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Market Giants vs. Dwarfs: New Zealand's Perspective on Environmental Reporting

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Abstract: This paper examines New Zealand listed firms' compliance with Global Reporting Initiative-environmental reporting standards (GRI 300) and the impact of environmental reporting determinants on the level of sustainability reporting. The author collected data from annual and sustainability reports of the top and bottom 30 firms listed on the New Zealand Stock Exchange (NZX). The author then conducted content analysis to measure the extent of each firm's environmental reporting score. The study findings indicate that large firms report only one-thirds of the relevant information, whereas small firms neither adopt international reporting frameworks nor report on the environment. Additionally, we found that firm size and profitability are positively associated with the extent of environmental reporting in New Zealand, whereas industry-specific differences play a minor role. This study further finds that firms, which explicitly referred to the "Global Reporting Initiatives" or "GRI" terms in their annual or sustainability reports, outperformed in environmental reporting compared with those that did not. This study uses GRI 300 standards to assess the level of environmental reporting of each firm. Finally, the study compares environmental reporting practices between top and bottom-listed firms in New Zealand. The findings emphasize the desirability of making the environment reporting mandatory in all companies to ensure the New Zealand Government's latest enforcement of climate risk reporting.

Keywords: environmental reporting, determinants, global reporting initiative, New Zealand.

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INTRODUCTION

Climate change has become a buzzword worldwide with evidence of the rise of the planet's temperature, sea-level rise, declining Arctic Sea ice, and extreme weather conditions. However, while human activities are certainly accountable for it (Nuccitelli, 2020), businesses are also liable (van Halderen et al., 2016). As a result, on the pressure from multiple stakeholders groups, businesses started reporting how their actions impact the environment (Brammer & Pavelin, 2006), discharging their social obligations to show their commitments to a sustainable approach. Companies have been adopting various internationally accepted approaches such as Integrated Reporting (IR), Sustainability Reporting with Global Reporting Initiative (GRI), Environment, Social, and Governance (ESG) to measure and report environmental problems. Researchers are also increasingly

focusing on environmental impacts and voluntary reporting on environmental problems in the academic press.

New Zealand's large businesses have an inadequate understanding of how their actions impact climate change (Beehive, 2020); thus, the majority of large businesses provide no or limited information inconsistently[1]. As a result, in 2020, New Zealand has taken the initiative to enforce mandatory reporting on climate risk for the first time in world history. The bill requires approximately 200 of the country's largest companies, including foreign companies with more than NZ$1bn, to report environmental impact (Beehive, 2020). The financial sector will be the first industry to implement this initiative, and it is expected to be effective from 2023 at the earliest. However, the New Zealand government's initiative is silent about smaller firms. This contradicts the "survival of the fittest" theory that originated in the 19th century by Charles Darwin related to the survival and extinction of biological species. Darwin's "survival of the fittest" did not mean the toughest will survive, but the organism that best fits its environment has the best chance of survival (Thomas, 2002). Accordingly, this indicates that regardless of the size, the companies that fit in with the changes in the environment could survive (Gimeno et al., 1997). With this perspective, we argue that environmental reporting has to be applied not only to larger firms but also to smaller firms to make sure their survival.

Previous research provided mixed evidence on the impact of firm size on environment reporting. Compared to smaller firms, some studies found that large firms make their companies more visible to society to gain public trust and address competition (Cormier & Magnan, 1999). In contrast, others found no or unstable association between firm size and environmental reporting (Gray et al., 2001; Hartikayanti et al., 2016). Despite the mixed evidence, we found a lack of studies using the GRI 300 series introduced in 2018 in assessing environmental reporting. In particular, no study was found comparing the environmental reporting practices between larger and smaller firms in New Zealand. Addressing this gap in the literature, we compare the environmental reporting of top 30 listed companies with those of bottom listed companies to examine; (RQ1) the compliance to the Global Reporting Initiative-environmental reporting standard (GRI-300) and (RQ2) the impact of determinants of environmental reporting on the level of reporting in New Zealand.

Findings indicate that large firms report only one-third of information, while small firms neither adopt international reporting frameworks nor report on the environment. In addition, we found that firm size and profitability are positively associated with the extent of environmental reporting in New Zealand, while industry-specific difference plays a minor role. This study further finds that firms who explicitly referred to the "Global Reporting Initiatives" and/or "GRI" terms in their annual reports or sustainability reports outperformed in environmental reporting compared to those who did not.

The contribution of our study is three folds. First, the study provides empirical evidence to validate the newly developed GRI-300 environmental reporting standards series. Second, the study provides empirical evidence on the extent to which larger firms' environment reporting practices are different from that of smaller firms in New Zealand. Thus, it provides new insight to New Zealand environment policymakers by proposing environmental reporting to all the Financial Market Conduct (FMC) reporting entities.

METHODS

New Zealand is the first country to mandate environmental reporting. Therefore, we selected New Zealand listed companies as our sample for the study. Previous studies have identified that the companies provide their

1 https://www.mbie.govt.nz/business-and-employment/business/regulating-entities/mandatory-climate-related-disclosures

environmental information through multiple channels such as annual reports, stand-alone sustainability reports, Internet-based reporting via the entities' websites and social media sites. However, following the approach used by Stent & Dowler (2015), we examined the annual reports and stand-alone sustainability reports (if available) to collect data. As of March 2019, 166 companies were listed on the New Zealand Stock Exchange (NZX). We selected the top and bottom 30 listed companies in NZX, and sorted upon market capitalization (Iredele, 2020). In our total sample, 15 companies produced a separate sustainability report, out of which 11 were in the top 30 companies. Data was collected from annual reports and sustainability reports from the year 2019. The year 2019 was selected due to two reasons. First, GRI300 was adopted in 2018; therefore, the use of 2019 provides closure evidence. Second, at the time of the data collection, annual reports and sustainability reports for 2020 have not been fully published due to the Covid-19 pandemic.

The dependent variable of this study is the extent of environmental reporting, and it is measured through the Environmental Reporting Score (ERS). The ERS score is calculated using the disclosure occurrence method. In this method, the number of disclosures in the annual reports or sustainability is counted rather than the volume of the disclosure for each item, such as the number of pages, sentences, words, etc. (Joseph & Taplin, 2011). We used the GRI-300 standard to examine the extent of disclosures of organizations in the sample. Each of the eight categories of GRI-300 has sub-topics, making up 56 items in total (cf. Table 2). Each of these 56 items in the GRI-300 index was compared with disclosures of 60 companies and assigned a score of 1 or 0. A score of 1 is given if the disclosure exists and 0 if no disclosure was found. The item scores of each company were then totalled to obtain the overall score. Thus, companies under this study would expect to receive a score ranging from 0 to 56, depending on their disclosed items. If we identify that any information item does not apply to any company, we ignore it in calculating the environmental score to avoid penalizing a company for non-applicable items. An environmental reporting score (ERS_{it}) was computed as follow, dividing the items disclosed by each firm by a maximum number of items in the GRI-300 (i.e., max 56):

$$ERS_{it} = \frac{\sum_{i=1}^{t} ERi}{Max\ Score} \times 100 \qquad (1)$$

ERS_{it} is the environmental reporting score of a firm i in year t, ER_i is the total number of items disclosed by a company, MaxScore is 56 for 56 items. The environmental reporting score shows as a percentage and is rounded to zero-decimal.

We used a non-weighted disclosure approach in which equal weights were given to different content elements (Allegrini & Greco, 2013). ERS was demonstrated as a percentage, where a zero (0) per cent indicates no environmental reporting in the corporate reports and one hundred were deemed fully reported in accordance with the GRI-300 requirements. A pilot test was conducted to maintain the reliability of scoring the environmental reporting. Two researchers were involved in scoring for six companies, three from the top and three from the bottom. Krippendorff (2004) alpha coefficient was calculated to assess the inter scorer agreement. The inter-scorer's reliability was high ($\alpha = 0.813$), which shows our GRI index's reproducibility to assess environmental reporting.

The independent variables in our study are determinants of environmental reporting: profitability, firm size, industry, and the companies mentioning "GRI" or not. ROA is measured via the firm's net income at the end of the year divided by total year-end assets (Welbeck et al., 2017). The firm size was measured as the logarithm of total assets and as the categorization of top and bottom 30 companies (Welbeck et al., 2017). A dummy variable is used to examine the impact of environmental reporting by the top and bottom companies. The New Zealand government's decision to make environmental reporting mandatory initially focuses on financial

sector companies (Beehive, 2020). Therefore, the companies' industry classification was based on a dummy variable: 0 = Banking, Finance and Investment and 1 = Other. There were 17 firms classified as banking, finance and investment category, while 43 firms belonged to other sectors such as manufacturing, energy, transport, healthcare, telecommunications. Additionally, we investigated whether there is any statistically significant difference between the two groups of companies mentioning "GRI" or not (Hewagama & Perera, 2020).

Statistical Model 1 was developed to examine the impact of the determinants mentioned above in the samples of top and bottom 30 companies separately;

Model 1 for top and bottom 30 companies:

$$ERS = \beta_0 + \beta_1 SIZE + \beta_2 IND + \beta_3 ROA + \beta_4 GRI + \varepsilon. \quad (2)$$

Model 2 employed for the full sample (n=60):

$$ERS = \beta_0 + \beta_1 SIZE + \beta_2 IND + \beta_3 ROA + \beta_4 GRI + \beta_5 T\&B + \varepsilon. \quad (3)$$

"ERS" is the dependent variable; environment reporting score (ERS_{it}), β_0 is the ERS-intercept $\beta_1 \ldots \beta_4$: are the parameter estimates (the slope coefficient) for each independent variable, "SIZE" is the firm size (log-transformed), "IND" is industry type, "ROA" is the return on assets, "GRI" denotes for the mentioning of GRI in the annual reports or sustainability, and "T&B" is the classification of top and bottom companies where "1" for top companies and "0" for bottom companies. ε: is the residual term of the model.

RESULTS AND DISCUSSION

First, we focus on examining the extent of environmental reporting by the top and the bottom listed companies (RQ1). According to descriptive statistics in Table 1, environmental reporting of the top 30 companies shows that the ERS is varied between the two groups, ranging between 0 and 64%. The average ERS of the top 30 companies is 34%, which means that New Zealand's large entities do not report nearly two-thirds of the environmental information. Nearly 50% of large companies' environmental reporting is below average, and three companies' reporting is below 10%. In terms of the bottom 30 companies, the average ERS reporting is less than 1%. Only four of the bottom 30 companies report 1%-5% of the information, while 26 companies are not recording any information on the environment as per GRI.

Table 1 Distribution of ERSs

ERS range	Top 30 companies	Bottom 30 companies
0%	2	26
1% - 5%	0	4
6% - 10%	1	0
11% - 20%	6	0
21% - 30%	4	0
31% - 40%	4	0
41% - 50%	4	0
51% - 60%	8	0
60<	1	0
Total	30	30
Average	34%	0.04%

Table 2 presents the detailed comparison of environmental reporting between the top and bottom 30 New Zealand listed companies and the difference in ERS for each information item. Among the top 30 companies, environmental compliance is the minimum reported category (14%), whereas emission is the highest reported category (59%). However, the highest reported information item is Direct (Scope 1) GHG emissions (305-1-72%), whereas the minimum is Emissions of ozone-depleting substances (ODS) (305-6), which is 0%.

Table 2 The extent of ERS between top and bottom 30 New Zealand companies

GRI Standard	Disclosure	Top 30		Bottom 30	
		n	%	n	%*
Materials			21%		2%
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	7	24%	1	5%
	103-2 The management approach and its components	11	38%	1	5%
	103-3 Evaluation of the management approach	7	24%	0	0%
GRI 301: Materials 2016	301-1 Materials used by weight or volume	4	14%	0	0%
	301-2 Recycled input materials used	5	17%	0	0%
	301-3 Reclaimed products and their packaging materials	2	7%	0	0%
Energy			36%		0%
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	18	62%	0	0%
	103-2 The management approach and its components	20	69%	0	0%
	103-3 Evaluation of the management approach	18	62%	0	0%
GRI 302: Energy 2016	302-1 Energy consumption within the organization	8	28%	0	0%
	302-2 Energy consumption outside of the organization	0	0%	0	0%
	302-3 Energy intensity	7	24%	0	0%
	302-4 Reduction of energy consumption	10	34%	0	0%
	302-5 Reductions in energy requirements of products and services	3	10%	0	0%
Water			25%		0%
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	10	34%	0	0%
	103-2 The management approach and its components	12	41%	0	0%
	103-3 Evaluation of the management approach	11	38%	0	0%
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	10	34%	0	0%
	303-2 Management of water discharge-related impacts	4	14%	0	0%
	303-3 Water withdrawal	1	3%	0	0%
	303-4 Water discharge	1	3%	0	0%
	303-5 Water consumption	9	31%	0	0%
Biodiversity			30%		0%
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	12	41%	0	0%
	103-2 The management approach and its components	15	52%	0	0%
	103-3 Evaluation of the management approach	10	34%	0	0%

GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	8	28%	0	0%
	304-2 Significant impacts of activities, products, and services on biodiversity	7	24%	0	0%
	304-3 Habitats protected or restored	8	28%	0	0%
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	1	3%	0	0%
Emissions			59%		1%
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	27	93%	1	5%
	103-2 The management approach and its components	27	93%	1	5%
	103-3 Evaluation of the management approach	26	90%	1	5%
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	21	72%	0	0%
	305-2 Energy indirect (Scope 2) GHG emissions	20	69%	0	0%
	305-3 Other indirect (Scope 3) GHG emissions	14	48%	0	0%
	305-4 GHG emissions intensity	16	55%	0	0%
	305-5 Reduction of GHG emissions	19	66%	0	0%
	305-6 Emissions of ozone-depleting substances (ODS)	0	0%	0	0%
	305-7 Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	1	3%	0	0%
Effluents and Waste			41%		1%
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	16	55%	1	5%
	103-2 The management approach and its components	16	55%	1	5%
	103-3 Evaluation of the management approach	15	52%	0	0%
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	10	34%	0	0%
	306-2 Management of significant waste-related impacts	11	38%	0	0%
	306-3 Waste generated	6	21%	0	0%
	306-4 Waste diverted from disposal	14	48%	0	0%
	306-5 Waste directed to disposal	6	21%	0	0%
Environmental Compliance			14%		0%
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	5	17%	0	0%
	103-2 The management approach and its components	4	14%	0	0%
	103-3 Evaluation of the management approach	3	10%	0	0%
GRI 307: Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	4	14%	0	0%
Supplier Environmental Assessment			34%		1%
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	12	41%	0	0%
	103-2 The management approach and its components	15	52%	1	5%
	103-3 Evaluation of the management approach	11	38%	0	0%
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	4	14%	0	0%
	308-2 Negative environmental impacts in the supply chain and actions taken	7	24%	0	0%

*ERS is rounded to a Zero decimal place.

The correlation statistics revealed a statistically significant positive relationship between the ERS and the Top and bottom companies (T&B) for all three samples; total ($r = 0.760$, $p < 0.00$). This finding supported Hypothesis 1 (H_1) and suggested that the larger firms listed in NZX report more environmental information than smaller firms.

To answer our research question two (RQ2) about determinants of ERS, Table 3 shows the Pearson correlation between ERS and independent variables. The correlation statistics revealed a statistically significant positive relationship between the ERS and the firm size (SIZE) for all the three samples; total ($r = 0.749$, $p < 0.01$), top 30 ($r = 0.540$, $p < 0.01$), and bottom 30 ($r = 0.509$, $p < 0.02$). This finding supported Hypothesis 2 (H_2) and suggested that a firm with a large asset capacity could report better in terms of environmental information.

The relationship between ERS and ROA also shows a moderately positive relationship, meaning Hypothesis 3 (H_3) was supported [n= (60), $r = 0.286$, $p < 0.05$] in terms of the total sample. This indicates that stable and well-performing companies demonstrate a higher level of environmental awareness through reporting. However, according to the statistics in Table 3, there is no statistically significant association between ERS and ROA within the samples of the top 30 and bottom 30 companies.

Table 3 Correlation statistics of determinants of environmental reporting

	Environmental reporting score			Firm size			Return on assets			Industry		
	Total (n=60)	Top 30	Bottom 30	Total (n=60)	Top 30	Bottom 30	Total (n=60)	Top 30	Bottom 30	Total (n=60)	Top 30	Bottom 30
SIZE	.749**	.540**	.509**									
ROA	.286**	.223	.161	.505**	.295	.540**						
IND	.163	.149	.266	.029	.501**	.169	.131	.337*	.099			
GRI	.676**	.579**	.333*	.568**	.423*	.450	.200	.154	.088	.085	.005	.131
T&B	.760**	-	-	.795**	-	-	.341**	-	-	.111	-	-

** Significant at 1%, * Significant at 5%

Table 4 presents the distribution of sample companies in the banking and non-banking sectors concerning industry and environmental reporting practices. Descriptive statistics concerning industry classifications show that 28% (17/60) of the companies operated in banking and finance, while the rest of the 72% (43/60) operated in other industries in the total sample (n=60). Within the top 30 companies, 7 (average ERS of 29) companies in the banking and finance sector and bottom 30, it is 10 (average ERS of 0) companies (Table 4). The number of non-banking and finance companies in the top 30 is 23 (average ERS of 36), whereas, in the bottom 30, it is 20 (average ERS of 1). Table 3 correlation statistics points out that there is no statistically significant relationship in the ERS level among different industries in all the three samples [n=(60), $r = 0.163$, $p > 0.05$, n=(30t), $r = 0.149$, $p > 0.05$, n=(30b), $r = 0.266$, $p > 0.05$]. Findings failed to support Hypothesis 4 (H_4), which suggests that environmental reporting levels are not industry-specific, meaning that both environment-sensitive and non-environmentally sensitive companies might or might not weigh up environmental factors as equally important as other aspects (i.e., financial, social).

Table 4 Distribution of sample companies between banking and finance and others

		Top 30	Bottom 30	Total
Companies operated in:	Banking and finance	7	10	17
	Non-banking and finance	23	20	43
Total		30	30	60

Table 5 presents how the sample companies explicitly mentioned the GRI in their reports. Within the total sample (n=60), 14 companies explicitly mentioned "GRI" in their reports, in which one company belonged to the bottom 30, and 13 belonged to the top tier (Table 5). Table 3 correlation statistics show a positive relationship between grouping variables (companies mentioned GRI or not) and ERS, suggesting a statistical difference in environmental reporting among firms that explicitly mentioned "GRI" in their report and firms that did not mention it in all three samples and the Hypothesis 5 (H_5) was supported in three samples [n=(60), r = 0.676, p < 0.01, n=(30t), r = 0.579, p < 0.01, and n=(30b), r = 0.333, p < 0.5]. The results indicate that if firms use the "Global Reporting Initiative" and/or "GRI" terms in their reporting, they would appear to outperform environmental reporting more than those who are not. Also, it is important to note a statistically significant relationship between firm size and the mentioning of GRI in their reports. It reveals that big firms are more towards adopting GRI than small firms.

Table 5 Distribution of sample companies based on reference to GRI in reporting

		Top 30	Bottom 30	Total
Reference to GRI:	Explicitly mentioned	13	1	14
	Explicitly not mentioned	17	29	46
Total		30	30	60
A separate sustainability report is produced		11	4	15

Robust to the above results, we performed an independent sample *t*-test to test the fourth Hypothesis by comparing the means of the two groups. Levene's test results are not significant (F = 0.294, p = 0.59); therefore, variances are equal across the two groups. The mean difference of 32.52 between the two groups was statistically significant (t = 5.95, P = 0.01), and Hypothesis 5 (H_5) was supported. This finding suggests that firms that explicitly mentioned GRI in their reporting had a significantly higher level of environmental reporting than their silent counterparts about GRI.

Finally, Table 6 depicts the regression results for three samples concerning environmental reporting determinants and ERS. Before performing our regression analysis, Pearson's correlation coefficient was first performed to test the satisfaction of the ordinary least square regression assumptions. The findings are shown in Table 3, and the values were smaller than 0.8. Thus, multicollinearity is not an issue in the regression (Hair et al., 2006). Multicollinearity issues can further be investigated by the variance inflation factor (VIF). As per Hair et al. (2006), as our VIF values (SIZE=2.127, ROA = 1.630, IND = 1.543, GRI = 1.482, T&B = 1.102) are less than 10, indicates that there is no multicollinearity. Also, we performed the Shapiro-Wilk test that reports a significance level above 5% (ERS; *P*=0.208, ROA; *P*=0.321, SIZE *P*=0.087); thus, data is normally distributed.

Table 6 Regression results for environmental reporting and its determinants

	Model results		
Variables	Model 2 [$ERS = \beta_0 + \beta_1 SIZE + \beta_2 IND + \beta_3 ROA + \beta_4 T\&B + \varepsilon.$]	Model 1 [$ERS = \beta_0 + \beta_1 SIZE + \beta_2 IND + \beta_3 ROA + \varepsilon.$]	
	Total sample (n=60) β (*p*)	Top companies (n=30) β (*p*)	Bottom companies (n=30) β (*p*)
SIZE	.271 (.048)	.737 (.000)	.514 (.031)
IND	.065 (.441)	.261 (.060)	.142 (.485)
ROA	.091 (.017)	.429 (.006)	.181 (.292)
GRI	.341 (.000)	-	-
T&B	.395 (.002)	-	-
R^2	.854	.806	.563
Adjusted R^2	.705	.594	.208
F	29.217 (.000)	11.603 (.000)	2.899 (.042)

ERS_{it} - environment reporting score, SIZE - firm size, IND - industry type, ROA - return on assets, GRI - mentioning GRI in the annual or sustainability reports, T&B - classification of top and bottom companies.

In model 2, we used the full sample, mentioning GRI (*P*=0.00), the firm magnitude in terms of firm size (*P*=0.01), profitability (*P*=0.02) and the top-bottom classification (*P*=0.02) are statistically significant in determining ERS levels in New Zealand listed entities. These results are supported by the correlation statistics discussed above in Table 3, and thus, we accept H_1, H_2, H_3 and H_5. However, industry type (IND) is not statistically significant in determining the overall ERS. Therefore, we fail to accept the H_4. The overall model is statistically significant with an adjusted R^2 of 0.705.

According to Model 1, the overall model and all the variables (SIZE, IND, ROA) are statistically significant concerning the sample of top 30 companies. In contrast, only firm size (SIZE) is significant in the bottom 30 companies. It is important to note that firm size (SIZE) is a positive and significant factor in determining ERS in both models. In contrast, the classification of industry (IND) or profitability (ROA) is not a significant factor. These findings comply with the correlation results we discussed above. Furthermore, compared to model 1, the overall model explanatory power increased in model 2 with environmental reporting variables such as reference with GRI and the top-bottom classification.

In terms of the top and bottom 30 companies' comparison, we found that New Zealand's top entities do not report nearly two-thirds of the environmental information, which indicates that there is still room to improve. This is worst in the bottom 30 companies, where the average reporting is less than 1%. A possible explanation for this is that the voluntary mechanism of reporting in New Zealand allows a "comply-or-explain" approach and provides less mandatory background. Consequently, New Zealand corporations have large wiggle room to select reporting standards for environmental issues (Dobbs & van Staden, 2016) and reluctantly increase the level of reporting solely to deal with investor pressure and consumer awareness (de Villiers & van Staden, 2012).

Determinants of environmental reporting have a significant association with the extent of environmental reporting in New Zealand. In particular to firm size, we found that larger firms adhere to the GRI300 series and

present a higher level of environmental elements in their reporting. Such findings are consistent with research conducted by Cormier & Magnan (2003) and Gao et al. (2005). Their findings suggest that larger firms have fewer difficulties in gathering and presenting environmental information despite the high cost of such information. Also, shareholders in larger firms may find themselves interested in corporate environmental matters and use this disclosure to communicate the results of corporate endeavours (Cowen et al., 1987).

We also found that firms with sound financial returns are more likely to report on the environment. This finding is consistent with Braam et al. (2016) and Lu & Abeysekera (2014); however, it contradicts Hackston & Milne (1996) and Rosati & Faria (2019). The improved financial performance, which possibly leads to more freedom, gives companies the flexibility to exhibit a greater propensity to disclose extensive environmental information (Braam et al., 2016). Supporting the positive relationship between profitability and environmental reporting, de Villiers & van Staden (2011) stated that firms with high profitability try to increase their public image and gain new investors by increasing the reporting level of environmental information. Therefore, better financial performance would give corporations more freedom and flexibility in selecting and reporting a relatively extensive amount of environmental information.

However, we revealed that industry-specific difference plays a minor role in environmental reporting in New Zealand. This indicates New Zealand maintain environmental awareness across industries. Indeed, the environmental-sensitive companies (i.e., energy, property development) have shared their higher-ranked position with their non-environmentally sensitive counterparts (i.e., banking and finance), who appear to have indirect impacts on the environmental performance in New Zealand. This finding surprises the New Zealand government's decision to make environmental reporting mandatory for financial companies (as the first sector) from 2023. Our result is consistent with previous research by Alnajjar (2000), wherein they found no clear disparity in environmental reporting quality among US Fortune 500 firms representing verities of industries.

Overall, the finding suggests that New Zealand organisations adhere to reluctant reporting rather than voluntary (de Villiers an&d van Staden, 2012). They provide limited information to manage the stakeholder pressure. However, organisations' economic sustainability mainly depends on to what extent the firm confronts the market pressure and social expectations (Borck & Coglianese, 2011). In other words, organisations that fail to adapt to changes in the environment and fail to meet new demands by providing what stakeholders expect may find themselves pushed out of business (Reinhardt et al., 2008). Survival of the fittest is not the top of the strongest; survival of the fittest is the most adaptable to changes. Thus, our study is supported by the survival of the fittest theory.

Our findings support new Zealand's initiatives to protect its environment by introducing the bill that would require businesses in the finance sector (banks, insurers, and fund managers) to report the risks related to its' environment externally. The bill requires approximately 200 of the country's largest companies to report environmental impact (Beehive, 2020). Also, we proposed applying the legislation to smaller entities and all corporations regardless of the industry type to enhance the environment reporting across New Zealand. For example, Saha et al. (2019) provide evidence that environmental reporting targets have a significant positive impact on environmental reporting quality disclosures in institutes other than listed entities.

CONCLUSION

This study examined the environmental reporting practices and the impact of determinants on the extent of reporting of New Zealand's top and bottom 30 listed companies. In conclusion, we found a difference in

environmental reporting by top and bottom 30 New Zealand listed companies. Nearly two-thirds of the environmental information is not reported by New Zealand's large entities within the scope of the GRI. Smaller listed entities report less than 1% of the information. Our correlation and regression statistics show a statistically significant difference in environmental reporting practices between the top and bottom listed companies in New Zealand. It shows that large and smaller classification is an important determinant in deciding the level of environmental reporting practices. Further, profitable firms and the firms that explicitly refer to the term "GRI" report more environmental information. Industry difference plays a minor role in reporting. The research has its limitations. First, the scope of our research is to examine the environmental reporting made in annual reports and sustainability reports by larger and smaller firms within the GRI framework. Therefore, the reader should not misunderstand our findings that the firms in the sample do not report any environmental information because companies might have published their environmental information in other sources such as corporate websites. Therefore, we suggest future research should broaden the scope of their research into other modes of information disclosures. Second, the sample size is 60, and the findings do not represent all listed firms in New Zealand. Future research may address this limitation by extending the sample size. Third, following GRI standards in New Zealand, we examined firm-specific characteristics existing and currently available in the corporate report. Finally, future research would be possible to conduct interviews with company management to understand what determinants support and constrain them from applying GRI standards.

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