 2020. Disclosure items with statistically significant changes in both tests were retained in the disclosure item column, along with the disclosure score for which such change was noted. These results are indicated in Table 5, with “KW” indicating the results of the Kruskal-Wallis test and “JT” those for the Jonckheere-Terpstra post-hoc assessment.

Table 5: Change in water disclosure over time with year as the grouping variable

Disclosure item	Test	Test statistic	df	Asymp. Sig.
Explanation of the process for setting any water-related goals and targets that are part of the organisation’s management approach and how they relate to public policy (2)	KW	7.904	2	.019
	JT	2435.000		.014

Forward-looking targets relating to water use of the organisation (2)	KW	7.952	2	.022
	JT	2001.000		.008

The disclosure checklist for water consisted of 42 items, each of which could be scored on a scale of 1 to 3 where disclosure was made by a company. A total of 126 items were considered for a change year-on-year to evaluate the null hypothesis that the disclosure scores do not change from 2018 to 2020. A significant change was noted in the two disclosure items for the score indicated in brackets in Table 5. These disclosures do not have a common disclosure theme. When considering the null hypothesis on an overall level, it is not rejected as the majority of disclosure items did not undergo a statistically significant change. This complements the descriptive analysis, in which the focus disclosure is largely maintained on targets and metrics and strategy from 2018 to 2020. The results noted are the same for both climate change and water. As with climate change, this indicates a certain level of maturity and the adoption of similar reporting practices by companies for water disclosure made (De Villiers & Alexander, 2014; de Villiers et al., 2014).

Themes

Figure 14: Frequency of disclosure for climate change and water for each year

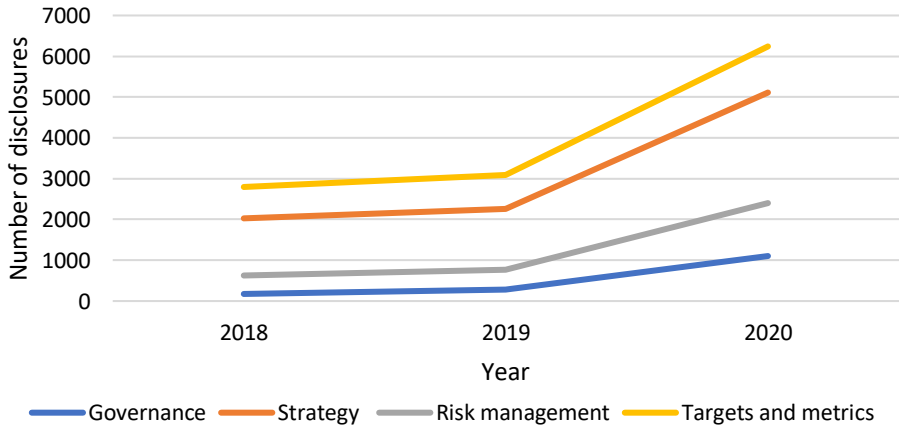


Table 6: Frequency of disclosure scores for climate change and water from 2018 to 2020

	2018			2019			2020		
Score	1	2	3	1	2	3	1	2	3
Climate change	418	384	785	518	473	896	628	775	1226
Water	215	316	375	204	334	396	196	422	510

The dominant theme was targets and metrics in each year, with most disclosure being qualitative, as indicated by the frequency of “3” scores in Table 6. Climate change remained the most prominent issue in each year, as shown in Figure 1. This supports the findings of McNally et al. (2017) that there is a preference by preparers of integrated reports for information that is quantified as this is seen as more high-quality reporting and the provision of facts.

Governance is the least reported issue across all three issues and in all three years, with disclosure increasing by 38% from 2018 to 2019 and 18% from 2019 to 2020. Risk management disclosure increased by 22% from 2018 to 2019 and then increased a mere 5% from 2019 to 2020. Climate change and water are similar, with most disclosure being made on targets and metrics and strategy. There is a 15% increase in strategy disclosure noted from 2018 to 2019 and a 17% increase noted from 2019 to 2020. Targets and metrics disclosure increased by 10% from 2018 to 2019 and 30% from 2019 to 2020.

Disclosure increased for all four themes from 2018 to 2020. The greatest increase was noted for governance over this period at 98%. As discussed in Section 4.2, despite increases in governance disclosure, it remains the least reported theme and disclosure for this theme is largely generic, as seen in Figure 15. The second-largest increase was for targets and metrics by 58%, supporting findings that disclosure for climate change and water is increasingly qualitative.

CHAPTER V: CONCLUSION

5.1. Concluding remarks

South African companies face risks and opportunities due to ESG issues which affect their ability to create and sustain value (IIRC, 2021). These companies also have impacts on these ESG issues, such as emissions and their use of water (CDP, 2021). Stakeholders demand information on these impacts and there are bodies, such as the GRI and VRF, that have responded to this call by developing standards to guide the information disclosed by companies (GRI, 2021). Disclosure is voluntary and out of this differences may arise in the quantity and content of information presented by companies in their reports (Braam et al., 2016; Cho et al., 2015).

A key finding of this study is the focus by the sampled companies on providing disclosure pertaining to climate change and water that is quantitative and relating to strategy. The analysis in this paper considered the disclosure made by 40 companies across eight industries and the findings were the same in respect of the themes on which the companies focused, indicating the adoption of similar reporting practices (De Villiers & Maroun, 2017). This could indicate that quantitative and strategy-related disclosure is expected by the users of companies' reports, leading companies to conform to a certain expectation of their climate change and water disclosure (De Villiers & Alexander, 2014). Companies that want to exceed the reporting of their peers should increase and make less generic their disclosure on their governance and risk management of climate change and water.

More companies have started preparing ESG reports from 2018 to 2020. There is a move towards increased disclosure in ESG reports, as a result. Companies did not move information from the integrated report to the ESG report for climate change, rather they made additional disclosure in the ESG report. COVID-19 disclosure was also mostly made in the integrated report, indicating an emphasis on these issues. An emphasis on climate change was maintained by companies over COVID-19 in 2020, despite its topical nature (Ecim et al., 2020). Qualitative disclosure on water was noted to have shifted from the integrated to ESG report, indicating possible de-emphasis (Mansoor & Maroun, 2016).

COVID-19 differed from climate change and water, with disclosure being more qualitative as companies did not have the accounting systems in place to support extensive quantitative disclosure (McNally et al., 2017). A lack of isomorphic pressures, such as the absence of reporting guidelines and the inability to benchmark reporting of other companies, contributed to greater uncertainty about the disclosure expected by companies. This prompted greater coverage of the four themes than was noted for climate change and water (Bae Choi et al., 2013).

Companies have increased the quantity of disclosure from 2018 to 2020 significantly for climate change. Small increases were noted for water-related disclosure. While changes were noted in respect of the quantity of disclosure, the content did not change over time. From 2018 to 2020, companies maintained their focus on quantitative and strategy-related disclosure for climate change and water. Disclosure on governance and risk management also remained generic over this period. The finding in respect of the change in disclosure on climate change and water is that there is an increase in disclosure from 2018 to 2020, but a statistically significant change is not noted. Preparers of financial statements should seek to provide disclosure that is context-specific and provides relevant information to stakeholders to drive change, rather than increasing the amount of generic information disclosed (De Villiers et al., 2019).

5.2. Limitations and areas for future research

- This study is limited to three ESG issues, with analysis of the integrated report and primary ESG report being performed. This prevents the results from being extrapolated to all ESG issues and ESG reporting made by companies as companies also engage in disclosure through other formats, such as through additional reports and on their websites.
- The relatively small sample size of companies that are listed on the JSE used for this study also prevents the extrapolation of results to all companies. Future research can consider the quantity and content of ESG disclosure made in different jurisdictions and for different ESG issues.
- Whilst this study incorporated a scoring system for disclosure, as discussed under Section 3.4, the quantity and content of disclosure were considered in this study. Future research could consider the quality of water-related disclosure made by South African companies, as was considered for carbon reporting by Pitrakkos and Maroun (2019). This study found that quantitative disclosure was most frequently made by companies.
- Future research could consider whether the targets and metrics disclosed by companies relate to a strategic theme of such company. The link between targets and metrics and strategic themes has been noted as an indicator of quality (PwC, 2014).

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Appendix A: Disclosure checklist

Disclosure item	Source
1. Climate change	
Governance	
Description of the board's oversight of climate-related risks and opportunities, with the highest-level position/committee responsible	TFCD, page 22; GRI 302, page 5; IIRC, page 44; Climate Change Questionnaire, page 7
Management approach for energy	GRI 302, page 5
Management approach for carbon emissions	GRI 302, page 5
Incentives for the management of climate-related issues, including the attainment of targets	Climate Change Questionnaire, page 8
How the organisation determines what climate change matters to include in the integrated report and how are such matters quantified or evaluated	IIRC, page 47
Strategy	
Description of the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	TFCD, page 22
Description of the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	TFCD, page 22; Climate Change Questionnaire, page 10; Water Security Questionnaire, page 38; IIRC, page 8; SDG 13.2
Description the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	TFCD, page 22
Emissions reduction initiatives which are active and whether they are voluntary or mandatory	Climate Change Questionnaire, page 29
Investments made in lower energy technologies/more efficient methods of operating	Climate Change Questionnaire, page 30; SF, page 74; SDG 7.b.1
Skills and expertise available or needed within the business for climate change initiatives	NCP, page 41
Drivers of the organisation's impact on climate change	NCP, page 44
Wider changes in human well-being and social capital as a result of the organisation's impacts on climate change	NCP, page 35
Consideration of climate change impacts in supplier selection/procurement policy	SF, page 59
Analysis of existing and planned resource allocation to achieve its targeted performance/climate change-related objectives	IIRC, page 26; IIRC, page 44
Trade-off between capitals in relation to climate change	IIRC, page 27
To what extent has the organisation achieved its strategic objectives for the period	IIRC, page 8
Financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems	SDG 7.a.1

Initiatives of the organisation relating to education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	SDG 13.3
Risk management	
Description of the organisation's processes for identifying and assessing climate-related risks, with major limitations outlined and sufficient information to understand the process and results (likelihood, potential cost, timeframe)	TFCD, page 22; Climate Change Questionnaire, page 10; NCP, page 101; NCP, page 104; IIRC, page 44
Description of the organisation's processes for managing climate-related risks.	TFCD, page 22
Description of the processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	TFCD, page 22
Engagement with value chain (suppliers, customers, investees and other partners) on climate-related issues and how the supply chain might be affected	Climate Change Questionnaire, page 42; NCP, page 28
How the climate change-related information relates to a business decision for the organisation	NCP, page 6
Organisation's dependency on climate regulation	NCP, page 17
Reputational damage or benefit experienced by the business as a result of its impact on climate change	NCP, page 82
Dependence on GHG for your direct operations or indirectly from the organisation's value chain, including suppliers and consumers	NCP, page 35
Significant external factors affecting climate change and the organisation's response	IIRC, page 39; NCP, page 33
The legislative and regulatory environment in which the organisation operates in relation to climate change (such as carbon emissions), with any instances of non-compliance	IIRC, page 40; IIRC, page 46; GRI 307, page 6
Challenges and uncertainties the organisation is likely to encounter in pursuing its strategy and implications for the business model and future performance	IIRC, page 46
Targets and Metrics	
Metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	TFCD, page 22
Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	TFCD, page 22; GRI 305, page 7, 9, 11
Targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	TFCD, page 22; Climate Change Questionnaire, page 18
Total fuel consumption within the organisation from non-renewable sources, in joules or multiples	GRI 302, page 6; Climate Change Questionnaire, page 41
Total fuel consumption within the organisation from renewable sources, in joules or multiples	GRI 302, page 6; Climate Change Questionnaire, page 41; SDG 7.2.1
Total energy consumption within the organisation, in joules or multiples	GRI 302, page 6; Climate Change Questionnaire, page 40

Energy intensity ratio for the organisation	GRI 302, page 10; SDG 7.3.1
Amount of reductions in energy consumption achieved as a direct result of conservation and efficiency initiatives, in joules or multiples	GRI 302, page 11
Whether offsets were used to meet emissions targets with reductions reported separately from offsets	GRI 305, page 5, 14
GHG emissions intensity ratio for the organisation	GRI 305, page 13
GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO2 equivalent	GRI 305, page 14; Climate Change Questionnaire, page 39
Production, imports, and exports of ozone-depleting substances (ODS) in metric tons of CFC-11 (trichlorofluoromethane) equivalent	GRI 305, page 15
Significant air emissions, in kilograms or multiples	GRI 305, page 17
Cases brought through dispute resolution mechanisms	GRI 307, page 6
Decreased costs/taxes due to initiatives	SF, page 67
Key performance indicators that combine financial measures with other components (e.g., the ratio of greenhouse gas emissions to sales)	IIRC, page 46
Monetisation of carbon emissions	IIRC, page 46
Investment in fossil fuels by the organisation as compared to investment in climate change	SDG 13
CDP Climate Change Questionnaire made available	Climate Change Questionnaire
2. Water	
Governance	
Management approach for water and effluents and how the organisation interacts with water, with the highest management level with responsibility and targets monitored at a corporate level	GRI 303, page 5,6; SDG 6.5.1; Water Security Questionnaire, page 35, 39
Explanation of the process for setting any water-related goals and targets that are part of the organisation's management approach and how they relate to public policy	GRI 303, page 6
Incentives provided to employees and management for the management of water-related issues	Water Security Questionnaire, page 36
How the organisation determines what water-related matters to include in the integrated report and how are such matters quantified or evaluated	IIRC, page 47
Strategy	
An overview of water use across the organisation's value chain and how the organisation works with stakeholders, suppliers and customers to steward water as a shared resource	GRI 303, page 6; NCP, page 101
Wider changes in human well-being and social capital as a result of the organisation's impacts on water	NCP, page 35; GRI 303, page 6
Analysis of existing and planned resource allocation to achieve its targeted performance	IIRC, page 26
Trade-off between capitals in relation to water	IIRC, page 27

The strategies the organisation has in place, or intends to implement, to achieve its water-related objectives	IIRC, page 44
How the organisation will measure achievements and target outcomes for the short, medium and long term.	IIRC, page 44
To what extent has the organisation achieved its strategic objectives for the period/Progress made in respect of water targets	IIRC, page 8; Water Security Questionnaire, page 39
How the water-related information relates to a business decision for the organisation	NCP, page 6
Skills available and needed within the business for water-related initiatives	NCP, page 41
Consideration of water impacts in supplier selection/procurement policy	SF, page 59
Steps taken to protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	SDG 6.6
Support and strengthen the participation of local communities in improving water and sanitation management	SDG 6.b
Steps taken to reduce marine pollution	SDG 14.1
Risk management	
Description of the approach used to identify water-related impacts (scope, timeframe, likelihood, potential financial impact, limitations, background information)	GRI 303, page 6; Water Security Questionnaire, page 20; NCP 101, 104
Water-related risks which could have a substantive impact on the organisation's strategy or financial state	Water Security Questionnaire, page 14, 22
Total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of company-wide facilities does this represent	Water Security Questionnaire, page 22
Water-related opportunities with the potential to have a substantive financial or strategic impact on business as well as those currently being realised	Water Security Questionnaire, page 28; IIRC, page 44
Water dependency of the organisation, including impacts on the organisation's supply chain	NCP, page 17, 28
Significant external factors affecting the availability or quality of water and the organisation’s response	IIRC, page 39
The legislative and regulatory environment in which the organisation operates and those which could significantly affect performance (non-compliance included)	IIRC, page 40, 46
Challenges and uncertainties the organisation is likely to encounter in pursuing its strategy and implications for the business model and future performance	IIRC, page 46
Consequences experienced by the business as a result of its use of water	NCP, page 82
Reputational damage or benefit experienced by the business as a result of its use of water	NCP, page 82
Targets and metrics	
How and where water is withdrawn, consumed, and discharged	GRI 303, page 6; NCP, page 79
Total water withdrawn from all areas by megalitres	GRI 303, page 9

Comparison with prior year of water withdrawn	Water Security Questionnaire, page 12
Total water withdrawal from all areas with water stress in megalitres	GRI 303, page 9
Comparison with prior year of water withdrawn from areas with water stress	Water Security Questionnaire, page 12
A description of any minimum standards set for the quality of effluent discharge and how they were set (profile of receiving body, quality)	GRI 303, page 8
Total water discharge to all areas in megalitres	GRI 303, page 12
Total water discharge to all areas with water stress in megalitres	GRI 303, page 12
Forward-looking targets relating to water use of the organisation	CDP Water Analysis Report, page 9
Availability of water at catchments	CDP Water Analysis Report, page 31
Water recycled/reused	Water Security Questionnaire, page 10
Quantitative indicators with respect to targets, risks and opportunities and their significance (forward-looking)	IIRC, page 45
Key performance indicators that combine financial measures with other components (e.g., the ratio of water usage to sales)	IIRC, page 46; CDP Water Analysis Report, page 31
Monetisation of water use (current and expected cost of water)	IIRC, page 46; NCP, page 35
Decreased costs/taxes due to initiatives	SF, page 67
Cases brought through dispute resolution mechanisms	GRI 307, page 6
Proportion of wastewater safely treated	SDG 6.3.1
Change in water-use efficiency over time	SDG 6.4.1
Efforts to reduce marine pollution	SDG 14.1
3. Pandemic/COVID-19	
Governance	
Management approach for COVID-19	GRI 403, page 8
Management approach for customer health and safety	GRI 416, page 5
Strategy/Policies	
Organisation's response to end the spread of COVID-19	SDG 3.3; GRI 403, page 9
Response to ensure sustainability of the business	SASOL, page 6
A description of the processes for workers to report infection hazards and infectious situations	GRI 403, page 10
Processes to identify hazards and assess risks relating to the incidents or infections, and how improvements needed in the response are determined	GRI 403, page 10
A description of the organisation’s approach to preventing or mitigating the spread of COVID-19	GRI 403, page 16
Wider changes in human well-being and social capital as a result of the organisation's COVID-19 response	NCP, page 35
Integration of COVID-19 and pandemic response in the organisation's strategy	IIRC, page 8
Trade-off between capitals in relation to COVID-19	IIRC, page 27

The resource allocation plans it has to implement its COVID-19 response	IIRC, page 44
To what extent has the organisation's COVID-19 response has been effective	IIRC, page 8
Negative effects of COVID-19 on the organisation	IIRC, page 53
Positive effects of COVID-19 on the organisation	IIRC, page 53
Awareness created by the organisation relating to COVID-19 and protocols to reduce its spread (e.g., Wearing of masks, washing hands)	SDG 3.3
Risk assessment	
A description of the processes used to identify COVID-19-related hazards	GRI 403, page 10
Significant risks related to price inflation identified through the risk assessment	GRI 205, page 7
Significant external factors affecting COVID-19 and the organisation's response	IIRC, page 39
Likelihood of occurrence of risks and opportunities and events which would cause them to occur	IIRC, page 44
Risks and opportunities which COVID-19 poses to organisation	SASOL, page 54
Non-compliance with COVID-19 laws or regulations by the organisation that may significantly affect its operations or a statement that non-compliance has not occurred	IIRC, page 46; GRI 416, page 8
A description of the scope of workers, activities, and workplaces covered by the COVID-19 response	GRI 403, page 9
How the organisation ensures that workers' personal health-related information and their participation in any COVID-19 procedures is not used for any favourable or unfavourable treatment of workers	GRI 403, page 11
A description of the processes for worker participation and consultation in the development, implementation, and evaluation of the COVID-19 response	GRI 403, page 12
A description of the process for providing access to and communicating relevant information on COVID-19 protocols to workers	GRI 403, page 12
An explanation of how the organisation facilitates workers' access to COVID-19 medical and healthcare services, such as testing and treatment	GRI 403, page 14; SDG 3.8
Scope of access to COVID-19 medical and healthcare services provided	GRI 403, page 14
Metrics	
The number and rate of fatalities as a result of COVID-19 for all employees	GRI 403, page 19
The number and rate of high-consequence COVID-19 infections (excluding fatalities) for all employees	GRI 403, page 19
If the numbers and rates reported are significantly higher for certain countries, business lines, or workers' demographics (e.g., sex, gender, migrant status, age, or worker type), a breakdown of these data	GRI 403, page 19
Type and scope of programmes implemented and assistance provided to train employees for COVID-19 protocol compliance	GRI 404, page 8; GRI 403, page 13

Number of COVID-19 cases within the organisation	SDG 3.3; GRI 403, page 19
Incidence of COVID-19 amongst employees of the organisation (proportion of employees who contracted COVID-19, incidence per a certain number of employees)	SDG 3.3
Absenteeism of employees due to COVID-19 (isolation)	SF, page 147
Number of legal actions pending or completed during the reporting period regarding anti-competitive behaviour and violations of anti-trust and monopoly legislation in which the organisation has been identified as a participant (eg. price inflation)	GRI 206, page 6
Total number and percentage of operations assessed for risks related to price inflation	GRI 205, page 7
Total assistance provided by the organisation to COVID-19 research	SDG 3.b.2
Total assistance provided by the organisation to the research and development of COVID-19 vaccinations	SDG 3.b
Donations made by the organisation towards COVID-19 relief	SDG 3.c
Cases brought through dispute resolution mechanisms relating to COVID-19	GRI 307, page 6
Financial impact of COVID-19 on the organisation	SASOL IR, page 6

Appendix B: Example of scoring for disclosure item "Emissions reduction initiatives which are active"

Score	Description	Example
0	No disclosure	No mention of emissions reductions initiatives
1	Generic, minimal or vague Policy related	Our policies support the reduction of emissions in our operations.
2	Context-specific but high level	Power usage for each site is optimised using artificial intelligence.
3	Context specific Quantified	Power usage for each site is optimised using artificial intelligence with the lowest environmental impact option being chosen based on site characteristics and historic performance. Emissions reductions initiatives resulted in 1000 Mt CO2e avoided.

The disclosure item considered is emissions reductions initiatives. The disclosure which was scored "2" provided a specific way in which the company is reducing emissions but does not explain how the initiative was carried out or the factors considered in the optimisation. The disclosure which was scored "3" is the same as a score of "2" but more information is given about how the initiative is carried out to reduce emissions.

Appendix C: List of companies selected

	Company	Industry
1	Prosus	Consumer services
2	AB InBev	Consumer goods
3	Naspers	Consumer services
4	British American Tobacco	Consumer goods
5	BHP Group	Basic materials
6	Glencore	Basic materials
7	AngloAmerican	Basic materials
8	Richemont	Consumer goods
9	AngloAmerican Platinum	Basic materials
10	FirstRand	Financials
11	Vodacom	Telecom
12	Implats	Basic materials
13	Kumba Iron Ore	Basic materials
14	Sibanye Stillwater	Basic materials
15	Standard Bank	Financials
16	Mondi	Industrials
17	Capitec	Financials
18	MTN	Telecom
19	SASOL	Oil and Gas
20	South32	Basic materials
21	Northam Platinum	Basic materials
22	Sanlam	Financials
23	Anglogold Ashanti	Basic materials
24	Gold Fields	Basic materials
25	ABSA	Financials
26	Bidcorp	Health care
27	Discovery	Financials
28	Shoprite	Consumer services
29	Nedbank	Financials
30	Aspen	Health care
31	ARM	Basic materials
32	Clicks	Consumer services
33	Old Mutual	Financials

34	Nepirock	Financials
35	Pepkor	Consumer services
36	Remgro	Financials
37	Bidvest	Industrials
38	Quilter	Financials
39	MC Group	Consumer services
40	Exxaro	Oil and Gas