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Towards a conceptual framework for non-financial reporting inclusive of pandemic and climate risk reporting

Abstract

Purpose: This paper evaluates non-financial reporting (NFR) frameworks insofar as risk reporting is concerned. This is facilitated through analysis of the adequacy of climate- and pandemic-related risk reporting in three industries that are both significantly impacted by the COVID-19 pandemic and at risk from climate change. The pervasiveness of pandemic and climate-change risks have been highlighted in 2020, the hottest year on record and the year the COVID-19 pandemic struck. Stakeholders might reasonably expect reporting on these risks to have prepared them for the consequences.

Design/methodology/approach: The current debate on the 'complexity' of sustainability and NFR frameworks/ standards is critically analysed in light of the COVID-19 pandemic and calls to 'build back better'. Context is provided through analysis of risk reporting by the ten largest airlines and the five largest companies in each of the hotel and cruise industries.

Findings: Risk reporting on two significant issues, pandemics and climate change, is woefully inadequate. While very little consideration has been given to pandemic risks, disclosures on climate-related risks focus predominantly on 'risks' of increased regulation rather than physical risks, indicating a short-term focus. The disclosures are dispersed across different corporate reporting media and fail to appreciate the long-term consequences or offer solutions. Mindful that a conceptual framework for NFR must address this, we propose a new definition of materiality and recommend that sustainable development risks and opportunities be placed at the core of the future framework for connected/integrated reporting.

Research implications: In order for sustainable development risks to be perceived as 'real' by managers further research is needed to determine the nature and extent of key sustainable development risks and the most effective mitigation strategies.

Social implications: Our paper highlights the importance of recognising the complexity of the issues facing organisations, society and the planet and addressing them by encouraging robust consideration of the interdependencies in evolving approaches to corporate reporting.

Originality/value: Our study contributes to the current debate on the future of corporate reporting in light of two significant interconnected crises that threaten business and society – the pandemic and climate change. It provides evidence to support a long-term oriented and holistic approach to risk management and reporting.

Keywords: climate change, conceptual framework, COVID-19, integrated reporting, materiality, risk reporting, Sustainable Development Goals

Introduction

The COVID-19 pandemic has highlighted organisations' unpreparedness for pervasive global risks. The havoc that the COVID-19 pandemic has wreaked indicates that such risks, and ways to mitigate them, have had limited or no consideration. Indeed, predicting the onset of a pandemic is incredibly difficult, but it should have been assessed with the use of available information (Pegram, 2020). The existential threat of anthropogenic climate change is tipped to be the next threat to expose the vulnerability of the financial system and test its resilience (Farbotko, 2019; Franklin, 2020). Its impacts are argued to be substantially more severe and enduring than any pandemic faced by humankind. It has been found that the impacts of climate change and pandemics are related due to the connection between biodiversity loss and a greater likelihood of the emergence of new zoonotic infectious diseases in humans (Gibb *et al.*, 2020).

Climate and pandemic risks are related in many other ways too. They are both physical shocks that translate into an array of socioeconomics impacts (Pinner *et al.*, 2020). Compared to financial shocks that are caused by changes in human sentiment and can be remedied by resorting to confidence, physical shocks are few and far between, and their remediation requires the underlying physical causes to be addressed. Pinner *et al.* (2020, p. 2) argue that:

“The current pandemic provides us perhaps with a foretaste of what a full-fledged climate crisis could entail in terms of simultaneous exogenous shocks to supply and demand, disruption of supply chains, and global transmission and amplification mechanisms.”

Moreover, both climate and pandemic risks are systemic risks, i.e., they trigger a series of effects that cumulatively manifests in severe instability or collapse of economic and social systems, have nonlinear effects that grow disproportionately once certain thresholds are breached (e.g., the capacity of a country's healthcare system), test vulnerabilities in economic and social systems that have not been exposed before and have disproportionate impacts on the most vulnerable populations (Pinner *et al.*, 2020). The similarities mean that efforts to mitigate the impacts require the same fundamental shifts. For businesses, this is arguably shifting the focus from ‘creating value for the organisation’ to simultaneously ‘creating value for the organisation, environment and society’, thus, elevating their environmental, social and governance (ESG) performance.

There is evidence that the investor focus has shifted more broadly to companies' ESG performance as the pandemic and climate change brought to the fore the interrelationships between existential threats represented by physical shocks and operational, reputational and financial risks (Broadstock *et al.*, 2020; Mooney, 2020; Serafeim, 2020; Shan and Tang, 2020). Commensurate with this, fund flows to sustainable investment funds have reached new records, and ESG funds' performance has soared (Albuquerque *et al.*, 2020; SEC Investor Advisory Committee, 2020). The first half of 2020 saw a steady stream of social media posts, articles in newspapers, such as the Financial Times, and press releases on these matters. With capital market incentives shifting in favour of companies performing better on ESG metrics, businesses are impelled to put ESG matters at the core of their strategy, management approach and governance. Either due to these incentives or a genuine acknowledgement of the need for change, the number of companies establishing executive positions to cultivate ESG strategies and tying executive bonuses to ESG goals (mainly, carbon footprint) is increasing (Borland, 2020; Shumsky, 2019).

In this context, the disclosure of ESG risks - especially sustainable development risks - is an integral part of accountability and stewardship (Allini *et al.*, 2016), a means of reducing uncertainty and information asymmetry in the capital market (Schiemann and Sakhel, 2019), enabling management of long-term investment risks (Foerster *et al.*, 2017) and enabling corporate governance practices to be subjected to public scrutiny (Dumay and Hossain, 2019). Given that businesses overlooking climate and pandemic risks have devastating consequences to the society and economy more broadly, disclosure of these risks, their impacts and mitigation strategies are also of interest to a range of stakeholders (Guthrie *et al.*, 2020). Insofar as climate risk is concerned, Christophers (2017, p. 2) argues that “timely, intelligible and full disclosure of these [climate risks] is ... a pre-condition of smooth, stable and orderly transition, in and of the financial system, to a globally warmed world”. Climate risk disclosures can help prevent market shocks while encouraging the growth of renewables markets (Farbotko, 2019).

The importance of reporting on ESG risks is identified by policy makers and standard-setting bodies worldwide as evidenced by the numerous reporting regulations and standards requiring the disclosure of these risks (see, for example, ASX Corporate Governance Council, 2019; European Union, 2014; IIRC, 2021; Institute of Director South Africa (IoDSA), 2016; Taskforce on Climate-related Financial Disclosures (TCFD), 2017). However, there is no agreement on how and to what extent ESG risks, let alone the greater risks to sustainable development, should be disclosed (Dumay and Hossain, 2019), while companies’ ESG risk reporting needs and practices evolve. With the COVID-19 pandemic highlighting the importance of ESG risk management and reporting, we see an opportunity to reconsider gaps in corporate risk reporting pertaining to pervasive global threats.

In May 2020, an International Financial Reporting Standards (IFRS) Foundation Trustee, argued that there is a "compelling case for the IFRS Foundation to play a role in helping to develop a set of globally comparable international standards in sustainable reporting, starting perhaps with climate-related risk disclosure" (Ko, 2020, p.1). Indeed, the TCFD recommendations foreshadowed a much-needed increase in climate-related accounting considerations in financial disclosures (TCFD, 2013). It might be argued that IFRS has been slow to recognise this and review relevant standards accordingly, although a range of initiatives and publications have sought to provide input (see, for example, Association of Chartered Certified Accountants and Carbon Tracker, 2013). While the 'harmonisation' debate (see, for example, Accountancy Europe, 2020) is characterised by the self-interest of those seeking to coordinate (or control) it (see Adams and Abhayawansa, 2021), the world clearly needs more organisations reporting better and with greater consistency and comparability in reporting across organisations. In September 2020, in a world’s first, the New Zealand government introduced a bill to mandate climate-related risk disclosure by financial institutions and listed companies, with the Minister for Climate Change, James Shaw, claiming that “Many large businesses in New Zealand do not currently have a good understanding of how climate change will impact on what they do” (Shaw, 2020, p.1). The U.K. government soon followed suit with a similar announcement and a five-year road map to ensure a significant proportion of the economy provided TCFD-aligned climate-related disclosures (Her Majesty’s Treasury, 2020). In any case, sustainability reporting does and must cover issues beyond those that influence the financial statements (Adams *et al.*, 2020) and, in particular, acknowledge sustainable development risks.

The purpose of this study is two fold. First we examine what and how information on pandemic and climate risks is reported (and therefore available to aid management, investor and stakeholder decision making) by organisations. Second, we use the insights from this examination to suggest considerations for a conceptual framework for non-financial reporting (NFR) to encompass sustainable development risks using the International <IR> Framework as an ‘umbrella’ NFR framework. Our focus on the International <IR> Framework is motivated by the strong support for it to be the starting point for the conceptual framework for connected reporting, and the International Integrated Reporting Council (IIRC) has expressed interest in contributing to such a framework (Accountancy Europe, 2020). Moreover, there is already evidence that the International <IR> Framework is prompting better disclosure of ESG risks (see Guthrie *et al.*, 2020). We do not, however, intend to develop a comprehensive framework. Instead, we provide some insights and pass on the baton for other researchers and policymakers.

The experience with Severe Acute Respiratory Syndrome (SARS) demonstrated how vulnerable the travel and tourism industries are to viral outbreaks, whether pandemics or not. So, it might be reasonable to expect these industries to acknowledge this risk to their operations along with another big existential threat of our times – climate change - which is also disproportionately impacting these industries. We expect major players in these industries to better report pandemic and climate-related risks¹ and, therefore, act as role models. This paper examines pandemic and climate-related risk disclosures of the largest companies globally in the airlines, cruise and hotel industries to understand the risk reporting practices of companies most vulnerable to these risks.

Our analysis indicates that the lack of a conceptual framework for NFR to underpin and connect the various frameworks and standards and the piecemeal focus on long-term value creation in the frameworks and guidelines for climate-related risk reporting, in particular, is a barrier to quality reporting on material ESG risks and opportunities. In the context of emerging sustainable development risks, we argue that a future framework for connected reporting (where the 2021 International <IR> Framework is a strong contender) needs to consider them, and they should be explicit. We propose redefining the concept of materiality as *'relevance to long-term value creation for the organisation, society and environment'* to enable these inclusions. When this broader perspective of materiality is adopted, organisations ought to consider their impact on the causes of ESG risks and the impact of the risks on society and the environment, as they, in turn, affect the long-term survival of organisations. The experience with the COVID-19 pandemic has shown that meaningful management and mitigation of systemic risks requires systems thinking (Bamakan, 2021), which we argue is achievable through the redefinition of materiality for NFR.

This paper makes several contributions to the literature. First, it brings a study on pandemic risk reporting to the literature, therefore, complementing the current focus of risk reporting on other environmental risks, such as climate risks. Second, it provides an up-to-date description of the risk disclosure practices of companies that are most vulnerable to the physical shocks from climate change and pandemics. The evidence we provide in this regard is important due to the dearth of research on ESG risk disclosure practices of the travel and tourism sector in

¹ Lemma *et al.* (2019) show that companies most vulnerable to climate-related risks provide better quality disclosure.

general and disclosure of risks related to the impact of climate change on companies (compared to companies' impact on climate change). Third, perhaps the most important contribution is our recommendations for improving the International <IR> Framework for it to become an umbrella NFR framework that enables organisations to explicate sustainable development risks, including pandemic and climate-related risks.

In the next section, we discuss the current NFR ecosystem with a special focus on climate-related risk reporting. The omission of pandemic-related risk disclosure from this discussion is due to the lack of research and dedicated reporting guidance on this topic. Thereafter, we set out our approach to examining climate- and pandemic-related risk disclosures, followed by our findings. In the discussion section, we set out our thoughts about the basis for a conceptual framework for NFR to highlight and address gaps in current reporting practice.

Non-financial reporting frameworks and climate-related risk reporting

The reporting ecosystem for ESG aspects of businesses is fragmented and complex. There is no generally accepted set of NFR standards, but maybe as many as over 600 NFR frameworks and instruments worldwide (Carrots and Sticks, 2020). For example, Carrots & Sticks², a database of NFR requirements, guidance and frameworks, identified 18 and 21 instruments of NFR in Australia and the U.K., respectively in 2020. Climate-change-related disclosures have been mandated in some jurisdictions, and the TCFD recommendations deal solely with such disclosures. We are unaware of any requirements or recommendations that explicitly reference pandemic risk, though this might change following the COVID-19 pandemic.

The recent demand for and enthusiasm in ESG and the introduction of the United Nations Sustainable Development Goals have seen an influx of NFR requirements and frameworks in the four years since 2016, particularly in human rights, labour, and anti-corruption and climate change (Carrots and Sticks, 2020). The NFR frameworks differ in terms of specificity, guidance provided, the target audience of focus, and the type and extent of ESG topics covered and focused. For example, the Sustainability Accounting Standards Board (SASB) standards stipulate specific disclosures that are financially material and cater to the information needs of capital market actors. In contrast, the Global Reporting Initiative (GRI) standards take a broader stakeholder focus and encourage disclosure of management approach, strategy and governance oversight, in addition to specific indicators. Most countries require companies to report on different aspects of ESG under various laws and regulations, making ESG disclosures dispersed throughout corporate reports, fragmented and lacking coherence.

The fragmented and complex NFR landscape and the call for comparable, consistent, reliable and assurable ESG disclosure have triggered regulatory work on harmonising, converging and consolidating NFR frameworks (Accountancy Europe, 2019; Accountancy Europe, 2020; Impact Management Project, 2020; World Economic Forum, 2020b). Attempts to date at harmonising have had limited success, with most work being about demonstrating the commonalities between frameworks or cross-referencing each other. For instance, one report shows the synergies between the 2013 International <IR> Framework and the GRI guidelines/standards for sustainability reporting in order to enable report preparers to meet the stipulations of both through a single reporting process and one primary report (KPMG, 2014). The report entitled “Driving Alignment in Climate-Related Reporting” (Corporate Reporting

² <https://www.carrotsandsticks.net/>

Dialog, 2019a) maps the standards and frameworks of five framework- and standard-setting organisations [i.e., Carbon Disclosure Project (CDP), the Climate Disclosure Standards Board (CDSB), the GRI, the IIRC and the SASB] against the principles, recommended disclosures and metrics in the TCFD recommendations. Other such harmonisation attempts include comparing the coverage of the SDGs in the frameworks/guideline of CDP, CDSB, GRI, ISO standards, SASB, and IIRC (Corporate Reporting Dialog, 2019b) and documenting the potential for the use of the 2013 International <IR> Framework for reporting on the SDGs (Adams, 2020).

Recently, The U.K. Department of Business Energy & Industrial Strategy (BEIS) (2020, p.8) reviewed studies on stakeholder views on NFR and found that “perceptions around flexibility and comparability may be exaggerated, and that more needs to be done to make clear where commonalities and synergies exist between NFR frameworks”. The SDGs are a potential contender for a framework for uniting NFR requirements (Adams *et al.*, 2020; BEIS, 2020). However, a survey conducted by BEIS (2020) finds that the preparers of non-financial reports do not see SDGs as having the potential to unite NFR requirements - users of non-financial reports, on the other hand, held the opposite view. Business for Social Responsibility (2018, p.4) calls for “multiple reporting frameworks using harmonized metrics” rather than a single set of unified standards. In September 2020, CDP, CDSB, GRI, IIRC, and SASB, issued a joint statement of intent to work towards the development of a single, coherent global set of reporting standards (Impact Management Project, 2020). A similar attempt at harmonising climate-related risk disclosure by forming a new standard-setting body (i.e., CDSB) had only contributed to further fragmentation of the NFR landscape³ (Thistlethwaite, 2015).

The 2019-2020 discourse on harmonisation culminated in the IFRS Foundation's trustees presenting an agenda to create a sustainability standard-setting body and work with existing NFR initiatives, building upon their work. Although this proposal has received mixed support (see, responses to the consultation, CDP *et al.*, 2020; Her Majesty's Treasury, 2020)⁴, the IFRS Foundation has gone ahead and initiated work to set up the Sustainability Standards Board and to issue sustainability standards, initially focusing on climate-related disclosure. The preference is for standardised ESG indicators and metrics with scope for industry-specific and optional selection of indicators (i.e., a Core and More model) (BEIS, 2020). Finding common ground to develop a single set of sustainability standards, however, will be fraught with difficulty as the NFR frameworks differ on fundamental conceptual underpinnings such as materiality, reporting audience and objective of reporting (Corporate Reporting Dialog, 2019a).

A recent study on NFR frameworks identifies climate-change issues, greenhouse gas emissions, resource usage (e.g., water and energy), waste and health and safety as the most important ESG themes for report preparers and users (BEIS, 2020). The 2018 EY survey of institutional investors' attitudes towards ESG and NFR reveals that risks relating to governance, supply chain, human rights, and climate change are the main considerations in

³ The CDSB was formed at the 2007 World Economic Forum annual meeting by the CDP, Ceres, the California Climate Registry, the World Resource Institute and World Business Council for Sustainable Development (authors of the GHG Protocol) and a group of publicly listed companies (i.e., Alcan, Alcoa, Anglo American, Cemex, Coca-Cola Company, Holcim, HP, Lafarge, Petrobras SA, RAO UESR, RWE, Santas, Scottish Power, Swiss Re Insurance, Vattenfall, and Vitro.)

⁴ <https://www.ifrs.org/projects/work-plan/sustainability-reporting/comment-letters-projects/consultation-paper-and-comment-letters/#comment-letters>, accessed 24th November 2020

investment decision making (Nelson, 2018). In most countries, companies with public debt or equity are obliged to disclose material information to the public. Material ESG risks such as climate- and pandemic-related risks arguably belong in that category (United States Government Accountability Office, 2020). Among different types of ESG risks, climate-related risks are attracting the most attention. They have been ranked among the top long-term risks by impact and likelihood in the World Economic Forum's Global Risk Perception Survey (World Economic Forum, 2020a). Several other most likely and impactful long-term risks (e.g., biodiversity loss), according to this survey, are also linked to climate change. National regulators increasingly acknowledge that a voluntary approach to climate-related disclosure is not sufficient given the urgency of the climate threat (Her Majesty's Treasury, 2020; Shaw, 2020).

Numerous regulations and frameworks exist on climate-related risk reporting, the most authoritative one being the recommendations of the TCFD. In 2019, the European Commission integrated the TCFD recommendations into its *Guidelines on Climate-Related Information*. The requirements in the legislation recently proposed by New Zealand and U.K. governments for disclosure of climate-related risk are intended to be aligned with the TCFD recommendations (Her Majesty's Treasury, 2020; Shaw, 2020). The TCFD implementation guide issued by SASB and CDSB shows that SASB's standards and CDSB's reporting framework can be used to provide disclosures aligned with the TCFD recommendation (CDSB and SASB, 2019). Corporate Reporting Dialog (2019a) provides guidance on using five of the most popular NFR frameworks (i.e., CDP, CDSB, GRI, IIRC and SASB) in a complementary manner with the TCFD recommendations. According to its 2020 report, there is almost complete alignment between the five NFR frameworks and the TCFD's principles and recommendations, and CDP, GRI, and SASB frameworks provide a high level of alignment with the TCFD's illustrative examples and metrics (Corporate Reporting Dialog, 2019a). While alignment between frameworks in relation to climate-related risk reporting has been demonstrated, fundamental/conceptual differences do exist between them (see, for example, O'Dwyer and Unerman, 2020), and the alignments are not necessarily well-appreciated or understood by report preparers or users (Corporate Reporting Dialog, 2019a). The CDP, one of the first initiatives to coerce large listed companies to disclose climate-related risk information, remains popular, but the disclosures made therein remain separate and not always made publicly available by disclosing companies.

There are two perspectives concerning climate related risks: (1) the impact of climate change on the company (affecting value creation) and (2) the impact of the company's operations on the climate (impacting sustainable development, particularly as climate change has an impact on the achievement of other SDGs). Both risk perspectives are interrelated and relevant to the capital market (European Commission, 2019) and are the subject of increasing litigation of directors (Benjamin, 2020). Interestingly, however, not all NFR frameworks are concerned with material impacts on sustainable development. The risks to the company that arise from the physical effects of climate change are labelled physical risks. They include potential impacts of adverse weather events (e.g., floods, storms etc.) or long-term changes in climate (e.g., rising sea levels, biodiversity loss etc.). Transition risks, the second type of climate-related risks, are risks arising from the transition to a low-carbon and climate-resilient economy. This category includes risks associated with changing policies, laws, technology and consumer choices and impact on reputation. A recent survey finds that investors are supportive of the TCFD's recommended disclosures and expect from companies the following information on climate-related risks (Financial Reporting Council, 2019, p.3):

- “how boards consider and assess the topic of climate change;

- whether, and how, the business model may be affected by climate change, whether it remains sustainable, and how the company may respond to the challenge posed by climate change;
- what the opportunities and risks are, including the prioritisation of risks and their likelihood and impact;
- what changes the company might need to make to strategy to capitalise on a changing climate and related opportunities;
- what scenarios might affect the company’s sustainability and viability, and how; and
- how the impact is measured and how the company measures the climate-related challenges and the success of its strategy through strategically aligned, reliable, transparent metrics and financially relevant information.”

A rich body of literature exists on the disclosure of climate-related information (see Doran and Quinn, 2009; Hahn *et al.*, 2015) but mainly focusing on companies’ impact on the climate rather than companies’ exposure to climate-related risks (see, for example, Andrew and Baker, 2020). Due to the focus of many prior studies being on emissions, the energy and resource sectors have been the most extensively studied, with non-physical (mainly regulatory) risk of climate change being the main focus of those studies (see, for example, Foerster *et al.*, 2017). Schiemann and Sakhel (2019) is an exception – they focus exclusively on physical climate risk reporting. Hence, the scope of most prior studies is limited in terms of coverage of climate-related risks. Rather than examining the qualitative nature of disclosure, many studies seek to quantify disclosure for incorporation into statistical models (e.g., Benz-Saliasi, 2020; Faisal *et al.*, 2018; Kouloukoui *et al.*, 2018; Kouloukoui *et al.*, 2019; Liu *et al.*, 2017; Pittrakkos and Maroun, 2019; Yunus *et al.*, 2020) or to particular types of corporate reports, such as sustainability reports (e.g., Kouloukoui *et al.*, 2019), climate strategy reports (Dahl and Fløttum, 2019) or the CDP official questionnaire (Kouloukoui *et al.*, 2018). Hence, we turn to non-academic sources for better insights on corporate climate-related risk reporting practices.

The TCFD annually reviews the alignment of companies’ reporting with its recommendations. Its most recent status report shows that (TCFD, 2020) while the number of companies reporting has increased in the year to 2020, disclosure of the potential financial impact of climate change on the company’s businesses and strategies, which experts find as most useful for decision making, remains low. The TCFD review does not, however, assess the quality of companies’ climate-related disclosure, and their adoption of automated content analysis method impedes locating interesting patterns in disclosure. Financial Reporting Council (2020) examined references to climate-related considerations by 24 premium-listed companies. They find deficiencies in the disclosure of: impacts of climate change on the business model, company’s impact on the environment (as against the impact of climate change on the company), climate-related opportunities, areas of the business subject to climate-related risks, and climate change scenarios. Moreover, 75 percent of the companies in the sample did not disclose whether or how climate-related risks have impacted financial reporting. Nonetheless, evidence from these industry reports implies that current reporting has improved since a SASB report in 2017 concluded that “The most common form of disclosure across the majority of industries and topics was generic boilerplate language” (SASB, 2017, p.2). However, the reported evidence is still insufficient to fully understand how companies that are most susceptible to climate- and pandemic- related risks and are subject to various disclosure regulations, having at their disposal a multitude of NFR frameworks, report on those risks.

In the context of the background and recent developments discussed here, we address two research questions in this paper:

1. How are companies susceptible to climate- and pandemic-related risks reporting on these risks?
2. Are current NFR frameworks adequate, and if not, how can they be improved?

We believe addressing these questions will lead to further improvements risk reporting requirements.

Conceptual framework

There are several theoretical explanations for climate risk reporting. Discretionary disclosure theory considers risk reporting as largely beneficial for disclosing entities, highlighting the lower cost of capital and disciplining effect on risk management and governance (Linsley and Shrides, 2006). According to Verrecchia (1983) when proprietary costs exist information that is withheld cannot unambiguously be interpreted as ‘bad news’ This is because, managers can be reluctant to disclose information about their firms’ superior risk management systems and capabilities due to proprietary costs (Abraham and Shrides, 2014), not because the information is unfavourable. Hence, withholding risk information is not necessarily costly for the firm. Moreover, Dobler (2008) argues that discretionary disclosure theory is applicable for verified and credible disclosure, which some risk disclosure is not. As there is a significant choice in relation to risk disclosure, ‘cheap talk’ models provide an alternative explanation of non-verifiable or unverified risk disclosure (Dobler, 2008). Accordingly, managers may not report available risk information either because they cannot credibly do so or by choice. Dobler (2008) argues that regulation can adversely affect risk reporting if used to mitigate incentives-driven restrictions.

In relation to sustainable development risks, such as climate and pandemic risk, the breakdown of a direct relationship between decision-makers (i.e., companies) and those affected (i.e., the public) can also explain suboptimal risk disclosure (Solomon *et al.*, 2011). The possible capture of the sustainability agenda by financial concerns, thereby prompting firms to adopt a financial materiality lens to risk disclosure, is a further hindrance to climate and pandemic risk reporting (Livesey, 2002; O’Dwyer, 2003). Livesey (2002, p. 332) argues that sustainability disclosures, which we consider as encompassing sustainable development risks, “privilege the economic dimension of the three pillars of sustainable development” and “[...] grounded in discourses of economics that constructed the market as a totalizing ethos and an irresistible disciplinary force”. When social and political aspects are taken into consideration⁵, institutional theory provides an explanation as to why companies in given industries adopt similar risk disclosure practices. Abraham and Shrides (2014) explain how mimetic isomorphic pressures result in organisations in a given industry providing general, non-specific and largely standardised disclosures, much like the current state of climate risk reporting practice.

A theoretical framework based on the risk society thesis (see Beck, 1996; Beck, 1997; Beck *et al.*, 1992) provides an explanation of sustainable development risk disclosure. Georgakopoulos and Thomson (2005) used the risk society thesis to explain how environmental accounting contributed to reconstructing the underlying knowledge of the social, environmental and economic risks of salmon farming. Based on their interviews, they conclude that “unless risks are considered ‘real’ by the decision-makers then the associated costs/benefits of doing or not doing something are not going to figure in the decision heuristics, regardless of the nature of

⁵ While legitimacy and stakeholder theories explain how organisations that don’t uphold the social contract or respond to stakeholder needs might face detrimental consequences, they do not explain a situation where an entire industry is failing to adequately manage and report on climate and pandemic risks.

their calculation” (p. 49). We argue that for managers to perceive sustainable development risks as ‘real’, the concept of value creation, and therefore, materiality, should be redefined.

Method

Pre-COVID-19 reporting of the ten largest airlines and five largest companies in each of the hotel and cruise industries was examined for disclosures on risk related to pandemics and climate change.

Sample

We selected the largest companies in the chosen industries as company size is associated with the extent of voluntary disclosures. Airline, cruise and hotel industries have different characteristics (e.g., some companies operate at a regional level while others globally), and two companies in our sample from these industries are not listed companies. Hence, a common measure of size is difficult to identify, or the relevant data is not available. To overcome this difficulty, we used the industry-standard measurements of size. In the airline industry, the revenue passenger-kilometres travelled is a common indication of airline companies' output (i.e., passenger traffic or basic airline production) (Massachusetts Institute of Technology, n.d.). The higher the number of aircrafts operated, the frequency of flights and the number of sectors flown, the greater the revenue passenger kilometres, and thus the size of the airline company. We selected the ten airlines with the highest number of revenue passenger-kilometres flown⁶. Cowper-Smith and de Grosbois (2011) used membership of one of the three major airline alliances (i.e., Star Alliance, Oneworld and Skyteam) as the basis for selecting their sample for investigating corporate social responsibility practices of large airline companies. Revenue passenger kilometres is more indicative of relative airline size and, therefore, an airline company's global impact. A measure of relative company size in the cruise industry is worldwide passengers carried, which is used to determine the market share of cruise line companies. We selected for our sample the five companies with the largest market share based on worldwide passengers carried⁷. In the hotel industry, the number of properties owned is a popular measure of hotel chain size. Statista (2020), a leading provider of market and consumer data, ranks hotel chains by size using the same measure. Hence, we included in our sample the five largest hotel chains in terms of the number of properties owned⁸. More companies from the airline industry were included in the sample because of that industry's greater carbon footprint and the greater geographical distribution compared to the other two industries. The selections were based on 2018 statistics, as our analysis is performed on company reports for 2018.

⁶ Revenue passenger kilometers is calculated as the product of total revenue paying passengers and distance travelled in kilometers. The data on the revenue passenger kilometres travelled was obtained from <https://www.statista.com/statistics/270986/airlines-by-passenger-kilometers-flown/>. The International Airlines Group which did not appear in this list due to operating several different airlines was included in our sample as the airlines it owned collectively put it in the top 10 airlines in terms of revenue passenger kilometres flown (see, <https://www.iairgroup.com/en/newsroom/press-releases/newsroom-listing/2019/08-01-2019-153733577>).

⁷ Market share data for cruise companies were obtained from Cruise Market Watch (2018).

⁸ The data on the number of properties owned by the largest hotel chains was obtained from <https://www.worldatlas.com/articles/the-largest-hotel-chains-in-the-world.html>

We analysed the corporate reports⁹ sustainability reports (and similar) and CDP Responses made available to the public through company websites. We selected the most recent reports available prior to the announcement of the COVID-19 pandemic on 11 March 2020 (World Health Organisation, 2020a) - i.e., financial year-ends of 31 March 2019 or 31 December 2018. Table 1 shows the sample companies and reports analysed.

<Insert Table 1 here>

Data and analysis

First, we searched the full text of the reports for disclosures on risks relating to disease outbreaks, epidemics or pandemics and climate change. The search was conducted within PDF documents and Microsoft Word documents of the reports using keywords. The keywords used to identify pandemic-related risk disclosure were disease, outbreak, epidemic, pandemic, health and virus. Climate, greenhouse gas and carbon were used as keywords to identify climate related risk disclosure. The selection of keywords relating to pandemics was informed by definitions and descriptions provided by the World Health Organisation (2020b) and Centers for Disease Control and Prevention (CDC) (2012) about disease outbreaks. Climate-change-related key words were identified by referring to the CDP (2019) corporate questionnaire and the GRI standards. The search terms also lead to disclosures that were not related to risk reporting, and they were discarded. We copied the disclosure relating to pandemic- and climate-related risks into a word file for detailed analysis.

Second, we read the disclosure relating to the two types of risks for each company in order to identify the characteristics of those disclosures. The characteristics of disclosure varied between the two types of risks; although business impacts of the risk and risk mitigation strategies were found to be two features that at least a few companies disclosed for both risk types. We classified the types of climate-related risks disclosed and the disclosure of business impacts of climate-related risks into transition risks and physical risks, following the dominant categorisation in the literature (see TCFD, 2017). In addition, we collected data on the types of reports in which climate-related risk disclosures were present, whether climate change was considered in the materiality assessment process and how stakeholders and the business perceived this risk, and the reporting standards used to guide disclosure. The analytical categories for climate-related risks were broadly informed by the CDP (2019)¹⁰ corporate questionnaire - they were mainly developed inductively from the data, as we explain next. For pandemic or outbreaks related risks more broadly, given the novelty, we were interested in the following analytical categories: how the risk was identified (i.e., the terms used to identify the risk), whether the risk was disclosed as a separate risk category or combined with a group of other risks, reason for identifying the risk, and the financial impact of the risk. These categories broadly reflect the approach to risk disclosure adopted in the CDP (2019) corporate questionnaire and, thus, align with the analytical categories adopted for climate-related risks.

⁹ The corporate reports included Form 10-Ks for the United States (US) listed companies (10), Form 20-Fs for foreign private issuers with listed equity shares on US exchanges (2) and annual reports for the other companies in the sample (8).

¹⁰ Items in the CDP (2019) corporate questionnaire that informed the analytical categories of this study are: risks identified by the organisation with the potential to have a substantive financial or strategic impact; business impacts of the identified risks and opportunities; integration of climate-related issues into the business strategy; and emission and energy reduction initiatives.

When identifying the analytical categories stated above, we were mainly guided by what companies disclosed, despite being somewhat influenced by the disclosures recommended in the CDP (2019) corporate questionnaire and TCFD (2017). Thus, analytical categories, as well as disclosure items within the categories, emerged from the data itself. Our approach is consistent with the data analysis process explained by Miles and Huberman (1994) where the analysis commences with a provisional 'starting list' of codes or categories derived deductively from a conceptual framework and then proceeds to inductively derive codes or categories. Our intention was to inductively observe the phenomenon without aligning with any one of the many NFR frameworks. Our analytical approach ensured that characteristic of disclosure relating to pandemic- and climate-related risks were exhaustively captured. Cowper-Smith and de Grosbois (2011) adopted a similar approach to content analysis when examining corporate social responsibility practices in the airline industry. The codes assigned to texts in relation to types of pandemic- and climate-related risks, business impacts, financial impacts and risk mitigation strategies were later combined as appropriate to form meaningful disclosure items which are presented in Tables 2 and 3 in the next section.

The validity of the data is ensured by the co-authors discussing and reaching consensus in relation to coding ambiguities and the construction of disclosure items by combining the codes (see, for an example of this approach, Abhayawansa *et al.*, 2021). One of the co-authors double-checked the coding to ensure intra-coder reliability (see, also, Krippendorff, 2004).

Findings

Overall we found identification of risks of pandemics, epidemics or outbreaks and climate change for the vulnerable industries we studied to be poor. As French multinational hospitality company, Accor, noted the spread of disease and transportation is linked, and quick adaptation and mutation of viruses is linked to climate-related risks. Not only did all the other companies miss this link between climate change and pandemics or epidemics, most downplayed the impact of these risks, often focusing on the short term. Our findings indicate that businesses' risk management strategies are inadequate and short cited, and highlights businesses' unpreparedness to deal with sustainable development risks that require the adoption of a risk perspective that is centred on long-term environmental and social sustainability (Gray, 2006).

Pandemic risk reporting

The results of our analysis of pandemic-related risk disclosure are provided in Table 2. Only six companies specifically mentioned the term pandemic, with a further 12 referring to the lesser risks posed by epidemics, outbreaks of contagious diseases or public health threats. According to the CDC (2012, p.1) an epidemic is "an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area". An 'outbreak' has a more limited reach than an epidemic, while a pandemic is an "epidemic that has spread over several countries or continents, usually affecting a large number of people" (CDC, 2012, p. 1). Our results indicate that either the sample companies did not make it their business to understand the difference between the terms or discounted the possibility of a disease reaching the scale of a pandemic. The latter might be true because the recent spread of diseases such as Ebola, Middle East Respiratory Syndrome, SARS, avian flu and Zika virus that companies have referred to in their reports have been either outbreaks or epidemics. The potential business, financial and social impacts are significantly different between pandemics,

epidemics and outbreaks due to differences in their geographic spread, the populations affected and government response. Hence, different risk mitigation strategies are necessary. For instance, Chen *et al.* (2020, p.16) argue that a strategy of “on-the-fly ad-hoc decisions and patchworks for damage control” that might be effective for short-lived disease outbreaks is not appropriate for responding to pandemics. Sharma *et al.* (2020) provide a pandemic risk management framework that includes strategies for proactively reducing uncertainty as well as coping with uncertainty (see, also, Nohria, 2020).

<Insert Table 2 here>

Six of the 20 companies treated pandemics, epidemics or outbreaks as a separate risk category. Others severely downplayed the impact of this risk. Most of them used boilerplate language and broad discussions of risks and limited disclosure to either the risks to demand, business operations, operating results, reputation or safety and security. The following quote illustrates this pervasive practice:

"The occurrence of geopolitical instability, terrorist attacks or threats of attack, closure of airspace, military action, *outbreaks of an epidemic or perception that an epidemic could occur* (e.g. Influenza A) could have a negative impact on both the Group's passenger traffic, and thus its revenues, and on the level of operating expenses". *[emphasis added]* (AirFrance-KLM, 2018, p.129)

While companies saw the revenue impact associated with the spread of diseases, they omitted detail regarding how and to what extent business operations (and hence profit) would be impacted. Surprisingly, one of the cruise companies classified pandemic risks as an occupational health and safety issue where the focus was on managing the transmission of diseases on board and protecting employees against viruses.

The extent of disclosures relating to pandemic risk mitigation strategies is woefully inadequate; only four companies (International Airlines Group [IAG], Air France-KLM, Genting Group and Accor hotels) made such disclosure. Air France-KLM highlights their Integrated Safety Management System, contingency plans and procedures that enable the company to anticipate and respond effectively to risks linked to a range of risk factors, one of which is epidemics. The Genting Group noted they have systems, security arrangements, facilities and resources to deal with interruptions to critical business functions for a list of risks explicitly, including pandemics. While these companies and two other companies highlight that they have disaster recovery and business continuation plans, these appear only partially to address the risks related to the spread of diseases as the plans are reactive in nature while managing the impact of pandemics requires building “continuous sensing and response capabilities” to be adaptive (Nohria, 2020, p. 2).

Climate-related risk reporting

Table 3 shows the results of our analysis of climate-related risk disclosure. Fifteen companies in our sample (i.e., 75%) considered climate change a material issue. Four of the remaining five companies are airline companies, and their disregard for the climate change impacts is not consistent with the passenger-airline business model that relies directly on peoples ability to travel and, hence, impacted by fuel availability and fuel prices. Three of these companies had not conducted a proper materiality assessment. Only nine companies disclosed their materiality matrix, and in the reports of two airlines (Air France-KLM and American Airlines), climate

change was considered to be only moderately important for stakeholders and the company's business. This is perplexing given external assessments that greenhouse gas emissions are a material issue for the airline industry (see, for example, SASB, 2018).

<Insert Table 3 here>

Reporting on climate-related risks is more by way of complaint about drivers requiring them to address climate change rather than seeing mitigating climate impact as corporate responsibility or a sustainable development issue. The most prominently reported (15 companies) 'risk' relating to climate change is emissions regulation (see Panel B, Table 2). Two hotel companies identified increasing stakeholder expectations concerning their impact on climate change as a risk rather than an opportunity to be proactive. Climate-related regulations require business operations and assets, such as aircraft, hotel buildings and ships to be restricted/modified to meet emissions standards (e.g., aircraft engine greenhouse gas emission standards to be implemented by the U.S. Environmental Protection Authority) and investment in the exploration of sustainable/low-carbon fuels. Potential liabilities and costs also arise from increased emissions reporting obligations, carbon pricing, carbon offsetting, and inadvertently breaching compliance requirements. The following extract from the Form 10-K of American Airlines (2019) highlights the attitude towards climate change typically held by many companies in our sample:

"Climate change-related regulatory activity in the future may adversely affect the company's business and financial results by *requiring us* to reduce emissions, purchase allowances or otherwise pay for emissions". [emphasis added] (p.24)

Other transition risks identified by the sample companies include: shifts in customer preferences towards less-carbon intensive products and services; stigmatisation of the industries for not adequately responding to the climate crisis, and reputational damage for companies. The disclosures portray the companies as innocent victims of climate change rather than contributors and highlight that companies see as a risk the much-needed change in societal perceptions towards mitigating climate change. For instance, Wyndham Hotels and Resorts (2019) explained:

"We have also prioritized increased stakeholder concern *as our greatest transition risk* due to increased interest [in climate change mitigation] among our guests, investors, team members and franchisees." [emphasis added] (p.15)

Climate-change related physical risks are reported by only 13 companies. Only five companies acknowledged the more long-term physical risks of climate change such as loss of biodiversity and extinction of species, growth in the scarcity of rare resources, (drinking) water and food sources, the decline in agricultural yields and deterioration of natural landscapes (and coral reefs) with the consequent reduction in tourist areas. For instance, the Accor hotel chain linked the destruction of wildlife, deterioration of coral reefs and drinking water resources and coastal erosion to the decline in the attractiveness of some destinations to explain the impacts of physical risks on the company. Airlines, in particular, saw increased frequency, severity and duration of weather (and related) events such as fogs, turbulences, thunderstorms, droughts, wildfires, floods, hurricanes and typhoons as threats to their operations as they cause delays and cancellations, customer and employee injuries and higher fuel consumption. The greater emphasis on transition-risk-related business impacts (15 companies) rather than physical risks

(12 companies) could be an artefact of short-termism. Increases in operating costs, fuel costs, compliance costs and potential penalties resulting from new and changing climate-change regulation are more immediate consequences to businesses than the impacts of physical risks.

All companies in the sample have implemented numerous strategies to reduce their energy use and/or carbon emissions. In search of a more sustainable business model that responds to climate risk, IAG (2018) "are moving more to leasing model rather than to owning aircraft which allows more flexibility in response to potential future costs from fuel and carbon pricing" (p.14). However, it is unclear whether the adoption of carbon reduction strategies is a genuine attempt at overcoming long-term physical consequences of climate change or merely a response to regulation and stakeholder pressure. Our scepticism should be judged in the context of prior research that finds an association between companies propensity to adopt carbon reduction strategies and perceived pressures from the regulators and stakeholders (see, for example, Yunus *et al.*, 2020). Fourteen companies report attempting to make long-term structural adjustments such as exploring sustainable alternative fuels and transitioning to renewable energy. Only two companies look beyond emissions reduction and engage in the conservation of natural resources likely to be impacted by climate change. Overall reporting indicates that climate change is not adequately being conceptualised as a risk affecting sustainable development. Such a conceptualisation is revealed by an appreciation of the interrelationships between climate change, biodiversity loss, food security, hunger and poverty, rural development and disease outbreaks etc. (Attenborough, 2020; Munasinghe, 2011).

Among the sample companies, 14 adopted the GRI standards, three of these 14 also followed the recommendations of the TCFD, and two followed the SASB standards. We observe that companies adopting these reporting guidelines and standards tend to provide more climate-change related disclosure, but not necessarily better climate-related 'risk' disclosures. It was the companies that responded to the CDP that provided the most comprehensive climate-related risk disclosures. Unfortunately, many companies did not make their CDP responses available through their websites and/or did not incorporate relevant climate-related risk disclosures in their annual or sustainability reports. The companies that filed Form 10-Ks explained both climate-related and other risks more systematically, albeit superficially, than other companies mainly because the form includes a section requiring an explanation of risk factors. Although the U.S. Securities and Exchange Commission's interpretive guidance on disclosure requirements related to climate change highlights the applicability of other sections in the Form 10-K for making climate-related disclosure (e.g., Item 101), the Form 10-K disclosure did not extend beyond risk identification. Many companies do not clearly link climate-related risks to corporate strategies, mitigation strategies and business models, possibly highlighting deficiencies of the reporting standard/framework/formats, which are limited by their scope. Referring to the International <IR> Framework, GRI Standards and the TCFD Framework, Adams *et al.* (2020, p. 6) argue that:

... any one of these frameworks/standards alone is insufficient to report on an organisation's approach to considering both risks and opportunities resulting from sustainable development issues, the implications for value creation (and value destruction) and the implications for and impact on achievement of the SDGs.

Only six companies linked their climate-change mitigation efforts with the SDGs. The incidence and incoherent nature of disclosure make a systematic assessment of the impact of long-term climate risks and the effectiveness of the risk mitigation difficult.

Discussion: Towards an overarching framework for non-financial reporting

Overall our observation is that, with a few exceptions, companies in our sample have taken a short-sighted and self-deceptive approach to pandemic and climate risk identification. Four key issues were identified: (1) lack of recognition of the long term nature of climate-related risks and the likelihood of pandemics; (2) lack of detail on the business impacts of risks; (3) lack of disclosure of risk mitigation strategies for pandemic-related risks and climate-related physical risks; and (4) subpar reporting of linkages between pandemic- and climate-related risks, governance, strategy and risk management. Pandemic and physical climate-related risks are barely reported. The risk of climate-related regulation is seen as the predominant risk, presumably because there are immediate financial consequences of breaching such regulation. Where companies did score well on climate risk disclosure, those disclosures were spread across different reports, making it difficult for users to assess the completeness, relevance, comparability and reliability of the disclosed information. While the 2013 International <IR> Framework (IIRC, 2013) has played an important role in pushing companies and capital markets to think longer term and focus on broader value creation through the multiple capitals approach, it is insufficient to drive a focus on sustainable development risks and opportunities where organisations lack the know-how, experience and inclination to do so (Adams, 2017b; Adams *et al.*, 2020; Beck *et al.*, 2017). Adams *et al.* (2020) provide recommendations for communicating implications for and impact on the achievement of the Sustainable Development Goals informed by a consultation process, the TCFD recommendations, GRI Standards and the *International <IR> Framework* (see Adams, 2020). However, creating the change needed for sustainable development requires more explicit guidance and regulatory mandates, as our findings indicate.

A conventional focus on financial materiality and an outdated notion of what is or should be an investor perspective has largely limited disclosures to those where potential financial consequences are immediate and obvious. The financial materiality lens is crafted narrowly, as we see from a lack of recognition of the impact on economic resources (e.g., asset values) or long-term viability of affected operations. The current notion of double materiality in the European Union's (EU) NFR Directive with its narrow focus on the side of financial materiality does little to facilitate better risk reporting. Like the EU, IFRS also focuses on the financial materiality as apparent in a March 2020 International Accounting Standards Board (IASB) paper on the revised objective of an updated Management Commentary Practice Statement: "to support primary users in assessing the entity's prospects for future *cash flows* and in assessing management's stewardship of the entity's *economic resources*" [*emphasis added*] (IASB, 2020, p.17).

This focus on implications for cash flow and economic resources is at odds with the World Economic Forum (WEF) (2020b) white paper, which, like the 2021 *International <IR> Framework*, uses instead 'materiality to long-term value creation' as a filter for determining disclosures. Investors are increasingly concerned with value creation (or destruction), more broadly defined of which financial materiality is only a subset (see Adams, 2017a). The definition of materiality in the *Sustainable Development Goal Disclosure (SDGD)*

Recommendations, which is the outcome of a consultation (see Adams, 2020) connects materiality from a broad value creation (rather than merely financial) perspective with impact on sustainable development:

"Material sustainable development information is any information that is reasonably capable of making a difference to the conclusions drawn by:

- stakeholders concerning the positive and negative impacts of the organisation on global achievement of the SDGs, and;
- providers of finance concerning the ability of the organisation to create long-term value for the organisation and society." (Adams *et al.*, 2020, p.9)

We contend that this approach is more likely to lead to broad disclosure of climate- and pandemic-related risks and that this is in the best interests of all stakeholders, including investors. Physical climate-change risks, for example, while difficult or impossible to translate into financial statement impacts, are clearly relevant to investors in that they have implications for long-term value creation. Similarly, appreciation of pandemic-related risks requires companies to especially consider social and human capital elements in conceptualising long-term value creation. The call by investors for sustainability reporting to be simplified through reduction to a few indicators serves their short-term resource concerns but is counter to long-term value creation (Adams and Abhayawansa, 2021). It is the narrativisation of the value creation story in the context of sustainable developments risks, of which climate- and pandemic-related risks are a part, that is of interest to anyone concerned about the sustainability of businesses and the planet (Abhayawansa *et al.*, 2018; IIRC and Kirkshhoff, 2020).

The WEF (2020b), like the SASB, specifies such quantitative disclosures and metrics. Appealing to investors seeking to limit resourcing of the task of assessing sustainability disclosures, the approach is also likely to be preferred in jurisdictions with a more rules-based (as opposed to a principles-based) approach to accounting and reporting. Indeed Larry Fink, CEO of US-based BlackRock, the world's largest asset manager, has called for the use of SASB disclosures (Fink, 2020). The problem with a focus on metrics is that they have limited power to change what a business does and how. Adams (2017a) demonstrates that it is the requirement to disclose on strategy and management approach with governance oversight (as in TCFD, 2017; IIRC, 2013) that gets organisations thinking about what they do and how they do it, but also notes that insufficient attention is paid to sustainable development risks and opportunities. IIRC (2013) requires disclosure of key risks, context and strategy, but is not explicit about sustainable development risks and opportunities, and there is no guidance for incorporating these.

The SASB and GRI Standards, the TCFD recommendations (TCFD, 2017) and the 2021 International <IR> Framework (IIRC, 2021) have differing purposes, serve different audiences and have different positions with respect to their emphasis on value creation versus impact and stakeholder accountability (i.e., impact reporting) versus climate dependencies (i.e., dependencies related to financial risks) (O'Dwyer and Unerman, 2020). Risk reporting on both pandemics and climate change is falling through the cracks. Our results show that even companies that adopted multiple frameworks fail to provide adequate risk disclosure, particularly, specific information about risk types, potential business impacts, risk mitigation strategies and the interrelationship between risks and impacts in the context of sustainable

development. Sustainable development risks and opportunities are insufficiently considered in mainstream risk assessment, and as such corporate strategies and business models tend not to respond to them as our findings demonstrate. Therefore, the requirement to consider them needs to be made explicit (see Adams, 2017b; Adams *et al.*, 2020). Viewed from the 'risk society' perspective (see Beck, 1996; Beck, 1997; Beck *et al.*, 1992), where subjective perception of risks is the dominant pattern of description and definition of risks in modern society (Matten, 2004), making sustainable development risks intelligible helps these risks to be perceived as 'real' by both internal and external decision-makers. It has been suggested that the International <IR> Framework could be an "umbrella" framework for NFR (Accountancy Europe, 2020). But this would require more significant changes than those proposed in the consultation draft (IIRC, 2020) and incorporated in the revised framework (IIRC, 2021), including broadening out the concepts and showing where the other (most used) standards/frameworks fit (as in Adams *et al.*, 2020). Such an "umbrella" conceptual framework would need to encompass a range of NFR types and fill the gaps we have identified in risk reporting. If disclosure levels and quality are to be increased, the principles would need to recognise explicitly: a) the relationship between sustainable development risks and opportunities and long-term value creation (as in Adams, 2017a) and b) impact on the achievement of the SDGs. Here, it should be reiterated that less than 1/3rd of the companies we analysed linked climate-related risks to the SDGs. The three fundamental concepts in the SDGD Recommendations (Adams *et al.*, 2020) would address this. In addition to the materiality concept discussed above, the fundamental concepts include '*long-term value creation for the organisation and society*' and '*sustainable development context and relevance*' (Adams *et al.*, 2020, p. 9).

Despite poor risk reporting, an increasing number of organisations are seeking to convince stakeholders that they are taking the SDGs seriously by mapping their activities against the SDGs. They recognise that sustainable development risks matter to a broad range of stakeholders, including investors, and identification of sustainable development risks is a means of conveying the robustness (or lack of it) of an organisation's risk management. In the case of pandemic risk the lack of preparedness for a global pandemic in our sample companies is matched by a lack of reporting. The lack of disclosure about pandemic and climate-related risks highlights the need for a NFR framework that has scope broad enough to include sustainable development risks.

An updated International <IR> Framework that required explanation of the relationship between the organisation's outcomes (for the capitals) and impact (on contribution to the SDGs) as in Adams (2017b) would improve corporate decision making. The business model diagram in the 2021 International <IR> Framework (IIRC, 2021) (Figure 2, page 22) is insufficient given the implication of sustainable development risks and opportunities on the availability of capital inputs and hence value creation, particularly over the long term. Our findings highlight that even climate-related risks get little consideration. The process of transforming the capitals makes a positive or negative contribution to SDGs that address sustainable development risks and opportunities material to the organisation, its industry and its stakeholders, including broader society (see Adams, 2017b).

In summary, the key changes that would be required to the 2021 International <IR> Framework or introduced into mandatory NFR requirements in order to improve disclosure of sustainable development risks (including pandemic and climate change risks) are:

- acknowledging the connection between long-term value creation for organisations and society and achievement of the SDGs;
- explicitly requiring disclosure of sustainable development risk and opportunities;
- linking outcomes for the capitals with the impact on the achievement of the SDGs;
- referencing key recommendations, frameworks and standards that can be used to a) provide the information relevant and material to an integrated report b) develop integrated thinking that mainstreams sustainable development considerations; and,
- amending the fundamental concepts of integrated reporting to address sustainable development context and relevance, including defining materiality with respect to both value creation and impact on the achievement of the SDGs.

Such changes would better position the International <IR> Framework as an umbrella corporate reporting framework.

Conclusion

Our study of pandemic and climate risk reporting in the largest companies in three industries among those most affected by both reveals significant gaps. Our analysis of the various industry, professional body and regulator reports reveals that a focus on ‘financial materiality’ or a narrow ‘investor perspective’ is to blame. The focus on climate-change regulation risks is indicative of this because it is the risk where short-term financial consequences are most obvious and most easily quantified. But it also indicates that companies have not accepted their own responsibility to act to address climate change.

The concurrent push to simplify and limit sustainability disclosures driven by the short-term cost of making them (companies) and assessing them (investors) has led to a ‘concern’ about a proliferation of bodies *setting* standards (see, for example, Tett, 2020) and frameworks. These ‘concerns’ intensified during 2019 and led to a proliferation of bodies claiming a purpose to *harmonise* them in 2020 (see, for example, Accountancy Europe, 2020). The IIRC and subsequently the Impact Management Project had ‘harmonisation’ as a core aim prior to the pandemic. 2020 saw additional ‘harmonisation’ initiatives come to fruition. For example, the United Nations Conference on Trade and Development (UNCTAD) - International Standards of Accounting and Reporting (ISAR) and United Nations Environment Programme joined forces "to evaluate the existing reporting frameworks in order to propose key principles and core indicators of SDG reporting" (ISAR, 2020, p.1). The WEF white paper *Toward Common Metrics and Consistent Reporting of Sustainable Value Creation* (WEF, 2020b) developed with the Big Four accounting firms, identifies 22 core metrics included in current standards- 18 coming from the GRI standards.

Our findings inform our articulation of the limitations of the International <IR> Framework (IIRC, 2021) as an umbrella framework for harmonising NFR using insights from an examination of reporting on two key sustainable development risks that came to the fore during 2020 – pandemic and climate change. We suggest revisions to content elements and the definition of materiality in the International <IR> Framework that we believe would enhance disclosure and corporate decision making. These involve making consideration of sustainable development issues and the SDGs explicit (as in Adams, 2017b), a necessary change, given the extent of the transformation needed. This would assist in shifting corporate interpretive schemes and institutional logics with respect to sustainability (Narayanan and Adams, 2017).

As explained by the risk society thesis (see Beck, 1996; Beck, 1997; Beck *et al.*, 1992), the sustainable development risks should be perceived as ‘real’ by the decision-makers for the risks to move beyond calculative frames informed by financial materiality.

This paper offers implications for practice and policy. First, by showing deficiencies in reporting of two of the most pressing sustainable development risks, pandemic- and climate-related risks, we provide a useful basis for developing a reporting framework that places sustainable development risks and the impact of the organisation on achieving the SDGs at the centre of corporate thinking. Second, the limitations of risk reporting revealed herein have implications for companies seeking to enhance disclosure and investors assessing corporate risks. Our findings demonstrate that even large, highly impacted organisations fail to identify sustainable development risks that are relevant to enterprise value. Third, our recommendations in relation to an umbrella NFR framework are capable of enabling the achievement of the SDGs by prompting organisational change for creating *long-term value creation for the organisation and society*. Essential to this is a primary focus on sustainable development and the impact of an organisation on the achievement of sustainable development. The sustainable development context must be understood before organisations can identify sustainable development risks and opportunities relevant to enterprise value (Adams *et al.*, 2020).

Further research is needed on the nature of risk reporting and corporate risk mitigation strategies in order to inform the development of a comprehensive conceptual framework for NFR. This could include interviewing corporate leaders and examining corporate policies, audit and risk committee charters, and external disclosures. Examination of the scientific literature is also needed to determine the nature and extent of key sustainable development risks and the most effective mitigation strategies. This would reveal gaps in corporate practice. Further, there is scope for further research into the dynamics of NFR framework and standard-setting, including the development of new conceptualisations.

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