Adoption and Determinants of Task Force on Climate-related Financial Disclosures (TCFD) Reporting Frameworks by Australian Stock Exchange (ASX) Listed Companies

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Abstract: This study investigates the determinants and extent of adoption of TCFD reporting frameworks by the listed corporate entities of the Australian Stock Exchange (ASX). Using content analysis on annual reports of 31 TCFD supporting ASX listed corporate entities, this study quantifies the extent of climate related risk disclosure by counting both, the number of words and pages. The investigation of the study found only 34 of over 2000 ASX listed corporate entities supported the framework till December 2020. The findings of the study claim that the intention of the reporting entities- integrated reporting with annual report and separate reporting as sustainability report, plays significant roles in adopting and disclosing TCFD reporting frameworks. More specifically, 70% of the supporting companies follow separate reporting strategy and disclose significantly more climate related financial risks than their counterparts.

Keywords: TCFD, Climate change, ASX, Integrated, Separate, Reporting

INTRODUCTION

Business leaders and regulatory agencies in various countries are urging corporate entities to address the issues of unlimited financial losses from climate changes and business sustainability in their annual reports. Both theoretical and empirical evidence support that the disclosures of corporate risk exposures to the impact of climate change on the corporate investment resolve the information frictions (Roy Chowdhury *et al.*, 2019); determine the climate change related financial risk adjusted returns on investment (Choi & Luo, 2020); and may have transformative potential (2020).

An international organisation named the Task Force on Climate-Related Financial Disclosures (TCFD) evolved in June 2017 on corporate reporting disclosures[1]. The TCFD recommended reporting frameworks are now adaptable by all organisations with public debt or equity in the mainstream financial filings in G20 jurisdictions. As a member of G20 jurisdictions, Australian regulatory agencies have highly recommended the TCFD reporting frameworks. These reporting frameworks can provide more information to even professional Australian investors who also lack knowledge on climate change related financial risks (Harnett, 2017). The Australian reporting entities can voluntarily disclose such information in their financial report to reduce the gap in information asymmetry. Our literature review on climate change related financial disclosures shows that there is very limited evidence on implementation of TCFD reporting frameworks in Australia. Hence, we argue that Australian investors need more information on climate change related financial risks.

Hence, intuition arose on investigating the extent and determinants of such reporting by Australian entities, in particular, the ASX listed corporate entities. This intuition thus motivated this study to explore the determinants and extent of TCFD reporting frameworks by ASX listed corporate entities. Our investigation shows that only 34 ASX listed corporate entities had supporte and implemented the TCFD reporting framework till December 2020. This finding indicates that, on an average, 10 ASX listed corporate entities per annum, are supporting the TCFD reporting frameworks. The content analysis on available published annual reports of 31 ASX listed corporate entities claims that TCFD supporting entities significantly follow a separate reporting as sustainability report in adopting TCFD reporting frameworks.

As TCFD disclosure is not mandatory and much investigation has not yet been done thereon, this study will contribute to the literature through both exploring the contemporary literatures on TCFD and empirically investigating the extent of adoption of TCFD recommended reporting by ASX listed entities.

The rest of the study is structured by reporting the contemporary literature in the Literature Review section followed by Methodology. The next section discusses the key findings while the last section concludes the findings with policy implementation.

LITERATURE REVIEW

The Task Force on Climate-Related Financial Disclosures (TCFD) is an international organisation established by the G20 Financial Stability Board (FSB) in 2016 and released three key documents on June 27, 2017:

recommendations, implementation and scenario analysis (technical supplement)[2]. The step by step evolution of establishing TCFD (O'Dwyer & Unerman, 2020) suggests that disclosures of high quality long-term climate change related corporate financial risks can help efficiently allocate the flow of capital and manage climate change related financial risks. These risks can be categorised into *physical risks-* changing weather and climate, *transition risks-* shifting market in low carbon and climate resilient economy, and *liability risks-* misrepresentation, negligence or regulatory compliance (Nash, 2018). The need for climate related financial disclosures is well supported by the loss reported in the overview of booklet published by TCFD in March 2020. According to the overview of the booklet, the natural catastrophic losses of US$ 640 billion during 2017-2019 were intensified by climate change and manageable assets at a risk of up to US$ 43 trillion are estimated to result from climate change by the end of the current century. The booklet further referred a statement claiming immediate consideration of climate change into every financial decision.[3] The Global Commission on Adaptation has also prescribed the TCFD reporting frameworks to the largest developed economies of the world.[4]

The lack of knowledge of climate change related risks among the professional investors even in developed countries like UK, USA and Australia (Harnett, 2017) warrants the implementation of the TCFD reporting frameworks because such reporting is expected to reduce the agency costs and hence favourably affect the firm valuation. A review of empirical literature over the past two decades indicates that financial reporting and disclosures can impact corporate investment by resolving frictions arising from: (i) information asymmetry between principal and agent, and (ii) symmetric information between principal and agent with information uncertainty (Roy Chowdhury *et al.*, 2019). The TCFD claims that "A company that communicates its climate resiliency to its investors will have a competitive advantage over those that don't."[5] This can be supported by the multi-country firm evidence of Choi & Luo (2020) which shows that investors incorporate the pollution management ability of corporate governance and long-term corporate strategy in avoiding uncertainty into their valuation.

The TCFD recommended report issued in June 2017 identifies that entities in both financial sector (asset managers, asset owners, insurance groups, and banks) and non-financial sector (foods and forest products, buildings and agriculture, material, transportation, and energy) are likely to be impacted by the climate change related risks. Hence, the TCFD reporting requires both financial and non-financial sectors to report on climate change related financial risk disclosures covering four core elements:

governance, strategy, risk management, and metrics & targets[6]. Specifically**,** the core element of governance requires an organisation to disclose the oversight and role of its board in assessing and managing the climate change related risks and opportunities; the core element of strategy requires an organisation to disclose the actual and potential material impacts of climate change related risks and opportunities on its business, strategy and financial planning; the core element of risk management requires an organisation to disclose how it identifies, assesses, and manages the climate change related risks; and the core element of metrics & targets requires an organisation to disclose its metrics & targets used in assessing and managing relevant material climate change related risks and opportunities.

The existing environmental sustainability reporting complies with the Legitimacy theory (Suchman,1995) which requires corporate disclosures to comply with the expectations of society (Deegan, 2014). The TCFD's seven principles for effective disclosures are largely aligned and complementary with those of the existing environmental disclosure setters: the Sustainability Accounting Standards Board (SASB), Global Reporting Initiative (GRI) and Carbon Disclosure Project (O'Dwyer & Unerman, 2020). The existing literature on corporate social responsibility (CSR) shows that CSR is one of the methods of interaction between a corporation and its stakeholders through disclosing the operational impacts of corporate business on society and environments (Lubisa *et al.*, 2019). A literature review of CSR covering 245 articles spanning the period since mid-1970s by Andrew & Baker (2020) supports that the CSR research concentrates mainly on reporting corporate impacts on social and environmental sustainability. Another review of literature over last 30 years reports a wide variation in both quantity and quality of corporate social and environmental disclosures (Odera *et al.*, 2016) and this reporting variation can be attributed to the lack of explanatory power of the existing social reporting theories (Adams, 2002).

The basic difference in reporting as per TCFD and existing sustainability accounting lies in their primary focus. For example, the TCFD focuses on reporting corporate financial dependencies at different changed climate scenarios whereas the existing sustainability reporting focuses on the impact of corporate operations on climate change (O'Dwyer & Unerman, 2020). The existing international financial reporting standards (IFRS) are not sufficient to encourage companies in addressing the climate change related financial risks in assessing the value of productive assets. To overcome the limitations of IFRS framework, Scholten *et al.* (2019) regard TCFD recommended climate change scenarios as high quality financial reporting frameworks and hence suggest to use them with IFRS framework in the valuation of productive assets.

As of December 31, 2020, 1500+ organisations across 70 countries with market capitalisation of over US$ 12.6 trillion supported the TCFD reporting[7]. Despite the gradually increased adoption of TCFD recommended disclosure by corporate entities across continents since June 2017, there exists a very limited study on the extent and implementation of the TCFD reporting frameworks. One recently published study by O'Dwyer and Unerman (2020) on the transformative potential of TCFD reporting demonstrates several academic research arenas which may lead to adopting zero carbon corporate policies and actions. Our literature review shows one empirical study on French companies by Demaria and Regot (2018) who conducted a content analysis on annual reports of largest 40 companies in Euronext Paris (the CAC 40 index) over 2015-2017, constructed an index following the reference documents published each year by the companies and assessed the French firms' compliance with the TCFD recommended disclosure framework. Their findings report a gradual improvement in TCFD recommended environmental disclosures by French companies over the period and financial sector scored the highest compliance followed by building & materials and energy, in the order.

From June 2017 to December 2020, a total of 80 Australian corporate entities including ASX listed companies, regulatory agencies, and professional associations have supported the TCFD reporting framework by voluntarily disclosing their climate-related financial risks[8]. The trend of Australian entities supporting TCFD frameworks might be linked with the joint bulletin published by the Australian Accounting Standards Board (AASB) and the Auditing and Assurance Standards Board (AUASB) that climate change related risks materially impact the elements of financial statements and warrant qualitative disclosures of exposures to such risks in the financial statements[9]. The Australian Securities and Investment Commission (ASIC) has incorporated the TCFD risk categories and recommendations in its regulatory disclosure guidance on climate related risk and opportunities[10]. This regulatory disclosure guidance of ASIC requires directors of Australian companies to appropriately consider and disclose the climate related risks to comply with their duties (Bremers, 2019). The regulatory disclosure requirements of ASIC are consistent with legal theory and directorial duties in Australian law (Holt, 2019) and the stakeholder theory, because most of the Australian companies disclose at least some form of economic, environmental or social sustainability risk (Dumay & Hossain, 2019) but Australian investors still lack knowledge on climate related risks (Harnett, 2017).

The above literature review shows that very limited empirical evidence exists on the adoption and implementation of TCFD recommended

reporting frameworks and the existing frameworks across countries, which cannot adequately influence corporate entities to disclose their financial risk exposures to climate change. This study is thus motivated to contribute to the corporate voluntary disclosure literature by exploring the contemporary literature and the empirical evidence on the extent of adopting the novel TCFD reporting frameworks by Australian corporations. More specifically, this study concludes on the quality of disclosure based on the content and volume of disclosure and the factors determining such disclosures.

METHODOLOGY

As content analysis reveals the 'hidden meanings of the text' used in the disclosure (Krippendorff, 2018), we used contents of the disclosures under the four core elements of TCFD reporting framework to quantify our dependent variable. We used number of words and pages to quantify the narrative disclosers because these are widely used in the literature as standard measures of content analysis (Hackston & Milne, 1996). For example, number of words is used in Dumay & Hossain (2019) to quantify the extent of narrative disclosures, and usage of frequency of words maximises the robustness of errors (Deegan & Gordon, 1996). We have used number of pages as proxy for length of reports because firms can change their quality of narrative disclosures without changing the numbers of sentences in their disclosures (Pizzi, Rosati, & Venturelli, 2020). Using number of sentences is subject to limitations such as each sentence is equally weighted irrespective of its number of words, meaningful contents, and importance (Merkly, 2014). As the selection of unit of analysis affects the result of analysis (Deegan *et al.*, 2002) and each mentioned standard is not free of limitation, in this study, we have preferred number of words and pages to quantify TCFD narrative disclosures to minimise the limitations associated with each.

The number of words and pages are quantified using Nvivo software and are used as the dependent variables to proxy for the extent of disclosures. Following disclosure literature, we have compiled a number of relevant independent variables as briefed below to control their effect on the TCFD disclosure. Finally, the Ordinary Least Squares (OLS) regression is used to estimate the determinants of TCFD disclosures based on the data collected from 31 annual reports of the ASX listed corporations which are concurrently complying with the TCFD reporting frameworks.

(i) Sample selection: Our sample comprised only the ASX listed corporate entities (till December 2020) in Australia because the annual reports of non ASX listed reporting entities were either not publicly available

or lacked standard reporting framework. Till December 2020, we had found 80 reporting entities which had supported/adopted the TCFD framework but only 34 of them were listed in the ASX. Hence, we had selected 34 ASX listed corporate reporting entities which had at least one published annual report incorporating the TCFD disclosure. We finally included 31 companies (list attached in the appendix) in our sample because we could not process the reporting statements of 3 entities.

(ii) Dependent variables and quantification: The extent of climate risk disclosure was our dependent variable.

(iii) Independent variables: What factors really influence non-financial reporting by corporation is still a concurrent aspect of accounting research. Many researchers documented that some factors are relevant in one context but irrelevant in another context.

For example, *firm size* is documented as a significant positive factor of disclosing substantive information supporting both political and agency theories that larger firms are more likely to disclose substantive information to stakeholders (Ali *et al.*, 2017; Dumay & Hossain, 2019; Herbohn *et al.*, 2014). Similarly, firm size plays a significant role in the adoption of integrated reporting (Girella, Rossi, & Zambon, 2019); driving sustainable reporting (Kuzey & Uyar, 2017; Dienes, Sassen & Fischer, 2016); and sustainable performance disclosures (Orazalin & Mahmood, 2019).

Profitability (return on equity or return on assets) is documented in the literature to influence firms to disclose Corporate Social Responsibility (CSR) information in developed countries (Ali *et al.*, 2017). Profitability is also reported as a key factor in adopting integrated reporting (Girella, Rossi, & Zambon, 2019); and sustainable performance disclosures (Orazalin & Mahmood, 2019). However, Dienes, Sassen & Fischer (2016) document it as an insignificant driver of sustainable reporting.

Industry sector is documented to influence firms to disclose Corporate Social Responsibility (CSR) information in developed countries (Ali *et al.*, 2017). The industry sector such as operation in environment sensitive sectors could have a bearing in reporting on the Sustainable Development Goal (Pizzi, Rosati, & Venturelli, 2020). Sierra-Garcia, Garcia-Benau, & Bollas-Araya (2018) also acknowledged that companies functioning in environment sensitive sectors such as oil and gas sector disclose more non-financial information in annual reports.

Leverage (debt equity ratio) is documented to have a mixed effect on sustainable reporting because it is reported as a significant (Kuzey & Uyar, 2017) and an insignificant (Dienes, Sassen & Fischer, 2016) driver of sustainable reporting. Kuzey & Uyar (2017) reported leverage as a negative

driver whereas Dienes, Sassen & Fischer (2016) documented capital structure as an insignificant driver of sustainable reporting.

Ownership structure, percentage of shares owned by different groups of stakeholders, provides incentives to different stakeholder groups to report sustainability differently. Dienes, Sassen & Fischer (2016) concluded ownership structure as the most significant driver of sustainable reporting. This is consistent with the findings of Sellami, Hlima, & Jarboui (2019) that Institutional ownership, or percentage of shares owned by institutions, has an influence on sustainable reporting.

Environmental risk influences the capacity of income generation and sustainability reporting and urges the firms' improvement in the capacity of income generation (Pizzi, 2018). Companies with increased vulnerability because of industry nature disclose more environmentally vulnerable information to manage legitimacy (Kuo & Chen, 2013; Al-Shaer, Salama, & Toms, 2017).

Firms acquire and disclose more risk information while their risks are more than expected. We had included systematic risk (measured through beta) of the reporting entity because disclosure of systematic risk reduces the cost of capital (Heinle & Smith, 2017). Benlemlih *et al.* (2018) find significant negative association of environmental and social disclosure with total risk but not with systematic risk.

Considering the significance of the above-mentioned factors in voluntarily disclosing non-financial corporate information, this study incorporated them along with two dichotomous variables of reporting styles-Integrated Reporting (IR) and Separate Reporting (SR). IR combines both material financial and non-financial information in a concise and consistent approach (Wang *et al.*, 2020). IR aims to explain the value creation of the reporting firm through interacting with the external environments and the different forms of capital (IIRC, 2013). To reduce information asymmetry, managers prefer IR to voluntarily disclose information on non-financial environmental risks to the targeted capital market stakeholders (Healy & Palepu, 2001) whereas they prefer SR to voluntarily disclose such information to non-capital market stakeholders (Watts & Zimmerman, 1978). In line with the objectives, we posit that TCFD supporting entities prefer SR (RST1) to IR (RST2) if they want to comprehensively report the climate change related risk disclosure to both capital market and non-capital market stakeholders.

(iv) Statistical analysis: In this study we used both descriptive and inferential statistical tools. Descriptive statistics are used to disclose the quantitative features of the selected variables. Multiple correlation tests are used to identify the statistical association between dependent and

independent variables. To disclose how reporting intention affects the quantity of TCFD based disclosures, separate reporting and integrated reporting are converted into dummy variables. As we did not find any significant statistical association between dependent and independent variables other than reporting intention, only these dummy variables were used in regression analysis with and without considering robust standard errors.

FINDINGS

Overview of TCFD based disclosures

Our analysis was based on 31 companies supporting TCFD guidelines for climate related disclosures. Table 1 and table 2 display descriptive statistics of the selected variables. Panel-A in Table 1 reports overall descriptive statistics, Panel-B reports the descriptive statistics of the variables of firms disclosing climate related disclosures in a separate statement apart from

Table 1: Descriptive statistics of selected variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Panel-A (overall average)					
Tpages	31	58.77	47.57	3.8	172.5
Twords	31	14692.35	11886.61	962	43114
E_value	31	43.17	61.12	1.08	259.88
ROE	31	-2.13	42.08	-199.71	50.45
DE_Ratio	31	142.86	260.02	2.61	1158.5
E_risk	23	5.80	6.27	0.7	18.4
Beta	31	0.77	0.46	0.12	2.25
Institution	31	32.06	12.71	5.37	54.63
Panel-B (separate reporting)					
Tpages	22	76.70	45.25	11.5	172.5
Twords	22	19174.14	11307.99	2884	43114
E_value	22	45.85	69.87	1.08	259.88
ROE	22	2.47	22.24	-75.62	50.45
DE_Ratio	22	112.77	201.55	8.26	950.02
E_risk	16	7.05	7.11	0.7	18.4
Beta	22	0.81	0.45	0.18	2.25
Institution	22	32.49	13.71	5.37	54.63
Panel-C (integrated reporting)					
TPages	9	14.93	7.93	3.8	27.9
TWords	9	3736.89	1979.89	962	6984
E_value	9	36.63	33.55	2.22	98.19
ROE	9	-13.37	71.71	-199.71	39.5
DE_Ratio	9	216.41	371.92	2.61	1158.5
E_risk	7	2.93	1.95	1.2	6
Beta	9	0.69	0.50	0.12	1.29
Institution	9	31.01	10.50	20.51	49.56

the annual report, whereas Panel-C reports the same of those firms which report TCFD based disclosures in the annual report. The overall average total number of pages and words of TCFD disclosures are 58.77097 and 14692.35, respectively. Comparing these three panels, it is clearly evidenced that the companies which follow separate reporting strategy disclose much more TCFD based disclosures (average total number of Pages 76.7 and average total number of words 19174.1) than those companies which follow integrated reporting style in annual reports (average total number of pages 14.9 and average total number of words 3736.9).

Table 1 reports the descriptive statistics of our selected dependent and independent variables in the form of overall and reporting styles. Where, TPages denote total number of pages and TWords denote total number of words in TCFD based reporting; E_value means enterprise value of firm; ROE denotes return on equity; DE Ratio means debt-equity ratio; E_risk indicates environmental risk; Beta denotes systematic risk and Institution

Table 2: Industry-wise descriptive statistics of TCFD based reporting

Variable	Obs	Mean	Std. Dev.	Min	Max
			Financials		
TWords	9	9602.56	9132.45	2487	29862
TPages	9	38.40	36.53	9.9	119.4
Energy					
TWords	3	23763.67	4878.33	19765	29199
TPages	3	95.07	19.50	79.1	116.8
			Health Care		
TWords	1	23576		23576	23576
TPages	1	94.30		94.3	94.3
			Real Estate		
TWords	6	13361.50	9692.08	2244	27438
TPages	6	53.47	38.78	9	109.8
			Materials		
TWords	4	16554.25	18419.07	2884	43114
TPages	4	66.23	73.71	11.5	172.5
			Transportation		
TWords	6	11157.17	12020.47	962	28284
TPages	6	44.60	48.08	3.8	113.1
			Communication Services		
TWords	1	39387		39387	39387
TPages	1	157.70		157.7	157.7
			Industrials		
TWords	1	21457		21457	21457
TPages	1	85.8		85.8	85.8

indicates institutional ownership. Std.dev, min and max denote standard deviation, minimum and maximum, respectively.

Table 2 reports the sector-wise distribution of firms supporting TCFD disclosures. The distribution in Table 2 shows that the highest (09) number of companies who had already adopted TCFD guidelines were in financial sector followed by six companies in both real estate (06) and transportation sector (06), three (03) companies in energy sector, four (04) companies in material sector and one (01) in health care, communication services (01) and industrial sector (01). Although financial sector shows highest number of companies, reporting variation is remarkably high ranging between 9.9 and 119.9 pages; between 2487 and 29862 words. Then real estate shows the second highest number of adoption (six companies) but extent of disclosures also varies from company to company showing number of pages between 9 and 109.8. The same kind of picture is found in the material sector as well. Although only three companies adopted TCFD in energy sector, variation in such disclosures in this sector is relatively low showing lowest standard deviation, whereas material sector shows the highest variation having highest standard deviation in such disclosure ranging from 11.05 pages to 172.05 pages and from 2,884 words to 43,114 words. The rising trend of companies supporting TCFD reporting framework with financial sector as the highest complying sector are consistent with Demaria and Regot (2018).

Table 2 demonstrates sector-wise TCFD based disclosures where 31 companies are distributed under 8 participating sectors. Std.dev, min and max denote standard deviation, minimum and maximum, respectively.

Determinants of TCFD Reporting Framework

We had used multiple correlations to identify the factors accelerating the TCFD based disclosures. We did not include sector as an independent variable because number of companies under each sector are very limited and the number of dummy variables that would be created would not be meaningful. In Table 3, Panel-A reports correlations of independent variables with first dependent variable: total number of words (TWords) and Panel-B reports correlation of the same with second dependent variable: total number of pages (TPages). In correlation analysis, we did not find any statistically significant correlation among dependent and traditional independent variables such as E_value, ROE, DE_Ratio, E_risk and so on except two dummy variables relating to reporting style RST1 for separate reporting and RST2 for integrated reporting. RST1 shows positive correlation with each dependent variable whereas RST2 shows negative relationship with the same.

Table 3: Correlation matrix among selected variables

	TWords	TPages	E_value	ROE	DE_Ratio	E_risk	Beta	Institution	RST1	RST2
TWords	1									
TPages	1*	1								
E_value	-0.0069	-0.0071	1							
ROE	0.0678	0.0680	0.1461	1						
DE_Ratio	-0.0783	-0.0784	-0.1298	-0.8225	1					
E_risk	0.3017	0.3018	0.0558	0.0400	-0.1060	1				
Beta	-0.0046	-0.0049	-0.0061	-0.3024	0.073	-0.3044	1			
Institution	0.0815	0.0815	-0.3056	-0.0216	-0.0918	0.1364	-0.0888	1		
RST1	0.5992*	0.5992*	0.0696	0.1738	-0.1839	0.3093	0.1266	0.0537	1	
RST2	-0.5992*	-0.5992*	-0.0696	-0.1738	0.1839	-0.3093	-0.1266	-0.0537	-1	1

Table 3 reports correlation matrix between dependent and independent variables; (*) denotes correlation coefficient at 5% level of significance. RST1 and RST2 are two dummy variables of reporting style -'separate reporting' and 'integrated reporting', respectively.

Multiple correlation analysis detected that there was a perfect positive correlation between two dependent variables TWords and TPages and the value was one. So, in regression analysis, we had used only TWords as response variable. On the other hand, as we did not find any significant positive or negative correlation between dependent and theoretically proved independent variables, only dummy variables relating to reporting style - RST1 and RST2 were included in regression analysis. Model-1 was estimated without robust standard errors and Model-2 was estimated with robust standard errors. In Panel-A, RST2 was used as a reference category, while in Panel-B, RST1 was used as a reference category.

Table 4: Regression Estimates

	Model-1 [a]	*Model-2 [b]*
	Panel-A	
RST1	15437.25	15437.25
	4.03(0.000)	6.13(0.000)
Cons	3736.89	3736.89
	1.16(0.256)	5.81(0.000)
R^2	0.3591	0.3591
Prob>F	0.0004	0.0000
	Panel-B	
RST2	-15437.25	-15437.25
	-4.03(0.000)	- 6.13(0.000)
Cons	19174.14	19174.14
	9.29(0.000)	7.87(0.000)
R^2	0.3591	0.3591
Prob>F	0.0004	0.0000

Table 4 reports estimates of regression analysis. RST1 and RST2 are two dummy variables. 'a' symbolises regression model without robust standard errors, whereas 'b' symbolises regression model with robust standard errors. Cons refer to constant.

Model 1, Panel A reports that the coefficient of RST1 is 15437.25, t-value is 4.03 and p-value is 0.000 which is statistically significant at 1% level.

That is, if a company follows separate reporting strategy, on an average, this company discloses 15437.25 (approx.) words more than those following integrated TCFD reporting. Exactly the vice versa is found in Panel B. R^2 suggests that given variable could explain 35.91% variation in TCFD reporting and the resulting probability value of this model is 0.0004 which is statistically sound. In Model 2 where robust standard errors are considered, the same result is found with a better significance level.

CONCLUSION

This study investigated and documented the extent of adopting TCFD based reporting disclosures with 31 ASX listed companies from June 2017 to December 2020 along with their determinants. After intensive content analysis, it was clearly evidenced that very limited number of companies were reporting TCFD recommended climate related financial risk disclosures and that there existed huge variation in the quantity of disclosures even in the same sector. Moreover, we didn't find any statistically significant theoretically proved determinants behind such disclosures except the reporting strategy, that is, the reporting intention of the corporations such as integrated reporting and separate reporting. The overall findings of this study claimed that the motivation behind such disclosure was to a greater extent voluntary and depended on the intention of supporting companies. 70% of the supporting companies followed separate reporting strategy and disclosed significantly more climate related risks than their counterpart. In terms of number, financial sector supported the framework more followed by real estate, transportation, materials and energy, respectively. The findings of this study will help the policy makers and practitioners in formulating and incorporating incentives for corporate entities to adopt the TCFD framework.

This study has pioneered a gateway to investigate why very limited numbers of ASX listed companies were adopting TCFD based disclosures. Future studies through deeper analysis may explore the factors contributing to specific disclosure in specific industry sectors. This study acknowledges its limitations of failing to address this issue due to small sample size.

Notes

1. https://www.fsb-tcfd.org/publications/

2. https://www.fsb-tcfd.org/publications/

3. Mark Carney, UN Special Envoy on Climate Action and Finance, Governor of the Bank of England, December 2019.

4. h t t p s : / / w w w . f s b - t c f d . o r g / w p - c o n t e n t / u p l o a d s / 2 0 2 0 / 0 3 / TCFD_Booklet_FNL_Digital_March-2020.pdf

5. Mary Schapiro, Special Advisor to the TCFD Chair and Vice Chair for Global Public Policy at Bloomberg LP, June 2019.

6. https://www.tcfdhub.org/

7. https://www.fsb-tcfd.org/support-tcfd/

8. https://www.fsb-tcfd.org/tcfd-supporters/

9. h t t p s : / / w w w . a a s b . g o v . a u / a d m i n / f i l e / c o n t e n t 1 0 2 / c 3 / AASB_AUASBJointBulletin.pdf

10. h t t p s : / / w w w . f s b - t c f d . o r g / w p - c o n t e n t / u p l o a d s / 2 0 2 0 / 0 3 / TCFD_Booklet_FNL_Digital_March-2020.pdf

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Appendix

List of the ASX listed Reporting Entities

SLN	Name of the ASX listed Reporting Entities (Trading Code)	SLN	Name of the ASX listed Reporting Entities
1	AGL Energy (AGL)	17	NAB (NAB)
2	Ampol Ltd (ALD), Caltex	18	Newcrest (NCM)
3	ANSELL Ltd (ANN)	19	Origin (ORG)
4	ANZ (ANZ)	20	Qantas (QAN)
5	APA Group (APA)	21	QBE ()
6	ASX (ASX)	22	Stockland (SGP)
7	Aurizon Holdings (ARJ)	23	Suncorp (SUN)
8	Australian Ethical Inv (AEF)	24	Sydney Airport (SYD)
9	BHP (BHP)	25	Telstra (TLS)
10	Brambles (BXB)	26	Transurban (TLC)
11	Coles_Group (COL)	27	WBC (WBC)
12	Cromwell (CMW)	28	Wesfarmer (WES)
13	Dexus (DXS)	29	Woolworth (WOW)
14	IAG (IAG)	30	Worley (WOR)
15	Lynas (LYC)	31	Mirvac (MGR)
16	Macquarie Group (MQG)		