

# Do socially preferred firms disclose more ESG information?

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## Abstract

**Purpose** – While research shows “sin” firms voluntarily disclose more social responsibility information, little research examines such practices in socially preferred industries. This study aims to address this gap by contrasting firm-level environmental, social and governance (ESG) information disclosure of New Zealand firms.

**Design/methodology/approach** – This study extracts all New Zealand listed companies for which Bloomberg provides ESG data from 2010 to 2023. Besides, this study excludes firms in financial service sector. The final sample contains 52 companies and 514 firm-year observations.

**Findings** – This study find that retirement village firms and the healthcare industry whose operations are commonly considered to be socially preferred, disclose less ESG information than firms in other industries. This result remains after a series of robustness tests, including alternative measures and matching samples. The addition of ESG provisions in the 2017 New Zealand Exchange’s (NZX) Corporate Governance Code, female and independent directors have a significantly positive moderating effect on ESG disclosure. In addition, retirement village firms with higher financial constraints increase ESG disclosure. Furthermore, this study finds that increased ESG disclosure enhances market valuation and reduces the cost of debt.

**Research limitations/implications** – A natural limitation of this research is its limited sample size, focusing on New Zealand firms, which may limit the generalisability of the findings to other regions with different regulatory and cultural contexts.

**Practical implications** – This research suggests that firms in socially preferred industries, like healthcare and retirement villages, may need stronger incentives or guidelines to improve ESG disclosure. Enhancing corporate governance, particularly through independent and female directors, could positively influence ESG transparency, guiding policy and board composition strategies.

**Social implications** – The research highlights a potential gap in ESG disclosure among industries. This suggests a need for greater public awareness and advocacy to ensure that even socially favoured sectors are held accountable for their environmental and social impacts, promoting broader corporate responsibility.

**Originality/value** – This study contributes to the literature by revealing that socially preferred industries, such as healthcare and retirement villages, may disclose less ESG information than other sectors. It provides novel insights into the role of corporate governance, particularly the influence of female and independent directors, in enhancing ESG transparency.

**Keywords** Corporate governance, Financial constraints, ESG disclosure, Socially preferred firms

**Paper type** Research paper

## 1. Introduction

Environmental, social and governance (ESG) factors have gained significant attention from investors, policymakers and society at large in recent ages. As the world faces pressing



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challenges such as climate change, social inequality and corporate accountability, there is a growing demand for greater transparency in ESG reporting by organisations across various sectors. ESG disclosure refers to the standardised, often quantifiable information that firms report to demonstrate their sustainability practices and non-financial risks, particularly in capital markets. Investors' growing emphasis on ESG disclosure stems from their desire to assess companies' long-term sustainability and evaluate them beyond conventional financial metrics (Tsang *et al.*, 2022).

We investigate the disclosure of ESG information in New Zealand which offers an intriguing context to explore firm-level disclosure behaviours. While New Zealand is renowned for its sustainable development initiatives and commitment to social responsibility, a KPMG global study shows only 27 out of the 100 highest-ranked NZX listed companies disclose information about their sustainable activities (Dobbs and Van Staden, 2016). However, recognising the growing relevance of ESG in corporate governance and investment contexts, the NZX updated its Corporate Governance Code in 2017 to incorporate ESG disclosure provisions. This updated Code aims to encourage firms to adopt a more comprehensive and responsible approach to their operations.

Recently, there has been a growing number of studies examining sin industries, sparking scholarly interest and curiosity about socially preferred industries (Babalola *et al.*, 2022). This paper contrasts the ESG disclosure behaviours in the retirement village sector, a socially preferred industry, with that of other industries. Retirement villages play a critical role in providing housing, healthcare and support services to the aging population, thereby contributing to the overall well-being of seniors. Owing to the personal and caregiving nature of their operations, these firms are widely perceived as contributing positively to societal welfare. Drawing on the literature on stakeholder theory and moral legitimacy (Carroll, 1991; Godfrey *et al.*, 2009), we refer to such sectors as socially preferred industries whose core missions are generally aligned with social good and welfare. In contrast, industries associated with products or services that are perceived as harmful – such as alcohol, tobacco, gambling, firearms and nuclear energy – are typically labelled as “sin” industries due to the negative externalities of their primary operations (Leventis *et al.*, 2013). Interestingly, previous studies find that firms in sin industries often engage in higher levels of ESG disclosure to offset public skepticism and improve legitimacy (Grougiou *et al.*, 2016; Sharma and Song, 2018). While the ESG disclosure strategies of sin industries have been studied extensively, much less is known about how firms in socially preferred industries behave in this regard. Do these firms continue to disclose ESG information to reinforce legitimacy, or do they disclose less because they already enjoy societal trust? This study seeks to address this underexplored question by focusing on the retirement village industry as a salient example of a socially preferred sector.

The legitimacy theory suggests that the continued existence of an organisation relies on its adherence to socially acceptable behaviour (Deegan, 2009). Under this theory, retirement village firms may disclose either high or low levels of ESG information. On the one hand, retirement village firms may use higher ESG disclosure as a strategy to strengthen their legitimacy by showing they are responsible to society, as well as improving their reputation and building trust with seniors (Leatherman and McCarthy, 1999). On the other hand, retirement village firm may disclose little ESG information for several reasons. First, they may face less pressure from the public as they already enjoy a good reputation (Grougiou *et al.*, 2016). Second, the sector is often benignly labelled in society due to the product and services they provide being socially beneficial. As such, the public may not be overly concerned about their ESG disclosure or undertaking corporate socially responsible initiatives. Third, and as a consequence of the first two points, retirement village firm may avoid disclosing ESG

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information, especially if there is less need for doing so in socially preferred industries, to avoid associated costs in this respect.

Using ESG disclosure score and financial data from Bloomberg, supplemented with annual reports information for NZX listed firms from 2010 to 2023, we find that firms in the retirement village industry disclose less ESG information. This is especially evident in the governance dimension compared to other industries. The result remains after conducting a series of robustness checks, and matched sample analysis. Changes to the NZX Corporate Governance Code in 2017 promoting ESG disclosure activities, has a significant positive moderating effect on ESG disclosure, while female and independent directors can improve ESG disclosure practices which aligns with existing literature (Yu and Van Luu, 2021). In addition, retirement village firms with higher financial constraints increase their ESG disclosure. Furthermore, we find that increased ESG disclosure enhances market valuation, and reduces the cost of debt. These findings highlight the critical role of ESG disclosure on the financial impact of such industries, even when they are already socially preferred.

This study adds new evidence to the literature that the extent of ESG disclosure varies by industry. First, ESG disclosure has become increasingly important as investors seek to assess firms' long-term sustainability (Tsang *et al.*, 2022). Literature suggests that "sin" firms release a higher level of ESG information compared to other companies to create legitimacy (Grougiou *et al.*, 2016; Sharma and Song, 2018). However, little research has explored ESG disclosure behaviours in socially preferred industries, such as the retirement sector. We show that in New Zealand, the retirement village industry discloses less ESG information than other industries. We find that socially preferred firms reduce the level of ESG disclosure as they have been socially recognised due to their unique industry features. Our result reminds investors and policy makers that firms from socially preferred industries not necessarily release more ESG information, but instead, they take advantages of their unique industry features when managing ESG disclosure.

Second, our results indicate that the regulatory environment of stock exchanges is particularly important in promoting ESG disclosure. Recognising the growing global significance of corporate sustainability, New Zealand Exchange updated its Corporate Governance Code (hereafter referred to as the Code) in 2017 to enhance ESG disclosure. The Code adopts a "comply or explain" framework where listed firms must either comply with a particular Code recommendation or explain why it has chosen not to adopt it. The Code positively moderates the level of ESG disclosure of retirement village firms, demonstrating that stock exchanges can play a role in incentivising ESG disclosure through policies.

Third, our findings contribute to the growing body of literature on the role of gender diversity and board independence in corporate sustainability and governance. It underscores the importance of diverse perspectives and independent voices in promoting ESG transparency and accountability within organisations.

The remaining sections of the paper are structured as follows: Section 2 provides a review of the pertinent literature, theory and hypotheses development. Section 3 presents details on the sample, variables and models used. Section 4 analyzes the empirical results, while Section 5 provides the further analysis. Finally, Section 6 concludes the paper.

## 2. Literature review and hypothesis development

### 2.1 New Zealand background

The demographic makeup in many countries is rapidly aging as both mortality and fertility rates fall, and New Zealand is no different. In 2022, 16% of New Zealand's population was 65 or older, which is expected to reach 28% over the next 50 years. Similarly, those aged 85 + accounted for 1.8% of the 2022 population and is expected to rise to over 6% by 2073 [1]. The rapid population ageing presents significant growth opportunities for the ageing industry.

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The concept of retirement villages (RVs), a collection of residential units that are purpose-built and provide residents with access to a variety of supplementary amenities [2], gained popularity in the USA during the 1950s and 1960s (McHugh and Larson-Keagy, 2005). Corporate-owned RVs commercialised the concept and subsequently spread throughout the Western world, including Australia in the 1980s and then into New Zealand (Lazonby, 2007). RVs have become an established feature of New Zealand's residential property landscape in recent decades, and the number of units continues to rise to meet increasing demand (Jones Lang Lasalle, 2017). By 2016, there were ~380 RVs with the largest proportion of units in Auckland (32%), followed by Canterbury and Wellington (12% each), and then the Bay of Plenty (11%) (Jones Lang Lasalle, 2017). It is widely believed that as New Zealand populations continue to age, more individuals will choose to reside in RVs (Jones Lang Lasalle, 2017).

## 2.2 ESG disclosure and legitimacy

ESG disclosure has become increasingly important as investors seek to evaluate companies beyond traditional financial metrics and assess their long-term sustainability (Tsang *et al.*, 2022). While wealth maximisation is the primary objective of firms, demonstrating social value maximisation has become increasingly important (Ji *et al.*, 2019). Driven by a rising interest in sustainable investments, demand for information on firms' ESG practices has been increasing (Amel-Zadeh and Serafeim, 2018; Dhaliwal *et al.*, 2011). Such disclosure is aimed at enhancing firms' image, improving public perception of their sustainability efforts and raising awareness about their contribution to social welfare. Moreover, recent studies indicate that companies can gain popularity in disclosing their sustainability practices to the public, which includes ESG aspects (Zhang *et al.*, 2021; Pham and Tran, 2020).

Legitimacy theory, commonly applied to corporate social responsibility (CSR) and ESG disclosure, suggests that organisations are constantly trying to ensure that they are recognised as operating within the "social contract" set by societal bonds and norms (Deegan, 2009). Firms must ensure the "social contract" terms are met to maintain their legitimacy through which it is allowed to continue to exist by society. Maintaining legitimacy is challenging as societal norms and expectations constantly evolve, creating "legitimacy gaps" between societal expectations and firm's objectives. Unexpected events, such as financial scandals or accidents, further exacerbate these gaps, creating "legitimacy threats" that harm reputation (Fernando and Lawrence, 2014). Facing a legitimacy gap, firms may seek to regain legitimacy by enhancing its corporate disclosure, as suggested by Rezaee (2016).

Socially and environmentally responsible firms and those facing stakeholder pressure may also disclose ESG information to maintain or build their legitimacy. For example, firms with a stronger focus on sustainability and stakeholder engagement (Cho and Patten, 2007), better social and environmental responsibility reputations (Mahadeo *et al.*, 2011) or facing greater pressure from stakeholders such as NGOs, activists and regulators (Patten, 2002; Cho *et al.*, 2015) are more likely to disclose more ESG information.

A further stream of literature suggests ESG disclosure is a potent legitimising tool, primarily because it invokes the concept of responsibility (Lokuwaduge and Heenetigala, 2017). For example, firms accused of aggressive tax activities provide more sustainability information (Lanis and Richardson, 2012), and such disclosure is greater in years when firms are prosecuted by the Australian Environmental Protection Agency (Deegan and Rankin, 1996). Consistent with "legitimacy threats", firms amplify their disclosures to counter the notion that they were not fulfilling their social responsibilities (Deegan and Rankin, 1996).

While firms facing unexpected threats to its credibility increase CSR and ESG disclosures, industries facing more systemic legitimacy issues are also likely to do so. Due to a firm's operating characteristics, societal groups may perceive the firm as belonging to a socially discredited

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category (Grougiou *et al.*, 2016). For example, alcohol, tobacco, sex, gambling, nuclear energy and firearms industries are commonly labeled as “sin” industries. To create a perception of being a normal and mainstream organisation, Grougiou *et al.* (2016) and Sharma and Song (2018) demonstrate that “sin” firms show a higher level of ESG reporting compared to non-controversial companies. Companies in the alcohol, tobacco and gambling industries face criticism due to their products and services addictive nature and detrimental social consequences (Galvin *et al.*, 2004; Hudson, 2008; Vergne, 2012). As such, “sin” firms face “negative headline risk” and are widely scrutinised by the public leading to ongoing value judgements. Therefore “sin” firms initiate ESG disclosures as a defensive mechanism to mitigate the effects of negative evaluations of their activities and maintain a lower level of social disapproval (Vergne, 2012). Additionally, such industries often face stringent regulations which may require more ESG information to demonstrate compliance and address stakeholders’ concerns.

### 2.3 Hypotheses development

In contrast to “sin” industries, socially preferred industries such as renewable energy, education and healthcare often enjoy positive reputations. Furthermore, the reputation of healthcare firms plays a critical role in fostering patients’ trust and serves as a basis for advancements and enhancements within the industry (Leatherman and McCarthy, 1999). Consequently, healthcare companies are motivated to augment the information provided in their disclosures to reinforce their reputation and build trust with patients. Examining Fortune 500 firms in 2011, Giannarakis (2014) finds healthcare firms tend to provide more comprehensive information about their sustainability initiatives, possibly to demonstrate that profit maximisation is not their sole purpose. As a segment of the healthcare industry, RVs belong to the socially preferred industry category. Retirement villages play critical roles in housing provision, healthcare and services to the aging population, thereby contributing to the well-being of seniors. As such, RV firms may seek to maintain their legitimacy by showing they are not purely focused on profiting from the market they serve, which leads to our first hypothesis:

*H1a.* Firms in the retirement village industry disclose more ESG information.

Compared with the “sin” industry, firms in socially preferred industries may face less pressure to disclose extensive ESG information if the public assumes their operations already meet societal expectations (Grougiou *et al.*, 2016). While there are benefits to making ESG disclosures [3], there are associated costs and risks. Such disclosure activities can result in significant proprietary costs (Cao *et al.*, 2018), especially for the environmental dimension (Lin and Mills, 2001), and facing limited resources, firms will engage in voluntary disclosures when the benefits outweigh the related costs. ESG disclosures may increase firms’ vulnerability to litigation, especially if stakeholders perceive the information to be misleading or false (Henriques, 2022). Therefore, to avoid unnecessary risks and costs, firms in socially preferred industries may restrict their ESG disclosures because they tend to have less need to maintain their legitimacy by ESG disclosures. Based on this reasoning, *H1b* is as follows:

*H1b.* Firms in retirement village industry disclose less ESG information.

## 3. Empirical research design

### 3.1 Data and sample

The ESG data and company financial data are obtained from Bloomberg. We populate any missing company financial data from the Refinitiv Datastream database, or directly from annual reports located in the NZX Company Research Database. We extract all New Zealand

listed companies for which Bloomberg provides ESG data from 2010 to 2023. After excluding firms in financial service sector, the final sample contains 52 companies with 514 company annual observations [4]. All the continuous variables are winsorised at 1 and 99 percentiles to address the effects of extreme values.

### 3.2 Variable construction

**3.2.1 Dependent variables: ESG disclosure scores.** As our research primarily focuses on ESG disclosure, we use Bloomberg ESG scores as measures of a firm's ESG disclosure. The scores are based on data collected from annual reports, sustainability reports, third-party research, direct contact, press releases and media news (Huang *et al.*, 2022). We use the Bloomberg ESG disclosure information instead of other commonly used sources such as ASSET4 or KLD, as we are interested in the level of disclosure provided by each firm, rather than ESG performance scores or ratings.

The overall ESG disclosure score (*ESG*), as well as the three separate disclosure scores for the environmental (*E*), social (*S*) and governance (*G*) component scores are used as dependent variables. Bloomberg scores are based on how much information the company discloses about ESG issues [5]. The scores range from 0 to 100, with 0 meaning the company does not have any ESG disclosure, while a score of 100 implies that the company has disclosed every data point. The overall ESG disclosure score is calculated based on an equal weighting of the three components. It is widely acknowledged that disclosure scores typically do not follow a distribution-free pattern (McCabe, 1989). Additionally, they often exhibit high kurtosis and skewness, indicating non-normality (Tsalavoutas, 2011) and are sensitive to the presence of outliers (Hail, 2002). Therefore, we use the natural logarithm of one plus the ESG scores in this research (Li *et al.*, 2022).

**3.2.2 Independent variable: retirement village dummy.** The main purpose of this study is to examine whether firms in the retirement village industry differ from firms in other sectors in terms of their ESG disclosure behaviours. Therefore, we construct the dummy variable *Retire* that equals one if the company belongs to the retirement village industry, otherwise it is zero.

**3.2.3 Control variables.** We include control variables that may potentially influence corporate ESG disclosure. In line with Deegan (2002) and Dhaliwal *et al.* (2012), we include firm age (*Age*) and size (*Size*) as larger and more mature firms typically disclose more about ESG practices. In addition, financial variables including *Tobin's Q*, return on assets (*ROA*), growth rate of sales revenue (*Grow*), tangible assets (*Tangi*) and financial leverage (*Lev*) are also included as controls. Internal and external governance factors are also included as numerous researchers reveal that governance mechanisms influence ESG disclosure. For instance, positive relationships are revealed between proportion of independent directors and sustainability disclosure (Cuadrado-Ballesteros *et al.*, 2015), and both board size and gender diversity with ESG disclosure quantity (Tamimi and Sebastianelli, 2017). Solomon and Solomon (2006) report institutional investors and analysts pay increasing attention to ESG information resulting in a growing demand for sustainability reporting. As such, board size (*Board*), independent director (*Indep*), female director (*Female*), institutional director (*InsInvestor*) and analyst ratings (*Ar*) are controlled in our regression.

**3.2.4 Regression model.** To examine the association between the retirement village industry and ESG disclosure in New Zealand, we use the following baseline empirical model. To estimate this model, we use ordinary least squares (OLS) regression:

$$ESG\ Measure_{i,t} = \beta_0 + \beta_1 \times Retire_{i,t} + \beta_2 \times Controls_{i,t} + \sum Industry + \sum Year + \mu_{i,t}$$

where  $ESG\ Measure_{i,t}$  which represents ESG disclosure including,  $ESG_{i,t}$  which is the natural logarithmic of one plus the Bloomberg ESG scores of firms  $i$  in year  $t$ . As well as the natural logarithmic of one plus the Bloomberg individual component scores of environmental ( $E_{i,t}$ ), social ( $S_{i,t}$ ) and governance ( $G_{i,t}$ ).  $Retire_{i,t}$  is a dummy variable if firms belong to the retirement village industry, and zero otherwise.  $Controls_{i,t}$  represents the control variables described in the previous section. We include industry and year fixed effects. The standard errors are clustered at the industry level. Detailed descriptions of the variables are in [Appendix 1](#).

## 4. Empirical results

### 4.1 Sample distribution

[Table 1](#) summarises the annual distribution and mean scores for ESG and its three components (Environmental, Social and Governance) from 2010 to 2023, covering 514 firm-year observations. Over the period, the mean ESG score rose from 31.795 in 2010 to 41.636 in 2023, reflecting improved disclosure practices. The environmental and social scores show significant growth, with environmental increasing from 8.545 in 2010 to 23.679 in 2023 and social rising from 13.759 to 29.830 during the same period. In contrast, the governance scores remain relatively stable, starting at 72.927 in 2010 and fluctuating only slightly, averaging around 70 in recent years. These trends highlight a stronger focus on environmental and social disclosures over time, aligning with potential increasing stakeholder and regulatory demands. The stability of governance scores suggest that governance practices may already be well-established in the sample firms during the sample period. This distribution underscores the evolving priorities within ESG dimensions, with significant progress in the environmental and social areas.

**Table 1.** Sample distribution by year

Year	N	ESG Mean	E Mean	S Mean	G Mean
2010	14	31.795	8.545	13.759	72.927
2011	16	29.058	7.498	11.589	67.943
2012	17	29.366	7.465	11.633	68.851
2013	20	30.009	6.172	12.310	70.086
2014	28	28.387	5.178	12.307	65.675
2015	43	30.031	5.220	15.921	67.786
2016	42	30.673	6.853	17.630	66.773
2017	44	32.295	9.053	19.497	68.447
2018	47	32.715	10.109	21.026	67.719
2019	50	34.269	11.010	22.343	69.734
2020	48	34.772	11.532	22.452	70.525
2021	47	36.179	13.831	24.282	70.685
2022	51	40.457	21.763	27.910	71.582
2023	47	41.636	23.679	29.830	71.291
Total	514	33.941	11.668	20.621	69.316

**Note(s):** This table presents the mean value of original ESG disclosure score and its three separate components by year

**Source(s):** Authors' own work

#### 4.2 Descriptive statistics of variables

**Table 2** reports the summary statistics for the variables of the baseline regression. The mean (median) ESG scores is 33.941 (32.431). Considering that these scores are rated on a scale of 0–100, the aggregate ESG disclosure levels of the firms is not particularly high. This low aggregate ESG score through is driven by low environmental disclosure scores (mean of 11.668), and social disclosures (mean of 20.621). In contrast, governance disclosure has a mean value of 69.316. The finding of comparatively low environmental and social scores is consistent with [Baldini et al. \(2018\)](#). Notably, all four dependent variables demonstrate variation with environmental (*E*) exhibiting the highest variability, with a standard deviation of 14.151.

The Pearson correlation coefficient matrix is presented in [Appendix 2](#) for all baseline regression variables. There is a statistically significant negative correlation of  $-0.153$  ( $p < 0.01$ ) between *ESG* and *Retire*. With the exception of the correlation between *Size* and *Board*, none of the variables exhibit a correlation coefficient exceeding 0.4 in absolute magnitude which alleviates concerns regarding multicollinearity.

**Table 3** compares the mean differences in control variables between retirement village firms (Group A) and others (Group B). Except for *ROA*, all other control variables show significant differences between the two groups. In general retirement village firms are larger,

**Table 2.** Summary statistics

Variables	<i>N</i>	Mean	Median	SD	Min.	Max.
<i>ESG</i>	514	33.941	32.431	10.441	9.285	69.671
<i>E</i>	514	11.668	5.165	14.151	0	67.019
<i>S</i>	514	20.621	18.516	11.627	0	64.661
<i>G</i>	514	69.316	72.125	11.680	27.785	94.311
<i>Retire</i>	514	0.080	0	0.271	0	1
<i>2017D</i>	514	0.650	1	0.477	0	1
<i>Tobin's Q</i>	514	1.519	1.187	0.951	0.743	6.850
<i>ROA</i>	514	0.047	0.048	0.064	-0.209	0.232
<i>Tangi</i>	514	0.835	0.935	0.214	0.222	1
<i>Grow</i>	514	0.063	0.055	0.164	-0.480	0.725
<i>Lev</i>	514	0.242	0.238	0.127	0	0.590
<i>Size</i>	514	7.483	7.564	1.189	3.509	9.841
<i>Age</i>	514	2.709	2.89	0.837	0	4.605
<i>Board</i>	514	1.911	1.946	0.193	1.099	2.565
<i>Female</i>	514	0.261	0.250	0.147	0	0.714
<i>Indep</i>	514	0.768	0.800	0.196	0.182	1
<i>InsInvestor</i>	514	0.432	0.422	0.227	0.011	0.959
<i>Ar</i>	514	3.443	3.444	0.826	1	5
<i>SA</i>	514	-3.155	-3.217	0.164	-3.323	-2.128

**Note(s):** This table reports summary statistics for the ESG disclosure measures and control variables used in this study. The total ESG disclosure scores (*ESG*), and three separate dimension scores (*E*, *S* and *G*) obtained are original scores by Bloomberg database. Control variables includes Tobin's *Q* (ratio of market capitalisation plus liabilities to total assets), *ROA* (return on assets), *Tangi* (the ratio of tangible asset to total asset), *Grow* (growth rate of sales revenue), *Lev* (debt to assets, leverage ratio), *Size* (logarithm of total assets), *Age* (logarithm of the listing year), *Board* (logarithm of the number of directors), *Female* (the ratio of female directors to directors), *Indep* (the ratio of independent directors to directors), *InsInvestor* (institutional investors' shareholding), *Ar* (analyst ratings) and *SA* (financial constraints). All continuous variables are winsorised at the 1% and 99% levels. The sample includes 52 firms from 2010 to 2023. The summary statistics of each variable include the number of observations, mean, median, standard deviation, minimum and maximum

**Source(s):** Authors' own work

**Table 3.** *t*-tests

Variables	N	Group A		Group B		Diff	<i>t</i> -stat
		Mean	N	Mean	N		
<i>Tobin's Q</i>	41	1.204	473	1.547	473	0.343**	1.704
<i>ROA</i>	41	0.058	473	0.047	473	-0.011	-1.148
<i>Tangi</i>	41	0.991	473	0.822	473	-0.169***	-4.410
<i>Grow</i>	41	0.114	473	0.059	473	-0.056**	-2.669
<i>Lev</i>	41	0.147	473	0.250	473	0.103***	5.071
<i>Size</i>	41	7.934	473	7.444	473	-0.491**	-1.847
<i>Age</i>	41	2.337	473	2.741	473	0.404***	-0.655
<i>Board</i>	41	1.847	473	1.916	473	0.070**	2.344
<i>Female</i>	41	0.342	473	0.254	473	-0.089***	-3.667
<i>Indep</i>	41	0.839	473	0.762	473	-0.077**	-1.751
<i>InsInvestor</i>	41	0.344	473	0.440	473	0.096***	2.897
<i>Ar</i>	41	3.880	473	3.405	473	-0.475***	-2.664

**Note(s):** Table 3 reports the results of paired samples *t*-tests to check the difference of all control variables between group A (retirement village firms) and group B (non-retirement village firms). \*, \*\* and \*\*\* denote significance at the 10, 5 and 1% levels, respectively. The variables are defined as in [Appendix 1](#)

**Source(s):** Authors' own work

have higher tangible assets and growth in sales revenue compared to other firms. The average financial leverage of for retire village firms over our sample period is 14.7%, compared to 25% for other firms, suggesting that retirement village firms have lower financial leverage compared to non-retirement village firms [6]. On average, retirement village firms have significantly smaller boards and lower levels of institutional ownership. However, they have significantly higher proportion of female directors (34.2% compared to 25.4% for non-retirement village firms), independent directors, and a greater level of analyst ratings.

#### 4.3 Baseline results

The baseline results are presented in [Table 4](#) show *Retire* has a negative relationship with the aggregate ESG disclosure which is significant at the 1% level. While the coefficients of *Retire* for the environmental and social components are negative scores in columns (2) and (3), they are not significant. However, the coefficient of *Retire* is -0.087 and significant at the 5% level for the governance component as shown in column (4). Therefore, there is some evidence supporting *H1b* that retirement village firms disclose less ESG information than other industries in New Zealand. This result is primarily driven by lower disclosure of governance information for retirement village firms compared to those in the other sectors.

Our finding is in line with the results of [Yu and Van Luu \(2021\)](#). There may be several reasons why firms in this sector disclose less information. First, companies operating in the retirement village industry may experience comparatively less pressure to disclose comprehensive ESG information ([Grougiou et al., 2016](#)) due to the public's assumption that their operations which provide social benefits, already align with societal expectations. Second, according to [Tsang et al. \(2022\)](#), the extent to which companies disclose sustainability information is influenced by their motivation to avoid certain costs. Therefore, firms who do not feel compelled to manage public perceptions through voluntarily disclosing ESG information, may disclose less to avoid the associated additional costs. In terms of governance, disclosure is relatively low in retirement village firms, likely because their socially favored status reduces regulatory and investor scrutiny, diminishing the external

**Table 4.** Baseline results

Variables	(1) ESG	(2) E	(3) S	(4) G
<i>Retire</i>	-0.170*** (-3.818)	-0.225 (-0.834)	-0.032 (-0.278)	-0.087** (-3.018)
<i>Tobin's Q</i>	0.060** (2.530)	0.186 (1.499)	0.117** (2.632)	0.029* (2.037)
<i>ROA</i>	-0.082 (-0.419)	0.948 (0.967)	0.221 (0.350)	-0.115 (-0.923)
<i>Tangi</i>	-0.159 (-1.093)	-0.494 (-1.121)	-0.112 (-0.491)	-0.142 (-1.170)
<i>Grow</i>	-0.054 (-1.051)	-0.159 (-0.498)	-0.108 (-0.818)	-0.032 (-1.082)
<i>Lev</i>	-0.584*** (-4.388)	-2.563*** (-2.673)	-1.211*** (-4.005)	-0.290** (-2.417)
<i>Size</i>	0.166*** (6.954)	0.653*** (5.683)	0.297*** (4.058)	0.046** (2.542)
<i>Age</i>	-0.022 (-0.677)	0.125 (1.319)	0.016 (0.207)	-0.010 (-0.345)
<i>Board</i>	0.043 (0.943)	0.276 (0.793)	0.148 (1.079)	0.022 (0.449)
<i>Female</i>	0.232** (2.815)	1.282** (3.069)	0.381 (0.863)	0.088 (1.231)
<i>Indep</i>	0.191 (1.486)	0.967** (3.080)	-0.087 (-0.272)	0.164 (1.269)
<i>InsInvestor</i>	-0.190*** (-4.093)	-0.453 (-1.532)	-0.096 (-0.936)	-0.175*** (-3.904)
<i>Ar</i>	-0.049** (-3.124)	-0.128 (-1.512)	-0.014 (-0.227)	-0.037** (-2.523)
<i>Constant</i>	2.404*** (10.270)	-3.985*** (-3.964)	0.117 (0.155)	4.096*** (18.035)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	514	514	514	514
Adjusted R-squared	0.559	0.592	0.462	0.264

**Note(s):** This table reports the results examining whether retirement village firms have different ESG disclose behaviour compared to firms in other industries. ESG, E, S and G are the natural logarithm of one plus actual ESG, Environmental, Social and Governance scores as downloaded from Bloomberg. Other variables are defined as in [Appendix 1](#). We estimate the regression with industry and year fixed effects. The standard errors in parentheses are clustered at industry level. Continuous variables are winsorised at the 1st and 99th percentiles. \*, \*\* and \*\*\* denote significance at the 10, 5 and 1% levels, respectively

**Source(s):** Authors' own work

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pressure for detailed governance reporting. In contrast, the steady growth in environmental and social disclosures over time potentially reflects increasing stakeholder or regulatory demands, suggesting that external pressures play a significant role in shaping disclosure priorities across ESG dimensions.

In terms of control variables, *Tobin's Q* and *Size* have a significant positive relationship with *ESG*, which is consistent with prior studies (Baldini *et al.*, 2018; Huang *et al.*, 2022). Of the governance variables, the coefficients for *Female* are significant and positive in columns (1) and (4) suggesting the proportion of female directors positively affects overall ESG disclosure, and for the environmental component. In addition, firms with a larger proportion of independent directors (*Indep*) disclose more environmental information. The positive relationship between the proportions of female and independent directors with ESG disclosure is consistent with Cuadrado-Ballesteros *et al.* (2015), and Tamimi and Sebastianelli (2017). In contrast, the level of institutional ownership (*InsInvestor*) is negatively associated with overall ESG, as well as governance disclosures. Likewise, the coefficients for *Ar* is negative and significant at the 5% level for *ESG* and *G* scores. Interestingly, as higher analysts rating scores represent higher buy recommendations, this suggests higher buy recommendations are associated with firms who disclose less ESG information.

#### 4.4 Alternative ESG disclosure measure

For robustness we use the industry adjusted score for ESG disclosure and its three components as alternative dependent variable specifications. In Table 5, following the prior literature (Aggarwal and Dow, 2012; Bebchuk *et al.*, 2009; Breuer *et al.*, 2018), the industry-adjusted scores of *ESG* (*Adjusted ESG*) equals a firm's ESG score minus the average ESG disclosure score of a sector to which the firm belongs in a given year. The results, using the alternative *adjusted ESG* scores are also consistent with *H1b*. The coefficient estimates of *Retire* remains significantly negative at least at the 5% significance level in columns (1) and (4).

#### 4.5 Alternative measure of retirement village dummy

In a further robustness test, we use industry dummy variables to replace *Retire* dummy. As retirement village companies in the sample are classified in the healthcare sector, we use *Healthcare* to replace *Retire*. The empirical results of the robustness check are reported in Table 6 and remain broadly the same. The coefficients of *Healthcare* in columns (1)–(4) are negative and significant at the 1% level. This finding is consistent Yu and Van Luu (2021) and suggests that firms in socially preferred industries, such as healthcare, have less real or perceived need to voluntarily disclose ESG information, and therefore seek to avoid the associated costs of such disclosures. The real estate sector also discloses less ESG data, whereas firms belonging to the communication services, consumer cyclical, consumer defensive, energy and technology sector are more likely to provide greater ESG data disclosures.

#### 4.6 Additional robustness test

To ensure the robustness of our findings, we replace *Retire* in our baseline model with *Socially Preferred* which adds firms in other socially favored industries, such as medical distribution, medical instruments and supplies, and REIT – healthcare facilities. In addition, we exclude firms that could be classified as “sin stocks” such those who produce energy using coal and firms from the Basic Materials, and Industrials, which typically have high energy consumption, to reduce potential bias in the results. Because the results may be driven

**Table 5.** Alternative ESG disclosure measure

Variables	(1) Adjusted ESG	(2) Adjusted E	(3) Adjusted S	(4) Adjusted G
<i>Retire</i>	-0.159*** (-3.821)	-0.286 (-1.029)	0.067 (0.547)	-0.071** (-2.983)
<i>Tobin's Q</i>	0.055** (2.348)	0.193 (1.683)	0.111** (2.682)	0.024* (1.844)
<i>ROA</i>	-0.121 (-0.746)	0.352 (0.403)	0.127 (0.238)	-0.121 (-0.964)
<i>Tangi</i>	-0.101 (-0.775)	-0.405 (-1.055)	0.001 (0.003)	-0.097 (-0.830)
<i>Grow</i>	0.002 (0.051)	0.085 (0.380)	-0.004 (-0.048)	-0.007 (-0.250)
<i>Lev</i>	-0.499*** (-4.303)	-2.295** (-2.812)	-0.863** (-2.898)	-0.231* (-1.842)
<i>Size</i>	0.149*** (6.011)	0.612*** (5.256)	0.236*** (3.286)	0.037* (1.989)
<i>Age</i>	-0.015 (-0.508)	0.104 (1.038)	0.053 (0.706)	-0.002 (-0.065)
<i>Board</i>	0.063 (1.707)	0.393 (1.419)	0.230* (1.906)	0.032 (0.740)
<i>Female</i>	0.190** (2.873)	1.260** (3.111)	0.232 (0.499)	0.059 (0.933)
<i>Indep</i>	0.244* (2.155)	1.134*** (4.639)	0.195 (0.635)	0.184 (1.514)
<i>InsInvestor</i>	-0.151*** (-4.063)	-0.474* (-2.224)	-0.097 (-1.103)	-0.125** (-3.172)
<i>Ar</i>	-0.044*** (-4.144)	-0.103 (-1.374)	-0.035 (-0.804)	-0.031** (-2.411)
<i>Constant</i>	-1.023*** (-4.378)	-5.276*** (-5.035)	-2.250*** (-3.776)	-0.208 (-0.907)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	514	514	514	514
Adjusted R-squared	0.312	0.343	0.126	0.066

**Note(s):** Table 5 uses the industry adjusted ESG scores (a firm's ESG score subtracts the average score of ESG disclosure of a sector to which the firm belongs in a given year) and same format of environmental, social and governance scores to instead of the natural logarithm of one plus original score. Other variables are defined as in Appendix 1. We estimate the regression with industry and year fixed effects. The standard errors in parentheses are clustered at industry level. Continuous variables are winsorised at the 1st and 99th percentiles. \*, \*\* and \*\*\* denote significance at the 10, 5 and 1% levels, respectively

**Source(s):** Authors' own work

**Table 6.** Alternative measure of retirement village dummy

Variables	(1) ESG	(2) E	(3) S	(4) G
<i>Healthcare</i>	-0.173*** (-4.350)	-0.737*** (-4.368)	-0.349*** (-3.129)	-0.093*** (-2.956)
<i>Real estate</i>	-0.131*** (-3.201)	0.203 (1.171)	-0.548*** (-4.777)	-0.129*** (-3.993)
<i>Industrials</i>	0.056 (1.568)	0.780*** (5.111)	-0.077 (-0.759)	-0.026 (-0.917)
<i>Basic material</i>	0.002 (0.026)	-0.063 (-0.239)	-0.048 (-0.274)	0.082* (1.665)
<i>Communication services</i>	0.112*** (2.760)	-0.118 (-0.685)	0.109 (0.957)	0.073** (2.267)
<i>Consumer cyclical</i>	0.301*** (6.817)	1.540*** (8.212)	0.493*** (3.971)	0.075** (2.149)
<i>Consumer defensive</i>	0.288*** (6.189)	1.602*** (8.128)	0.274** (2.098)	0.039 (1.049)
<i>Energy</i>	0.367*** (5.346)	1.082*** (3.713)	0.494** (2.561)	0.150*** (2.758)
<i>Technology</i>	0.152** (2.250)	0.384 (1.336)	0.314* (1.650)	-0.018 (-0.328)
<i>Constant</i>	2.287*** (13.644)	-4.503*** (-6.334)	0.108 (0.230)	0.077*** (30.637)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	514	514	514	514
Adjusted R-squared	0.555	0.592	0.463	0.262

**Note(s):** Table 6 reports the results using an alternative measure of retirement village dummy. We add industry dummy variables to replace the industry-adjusted measurements on the industry-sensitive variables with the natural logarithm of one plus their original data (no industry adjustment). Control variables are the same as in Table 3. We estimate the regression with year fixed effects. The standard errors in parentheses are clustered at industry level. Continuous variables are winsorised at the 1st and 99th percentiles. \*, \*\* and \*\*\* denote significance at the 10, 5 and 1% levels, respectively

**Source(s):** Authors' own work

by these sin industries, as their higher ESG disclosures (Grougiou *et al.*, 2016; Sharma and Song, 2018) could inflate the control group's overall ESG disclosure levels.

The results, presented in Table 7, remain consistent with our baseline findings. Specifically, the *Socially Preferred* variable shows a significant negative relationship with ESG ( $-0.162$ ,  $p < 0.01$ ) and the *G* ( $-0.191$ ,  $p < 0.01$ ), while its association with *E* and *S* scores is insignificant. These findings reaffirm that socially favored industries disclose less ESG information, particularly in governance dimensions, compared to other sectors.

## 5. Moderating tests

To further investigate ESG disclosure in the retirement village industry, we conduct potential moderating effects including external regulation, internal governance and financial constraints.

### 5.1 Moderating effect: external regulation

As highlighted in KPMG and UNEP (2016), mandatory disclosure mechanisms currently dominate the disclosure practices landscape, constituting approximately two-thirds of all disclosure instruments. However, voluntary disclosure of ESG is also widely implemented. An example of this shift towards voluntary disclosure can be seen in the case of the Hong Kong Stock Exchange, introduced its ESG reporting Guide in 2013 which followed a "recommended and voluntary" approach. The framework was subsequently upgraded to a "comply or explain" framework in 2017. Similarly, the Singapore Exchange promotes the disclosure of sustainability information among listed firms, aligning with the UN Sustainable Stock Exchange initiative (2017) through voluntary guidance. Recognising the growing global significance of corporate governance and social responsibility, the NZX updated its

**Table 7.** Additional robustness test

Variables	(1) ESG	(2) E	(3) S	(4) G
<i>Socially preferred</i>				
<i>Tobin's Q</i>	-0.162*** (-3.728)	-0.053 (-0.211)	0.089 (0.608)	-0.191*** (-8.442)
<i>ROA</i>	0.078** (2.684)	0.210 (1.777)	0.126** (2.773)	0.037*** (2.375)
<i>Tangi</i>	-0.149 (-0.638)	1.089 (1.004)	0.187 (0.248)	-0.135 (-0.860)
<i>Grow</i>	-0.179 (-1.239)	-0.518 (-1.138)	-0.108 (-0.492)	-0.146 (-1.237)
<i>Lev</i>	-0.020 (-0.454)	-0.039 (-0.117)	-0.033 (-0.260)	-0.028 (-0.838)
<i>Size</i>	-0.602*** (-4.024)	-2.727** (-2.780)	-1.215*** (-3.846)	-0.292* (-2.087)
<i>Age</i>	0.172*** (5.456)	0.659*** (4.467)	0.307*** (3.835)	0.048* (2.284)
<i>Board</i>	-0.014 (-0.504)	0.136 (1.638)	0.014 (0.197)	-0.005 (-0.174)
<i>Female</i>	0.007 (0.114)	0.241 (0.525)	0.111 (0.760)	-0.017 (-0.598)
<i>Indep</i>	0.201* (1.974)	1.149** (2.422)	0.313 (0.681)	0.071 (0.747)
<i>InsInvestor</i>	0.197 (1.444)	1.176*** (4.044)	-0.005 (-0.013)	0.152 (1.067)
<i>Ar</i>	-0.185*** (-3.502)	-0.502 (-1.718)	-0.106 (-0.878)	-0.168** (-3.115)
Constant	-0.056** (-3.484)	-0.151 (-1.669)	-0.024 (-0.338)	-0.040** (-2.505)
Observations	2,464*** (10.118)	-3.895*** (-4.039)	0.153 (0.189)	4.189*** (15.666)
Industry FE	470	470	470	470
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.557	0.601	0.454	0.256

**Note(s):** Table 7 reports the results of adding other socially preferred firms to the *Retire* dummy and we rename it as *Socially preferred*. We also remove sin firms here. *ESG*, *E*, *S* and *G* are the natural logarithm of one plus actual ESG, Environmental, Social and Governance scores as downloaded from Bloomberg. Control variables are the same as in Table 4. Other variables are defined as in Appendix 1. We estimate the regression with industry and year fixed effects. The standard errors in parentheses are clustered at industry level. Continuous variables are winsorised at the 1st and 99th percentiles. \*, \*\* and \*\*\* denote significance at the 10, 5 and 1% levels, respectively

**Source(s):** Authors' own work

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Corporate Governance Code in 2017 to incorporate ESG disclosure provisions. The Code adopts a “comply or explain” framework where firms either comply with a particular Code recommendation, or explain why it not adopted. The Code was effective from 1 October 2017 and therefore covers financial reporting periods from 31 December 2017 onwards.

Appendix 3 compares the average ESG disclosure and its components before and after the Code. Figure A1 presents the average ESG score, as well as its three components across all firms. The ESG score and each of the components all show increases after the adoption of the Code in 2017. While the governance score marginally improves, the average environmental and social scores show the most improvement – albeit from very low bases. Figure A2–A5 compares the changes across disclosure scores by industry. The healthcare sector performs poorly in terms of total ESG, environmental and governance disclosure, ranking eighth, seventh and eighth out of ten sectors, respectively. ESG scores are higher across all industries after 2017, and this is primarily driven by improvements in environmental and social disclosures.

To test the impact of the Code, we construct *2017D* which is a dummy variable that equals one when the observation year is 2017 or after, and otherwise zero [7]. We add *2017D* to the baseline model and report the results in Panel A of Table 8. When the dependent variable is *ESG*, *E* and *S* as shown in columns (1), (3) and (5) respectively, the coefficients for *2017D* are positive and significant at least to the 5% level, confirming that the Code significantly increased the level of environmental and social disclosures. However, as shown in column (7) there was no significant improvement in the overall level of governance disclosures following the Code. These results are consistent with Yu and Van Luu (2021) who indicate that local stock exchanges have the potential to facilitate the enhancement of ESG disclosure.

Next, to examine whether the Code moderates the relationship between retirement village industry and ESG disclosure, we also add the interaction term  $2017D \times retire$  into the baseline model. In column (2), the coefficient of the interaction is positively significant at the 1% level, indicating that the Code enhanced ESG disclosure in the retirement village industry. The findings align with existing literature that highlights the NZX’s effective fulfillment of its regulatory role (Sustainable Business Council, 2019; Nilipour et al., 2020). In column (6) for social and column (8) for governance the  $2017D \times retire$  coefficient is positively significant at the 1% level indicating that the Code had a comparatively stronger positive influence on the social and governance disclosures for the retirement village industry.

### 5.2 Moderating effect: board gender diversity

Research suggests that the presence of female directors on corporate boards is associated with increased ESG disclosure. For instance, Adams and Ferreira (2009) find that firms with more women on their boards tend to disclose more non-financial information, including ESG-related data. This finding is supported by other studies that highlight the positive role of gender diversity in enhancing ESG transparency and accountability within organisations (Carter et al., 2003; Brammer et al., 2007). One proposed mechanism is the diverse perspectives and experiences that female directors bring to the boardroom, leading to more comprehensive consideration of ESG issues. De Masi et al. (2021) demonstrate that when enough female board members are attained, specifically increasing to at least three women, it leads to an improvement in the extent of ESG disclosure. The findings further reveal that achieving a critical mass of female board members has a positive impact on all aspects of the ESG score, with the greatest influence observed in the governance score component (De Masi et al., 2021).

In Panel B of Table 8, we further investigate whether female directors can facilitate ESG disclosure in the retirement village industry by adding the interaction term  $Female \times retire$  to the baseline model. The interaction coefficient is significantly positive in columns (2), (6) and (8) at the 1% level. This suggests that female directors have a positive moderating effect

**Table 8.** Moderating effects

Variables	(1) ESG	(2) ESG	(3) E	(4) E	(5) S	(6) S	(7) G	(8) G
<i>Panel A: External regulation, 2017 NZX Corporate Governance Code</i>								
<i>Retire</i>	-0.170*** (-3.818)	-0.326*** (-6.846)	-0.225 (-0.834)	-0.201 (-0.696)	-0.032 (-0.278)	-0.521*** (-3.715)	-0.087** (-3.018)	-0.237*** (-6.374)
<i>2017D&amp;Retire</i>		0.233*** (6.331)		-0.036 (-0.355)		0.731*** (3.730)		0.224*** (6.509)
<i>2017D</i>	0.228*** (3.569)	0.217*** (3.626)	1.113** (3.247)	1.114*** (3.253)	0.837*** (3.542)	0.801*** (3.454)	-0.003 (-0.068)	-0.014 (-0.349)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	514	514	514	514	514	514	514	514
Adjusted R-squared	0.559	0.567	0.592	0.591	0.462	0.474	0.264	0.283
<i>Panel B: Internal governance – board gender diversity</i>								
<i>Retire</i>	-0.170*** (-3.818)	-0.468*** (-14.607)	-0.225 (-0.834)	-0.059 (-0.191)	-0.032 (-0.278)	-0.866*** (-6.131)	-0.087** (-3.018)	-0.407*** (-11.008)
<i>Female x Retire</i>		0.885*** (8.023)		-0.494 (-1.399)		2.478*** (4.631)		0.951*** (10.492)
<i>Female</i>	0.232** (2.815)	0.163 (1.297)	1.282** (3.069)	1.320*** (3.266)	0.381 (0.863)	0.186 (0.346)	0.088 (1.231)	0.014 (0.150)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	514	514	514	514	514	514	514	514
Adjusted R-squared	0.559	0.569	0.592	0.591	0.462	0.474	0.264	0.296
<i>Panel C: Internal governance – board independence</i>								
<i>Retire</i>	-0.170*** (-3.818)	-0.894*** (-9.150)	-0.225 (-0.834)	-0.717 (-1.626)	-0.032 (-0.278)	-1.128*** (-3.273)	-0.087** (-3.018)	-0.696*** (-8.214)
<i>Indep x Retire</i>		0.880*** (7.230)		0.599 (1.684)		1.332*** (3.120)		0.739*** (7.479)
<i>Indep</i>	0.191 (1.486)	0.144 (1.218)	0.967** (3.080)	0.934** (3.071)	-0.087 (-0.272)	-0.159 (-0.544)	0.164 (1.269)	0.124 (0.913)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	514	514	514	514	514	514	514	514
Adjusted R-squared	0.559	0.573	0.592	0.591	0.462	0.466	0.264	0.289

(continued)

**Table 8.** Continued

Variables	(1) ESG	(2) ESG	(3) E	(4) E	(5) S	(6) S	(7) G	(8) G
<i>Panel D: Financial constraints</i>								
<i>Retire</i>	-0.108*** (-3.507)	4.258*** (6.984)	-0.171 (-0.742)	5.576 (1.757)	0.034 (0.284)	1.641 (0.954)	-0.062 (-1.553)	2.698*** (6.203)
<i>SA × Retire</i>		1.354*** (7.299)		1.782* (1.920)		0.499 (0.956)		0.856*** (6.817)
<i>SA</i>	-0.636*** (-3.463)	-0.677*** (-4.169)	-3.688*** (-5.382)	-3.743*** (-5.257)	-1.503*** (-3.508)	-1.518*** (-3.512)	-0.201 (-1.610)	-0.227* (-2.206)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	514	514	514	514	514	514	514	514
Adjusted R-squared	0.491	0.498	0.555	0.555	0.438	0.437	0.253	0.261

**Note(s):** This table reports the regression results exploring how the 2017 NZX Corporate Governance Code (Panel A), proportion of female directors on the board (Panel B), proportion independent directors on the board (Panel C) and financial constraints (Panel D) moderates the relationship between ESG disclosure and retirement village dummy. *ESG* is the natural logarithm of ESG disclosure score plus one. *Retire* is an indicator variable that takes a value of one if the firms belong to retirement village industry, and zero otherwise. *2017D* is a dummy variable that equals to one if the observation year is 2017 or after and zero otherwise. *Female* is the ratio of female directors to total directors, while *Indep* is the ratio of independent directors to total directors. Control variables are the same as in Table 4 (in Panel D), as the financial constraints index *SA* is the variable of interest both *Size* and *Age* are excluded from the controls). We estimate the regression with industry and year fixed effects. The standard errors in parentheses are clustered at industry level. Continuous variables are winsorised at the 1st and 99th percentiles. \*, \*\* and \*\*\* denote significance at the 10, 5 and 1% levels, respectively

**Source(s):** Authors' own work

on ESG information provided in retirement village firms, especially for social and governance disclosures. Whereas female directors have no incremental enhancement in environmental disclosures within the retirement industry. These findings are consistent with prior literature (Tamimi and Sebastianelli, 2017; De Masi *et al.*, 2021).

### 5.3 Moderating effect: board independence

Studies have shown mixed results regarding the influence of independent directors on ESG disclosure. For instance, Bushee (2004) find a positive relationship between board independence and ESG disclosure, while other studies report inconclusive or weak relationships (Aguilera *et al.*, 2006; Cuervo-Cazurra *et al.*, 2014). The effectiveness of independent directors in driving ESG disclosure may depend on various factors, such as board composition and regulatory environment. Independent directors may enhance ESG disclosure through their monitoring role and ability to provide objective judgments (Fama and Jensen, 1983). Furthermore, in a multi-country setting, Cuadrado-Ballesteros *et al.* (2015) discover a general trend wherein a greater proportion of independent directors is associated with an increased level of ESG information.

To examine whether the proportion of independent directors is associated with ESG disclosure in the retirement village industry, we add the interaction term *Indep* × *retire* to the baseline model. The results reported in Panel C of Table 8 show independent directors promote total ESG disclosure in the retirement village through greater social and governance disclosures. The positive interaction coefficients in column (2) for ESG, column (6) for social and column (8) for governance are significant at least to the 5% level. However, independent directors in retirement village firms have no moderating effect on the environmental dimension as highlighted in column (4).

### 5.4 Moderating effect: financial constraints

The widely discussed and cited study by Healy and Palepu (2001) shows that disclosure of ESG information can help firms hedge against higher financing costs due to risk. In particular, earlier investigations have shown that ESG disclosures have the potential to furnish investors with a framework for appraising companies, thereby efficiently mitigating issues related to corporate information imbalance and investment uncertainties (Goss and Roberts, 2011). The primary reason for financial constraints in companies stems from the unequal distribution of information between investors and firms (Banerjee *et al.*, 2020; Chen and Yang, 2020; Wong *et al.*, 2021). A heightened level of information asymmetry results in increased challenges for firms in securing funding (Gu *et al.*, 2020; He *et al.*, 2020). A company has the option to increase the disclosure of ESG information as a strategic move to bolster its reputation and mitigate the adverse effects of severe environmental damage on its market value (Cho and Patten, 2007). Research findings indicate a negative association between sustainability activities and financial constraints, as demonstrated by Garcia *et al.* (2017) and Banerjee *et al.* (2020). In their discussion, Zhang and Lucey (2022) delve into how ESG performance and corporate value are influenced by ESG disclosures, with many companies using ESG reports to manage public perception. They find that ESG performance enhances a company's overall performance by easing financial constraints. In our study, we adopt a cost–benefit perspective in examining the role of financial constraints in shaping ESG disclosure behavior for retirement village firms [8]. Retirement village firms operate in a sector that is deeply connected to public trust and stakeholder expectations, especially given their role in elder care. For financially constrained firms, ESG disclosure may serve as a strategic signal to reassure investors, residents and regulators of their long-term responsibility and stability, thereby mitigating perceived investment risk and enhancing

access to capital. In this setting, the marginal benefit of ESG transparency is amplified under financial pressure, especially when external confidence is critical for survival.

To explore whether financial constraints moderate the level of ESG disclosures we use the SA index proposed by [Hadlock and Pierce \(2010\)](#) as follows:

$$SA_{i,t} = -0.737 \times Size + 0.043 \times Size^2 - 0.04 \times Age$$

where *Size* represents the natural logarithmic of total asset of firms *i* in year *t*, and *Age* is number of consecutive years listed on the NZX. We then add SA and the interaction term *SA × retire* to the baseline model and rerun the analysis, after excluding both *Age* and *Size* from the controls.

The results are reported in Panel D of [Table 8](#). There is a significant negative association between financial constraints with total ESG, as well as environmental and social disclosures, suggesting that firms facing more severe financial constraints disclose lower levels of these information types. However, the positive *SA × retire* coefficient illustrates that the combined effects of financial constraints and the retirement village firms plays a significant positive role in facilitating ESG disclosure at the 1% significance levels. In addition, the coefficient of the interaction in column (8) is positive and significantly associated with governance disclosure at the 1% significant level. As such, high levels of financial constraints are a positive moderator that encourages firms to disclose more ESG information, especially in terms of governance. These findings suggest that at least in the retirement village sector, financing constraints can induce firms to disclose non-financial information more aggressively, thus contributing to higher corporate image and lower negative impact.

### 5.5 Matched sample analysis

To mitigate the differences associated with the control variable firm size, we control for the size of firms in the retirement village sector and each of the other industries on a 1–3 basis, without replacement and ended up with 188 observations. The results of column (1) and (4) of [Table 8](#) remain consistent with our baseline results, meaning after controlling for firm size, the retirement village industry discloses less ESG and governance information than other industries. Interestingly, after creating the sample matched on size, the coefficients of *Retire* are negative and significantly associated at the 1% level for environmental disclosure and 5% level for disclosure on social activities. This further reinforces *H1b* that retirement village operators disclose less ESG information, which is consistent with the argument that socially preferred firms that provide social benefits voluntarily report less ESG information ([Table 9](#)).

### 5.6 Further analysis

While prior research suggests that ESG practices can reduce information asymmetry, enhance stakeholder trust, and improve financial outcomes ([Clark et al., 2015](#); [Dhaliwal et al., 2011](#)), these effects vary by industry context, as stakeholder expectations and disclosure practices differ ([Ioannou and Serafeim, 2017](#)). Does ESG disclosure bring financial benefits for socially preferred industries like retirement villages? Retirement villages, as a socially preferred industry, benefit from strong public trust and societal recognition due to their role in caregiving services. This positive perception may reduce external pressure from investors and regulators to provide extensive ESG data. Furthermore, in the New Zealand context, the relatively lenient ESG regulatory environment for this sector may weaken the motivation to enhance disclosure practices. This creates an interesting setting to explore whether changes in ESG disclosure positively affect firm value and debt costs in a socially preferred industry where baseline disclosure levels are relatively low. As

**Table 9.** Matched sample analysis

Variables	(1) ESG	(2) E	(3) S	(4) G
<i>Retire</i>	-0.266*** (-4.541)	-1.304*** (-4.749)	-0.471** (-2.569)	-0.139*** (-3.177)
<i>Tobin's Q</i>	0.208*** (4.392)	-0.091 (-0.408)	0.191 (1.287)	0.171*** (4.842)
<i>ROA</i>	-0.116 (-0.376)	3.413*** (2.367)	0.631 (0.656)	-0.421* (-1.836)
<i>Tangi</i>	-0.403*** (-3.828)	0.379 (0.767)	-0.680** (-2.063)	-0.302*** (-3.846)
<i>Grow</i>	0.062 (0.456)	0.056 (0.089)	0.092 (0.218)	0.005 (0.051)
<i>Lev</i>	-0.302 (-1.344)	-1.706 (-1.618)	-0.865 (-1.228)	-0.428** (-2.553)
<i>Size</i>	0.080** (2.600)	-0.031 (-0.213)	0.179* (1.870)	0.057** (2.495)
<i>Age</i>	0.026 (1.030)	0.475*** (4.028)	0.127 (1.613)	-0.021 (-1.124)
<i>Board</i>	0.302*** (2.827)	1.906*** (3.806)	1.107*** (3.311)	0.082 (1.024)
<i>Female</i>	0.497*** (3.174)	1.339* (1.823)	1.263** (2.576)	0.306*** (2.622)
<i>Indep</i>	0.600*** (5.832)	2.103*** (4.356)	-0.194 (-0.601)	0.481*** (6.271)
<i>InsInvestor</i>	-0.386*** (-4.114)	-0.582 (-1.321)	-0.371 (-1.261)	-0.296*** (-4.228)
<i>Ar</i>	0.009 (0.375)	0.214* (1.939)	0.254*** (3.458)	-0.035** (-2.006)
<i>Constant</i>	2.004*** (6.950)	-4.822*** (-3.564)	-1.499* (-1.660)	3.726*** (17.328)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	188	188	188	188
Adjusted R-squared	0.503	0.423	0.383	0.408

**Note(s):** This table presents the size matched sample on a 1 to 3 basis without replacement. ESG, E, S and G are the natural logarithm of one plus actual ESG, Environmental, Social and Governance scores as downloaded from Bloomberg. Other variables are defined in Appendix 1. We estimate the regression with industry and year fixed effects. The standard errors in parentheses are clustered at industry level. Continuous variables are winsorised at the 1st and 99th percentiles. \*, \*\* and \*\*\* denote significance at the 10, 5 and 1% levels, respectively

**Source(s):** Authors' own work

such, we construct an interaction term of change in ESG disclosure score ( $\Delta ESG$ ) and retirement village dummy (*Retire*) to test financial implications, in which cost of debt refers to total interest expense divided by long term debt.

Table 10 reports the regression results assessing the effects of interaction on Tobin's Q (Column 1) and cost of debt (Column 2) for the subsequent year. The variable *Retire* is significantly negative for both *Tobin's Q* ( $-2.194$ ,  $p < 0.01$ ) and *cost of debt* ( $-0.054$ ,  $p < 0.01$ ), indicating that, on average, retirement village firms show lower market valuation and lower cost of debt compared to other industries. This aligns with prior literature suggesting that socially preferred industries, such as retirement villages, often experience unique market and financial dynamics due to stakeholder expectations and intrinsic business characteristics (Hart and Zingales, 2017). The interaction term between the retirement village dummy and changes in ESG scores (*Retire*  $\times$   $\Delta ESG$ ) shows a significant positive effect on *Tobin's Q* (0.933,  $p < 0.05$ ) and a significant negative effect on *cost of debt* ( $-0.029$ ,  $p < 0.10$ ). These results suggest that increased ESG disclosure in the retirement village industry enhances market valuation while reducing debt financing costs. The positive market response to improved ESG disclosure aligns with studies demonstrating that ESG practices signal reduced risk and better long-term prospects (Clark et al., 2015). For debt markets, increased transparency and improved governance may reassure creditors, reducing risk premiums and lowering cost of debt. These results indicate that even firms operate in a socially preferred industry, the increased ESG disclosure can bring financial benefits from the cost-benefit perspectives.

**Table 10.** Further analysis

Variables	(1) <i>Tobin's Q<sub>t+1</sub></i>	(2) <i>Cost of debt<sub>t+1</sub></i>
<i>Retire</i>	-2.194*** (-9.632)	-0.054*** (-3.486)
<i>Retire</i> * $\Delta ESG$	0.933** (2.820)	-0.029* (-2.154)
$\Delta ESG$	-0.137 (-0.498)	0.016 (0.900)
<i>ROA</i>	3.134 (1.712)	-0.023 (-0.777)
<i>Tobin's Q</i>		0.001 (0.160)
<i>Tangi</i>	0.931 (1.478)	0.013 (0.898)
<i>Grow</i>	0.472 (1.541)	0.003 (0.213)
<i>Lev</i>	-0.039 (-0.044)	-0.087** (-3.031)
<i>Size</i>	-0.337** (-2.324)	0.000 (0.017)
<i>Age</i>	0.058 (0.905)	-0.001 (-0.620)
<i>Board</i>	0.805 (1.033)	-0.012 (-1.376)
<i>Female</i>	0.010 (0.019)	0.005 (0.220)
<i>Indep</i>	-0.063 (-0.198)	0.019 (1.215)
<i>InsInvestor</i>	0.036 (0.196)	0.022 (1.757)
<i>Ar</i>	-0.095*** (-3.314)	-0.006 (-1.693)
Constant	1.683 (1.478)	0.118** (2.784)
Observations	331	331
Industry FE	Yes	Yes
Year FE	Yes	Yes
Adjusted R-squared	0.528	0.393

**Note(s):** Table 10 indicates results of the effect of the interaction term between *Retire* dummy and ESG disclosure on firm value and cost of debt. *ESG* is the natural logarithm of one plus actual ESG score as downloaded from Bloomberg. Other variables are defined as in Appendix 1. We estimate the regression with industry and year fixed effects. The standard errors in parentheses are clustered at industry level. Continuous variables are winsorised at the 1st and 99th percentiles. \*, \*\* and \*\*\* denote significance at the 10, 5 and 1% levels, respectively

**Source(s):** Authors' own work

## 6. Conclusion

This study investigates the extent of ESG information disclosure by New Zealand listed retirement village firms, which are part of the socially preferred healthcare industry. Using data from 2010 to 2023, we find that these firms disclose less ESG information compared to firms in other sectors. This result is robust to alternative measurements of both dependent and independent variables, as well as to matched sample analysis that alleviates potential endogeneity. Furthermore, we find the 2017 NZX Corporate Governance Code incrementally enhanced ESG disclosure in retirement village firms, over and above its significantly positive impact on ESG disclosure in general. Internal governance characteristics such as female and independent directors can promote ESG information disclosure. In addition, financial constraints significantly shape firms' ESG disclosure strategies, likely reflecting firms' cost-benefit considerations when signaling legitimacy. Finally, we also find that improvements in ESG disclosure positively affect Tobin's Q, and reduce the cost of debt, suggesting that enhanced ESG transparency strengthens market valuation and reduces perceived creditor risk in the retirement village sector. Collectively, these results underscore the importance of ESG disclosure in socially preferred industries and highlight its role in firm value creation and financing cost reduction.

Nonetheless, this study is subject to several limitations. First, while New Zealand offers a unique and consistent regulatory setting, limitations of sample size are a natural constraint of this setting. Further research is needed to test whether similar ESG disclosure patterns hold in other jurisdictions with different institutional, cultural and stakeholder contexts. Second, our analysis does not fully explore how ESG disclosure behavior may vary across different stages of the business cycle or under different levels of industry competitiveness. These factors may moderate firms' incentives to disclose ESG information and represent fruitful avenues for future investigation. For example, future research could build on our findings by conducting cross-country comparisons, leveraging panel data with macroeconomic variables or incorporating industry-level competitive dynamics. Such extensions would help further clarify how industry identity, institutional design and economic context jointly shape corporate ESG disclosure behaviour.

## Notes

1. [www.stats.govt.nz/information-releases/national-population-projections-2022base2073/](http://www.stats.govt.nz/information-releases/national-population-projections-2022base2073/)
2. As defined by the [New Zealand Law Commission \(1999\)](#).
3. For example, firms engage in ESG reporting to signal positive future financial performance, reduce their capital costs and debt costs, and minimise information imbalances and enhanced reputation (e. g. [Dhaliwal et al., 2011](#); [Simnett et al., 2009](#); [Truong et al., 2021](#); [Tsang et al., 2022](#)).
4. While there were approximately 180 NZX listed firms over the sample period, our sample was restricted to just 52 for which Bloomberg provides ESG scores for.
5. The environmental component includes information about air quality, climate change, ecological and biodiversity impacts, energy, materials and waste, supply chain and water. The social component contains community and customers, diversity, ethics and compliance, health and safety, human capital and supply chain. While audit risk and oversight, board composition, compensation, diversity, independence, nominations and governance oversight, sustainability governance and tenure are involved in governance dimension.
6. Historically, and over the majority of the sample period, the retirement village sector in New Zealand had relatively low debt levels. However, financial leverage has grown more than in any other New Zealand sector in recent years. [www.rnz.co.nz/news/business/486807/debt-holding-back-retirement-village-sector-report](http://www.rnz.co.nz/news/business/486807/debt-holding-back-retirement-village-sector-report).

7. We thank the valuable comment from Professor Sasha Molchanov in the PAR Specials Forum. To ensure the variance of ESG disclosure score exists after the 2017 Code, we include kernel density estimates of ESG disclosure score in [Appendix 4](#).
8. We thank the constructive perspective proposed by our discussant, Professor Sasha Molchanov in the PAR Specials Forum. To support this point, we examine whether the effect of financial constraints varies across the two periods of before and after the 2017 Code in [Appendix 5](#).

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Table A1. Variable definitions

Type	Name	Symbol	Definition
<i>Dependent variables</i>	Corporate ESG	ESG	Natural logarithm of one plus the overall ESG disclosure score
		<i>E</i>	Natural logarithm of one plus the environmental disclosure score
		<i>S</i>	Natural logarithm of one plus the social disclosure score
		<i>G</i>	Natural logarithm of one plus the governance disclosure score
		<i>Retire</i>	A dummy variable that equals 1 when the company is belonging to retirement village industry, otherwise 0
<i>Explanatory variables</i>	Retirement village industry	<i>Retire</i>	A dummy variable that equals 1 when the company is belonging to retirement village industry, otherwise 0
	Firm size	<i>Size</i>	Natural logarithm of the corporate total assets at the end of the year
	Firm age	<i>Age</i>	The firm age
	Firm profitability	<i>ROA</i>	Return on assets
	Firm profitability	<i>Tobin's Q</i>	Ratio of market capitalisation plus liabilities to total assets
	Sales growth rate	<i>Grow</i>	A percentage increase or decrease of sales revenue by comparing current period with same period prior year
	Asset liability ratio	<i>Lev</i>	The ratio of total liabilities to total assets
	Independent boards	<i>Indep</i>	The ratio of independent directors to directors
	Board size	<i>Board</i>	Natural logarithm of the number of directors on the board
	Female director	<i>Female</i>	The ratio of female directors to the total number of directors
	Tangible asset	<i>Tangi</i>	The ratio of tangible asset to total asset
	Institutional investor	<i>InsInvestor</i>	The shareholding proportion of institutional investors
	Analyst rating	<i>Ar</i>	Ratings scale between 1 and 5 where the higher the rating, the more recommended it is to buy
Year dummy	<i>2017D</i>	A dummy variable that equals 1 when the observation year is 2017 or after, otherwise 0	
Financial constraints	<i>SA</i>	Calculated as $-0.737 \times Size + 0.043 \times Size^2 - 0.040 \times Age$	
Cost of debt	<i>Cost of debt</i>	Total interest expense divided by long term debt	

Source(s): Authors own work

**Table A2.** Pearson correlation matrix

Variables	ESG	Retire	Tobin's Q	ROA	Tangi	Grow	Lev	Size	Age	Board	Female	Indep	InsInvestor	Ar
ESG	1													
Retire	-0.153***	1												
Tobin's Q	0.066	-0.098**	1											
ROA	-0.105**	0.048	0.305***	1										
Tangi	-0.023	0.214***	-0.145***	0.016	1									
Grow	-0.081*	0.092**	0.123***	0.132***	-0.107***	1								
Lev	0.023	-0.221***	-0.175***	0.019	0.072	-0.081*	1							
Size	0.336***	0.112**	-0.326***	-0.021	0.360***	-0.185***	0.393***	1						
Age	0.191***	-0.131***	0.036	0	-0.018	-0.106**	0.031	0.121***	1					
Board	0.323***	-0.098**	-0.056	-0.037	0.142***	-0.113**	0.152***	0.473***	0.078*	1				
Female	0.400***	0.164***	-0.055	-0.091**	0.153***	-0.013	0.142***	0.365***	0.048	0.067	1			
Indep	0.180***	0.106**	-0.088**	-0.005	0.126***	-0.054	0.126***	0.317***	-0.038	-0.087**	0.395***	1		
InsInvestor	0.084*	-0.115***	0.047	-0.068	-0.171***	-0.073*	-0.082*	0.188***	0.007	0.077*	0.170***	0.206***	1	
Ar	-0.120***	0.156***	-0.039	-0.080*	-0.133***	0.083*	-0.208***	-0.168***	-0.108**	-0.191***	0.001	-0.021	-0.02	1

**Note(s):** Appendix 2 reports Pearson correlation coefficients for the variables used in this study. All variables are defined in Appendix 1. \*, \*\*, and \*\*\* indicate significance at the 10, 5 and 1% level, respectively

**Source(s):** Authors' own work

### Appendix 3. ESG disclosure scores before and after 2017

Appendix 3 reports the average ESG disclosure score by sector in New Zealand. The ESG scores as shown before and after the NZX Corporate Governance Code in 2017 which encouraged greater ESG disclosure. These industry sectors are classified based on Yahoo Finance. The primary data are all comes from Bloomberg.

Figure A1 presents the comparison of the average ESG disclosure scores in New Zealand before and after 2017.

Figure A2 reports the comparison of the average ESG disclosure scores between 10 different industries in New Zealand before and after 2017.

Figure A3 reports the comparison of the average environmental disclosure scores between 10 different industries in New Zealand before and after 2017.

Figure A4 displays the comparison of the average social disclosure scores between 10 different industries in New Zealand before and after 2017.

Figure A5 reports the comparison of the average governance disclosure scores between 10 different industries in New Zealand before and after 2017.

### Comparison of ESG score and its components for all firms before and after 2017

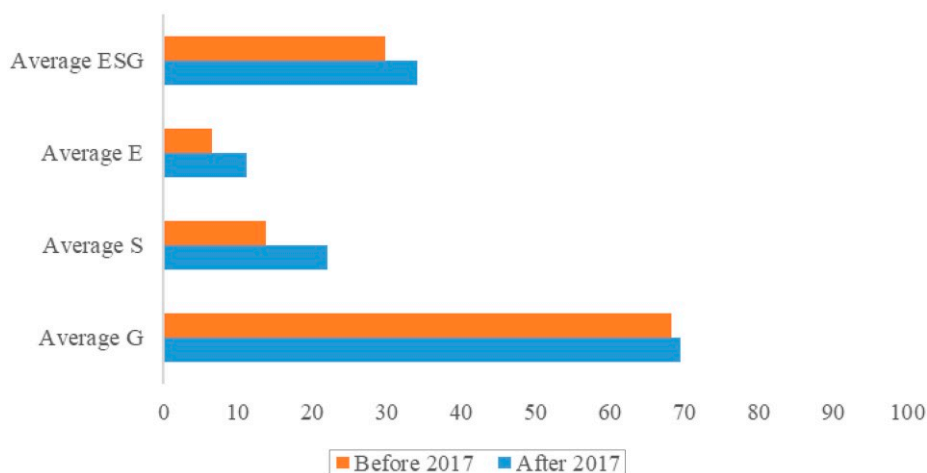
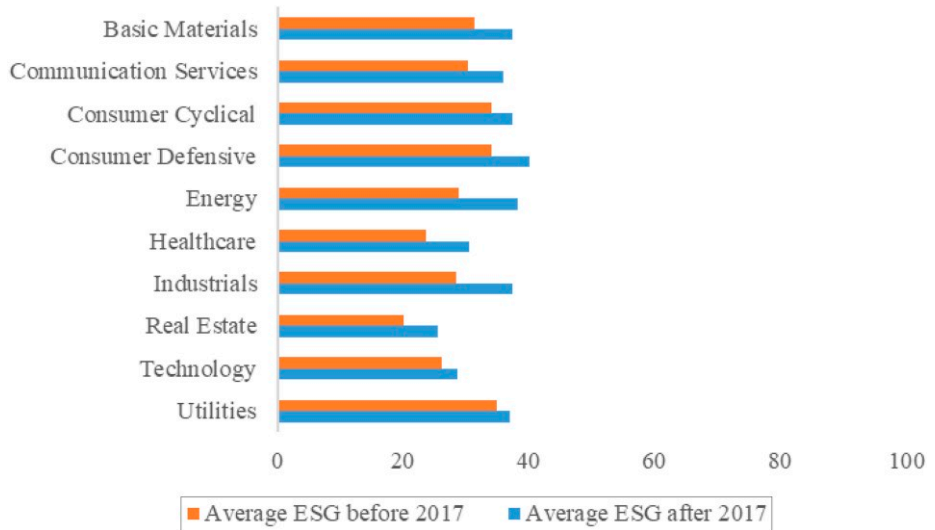


Figure A1. The average ESG disclosure scores in New Zealand before and after 2017

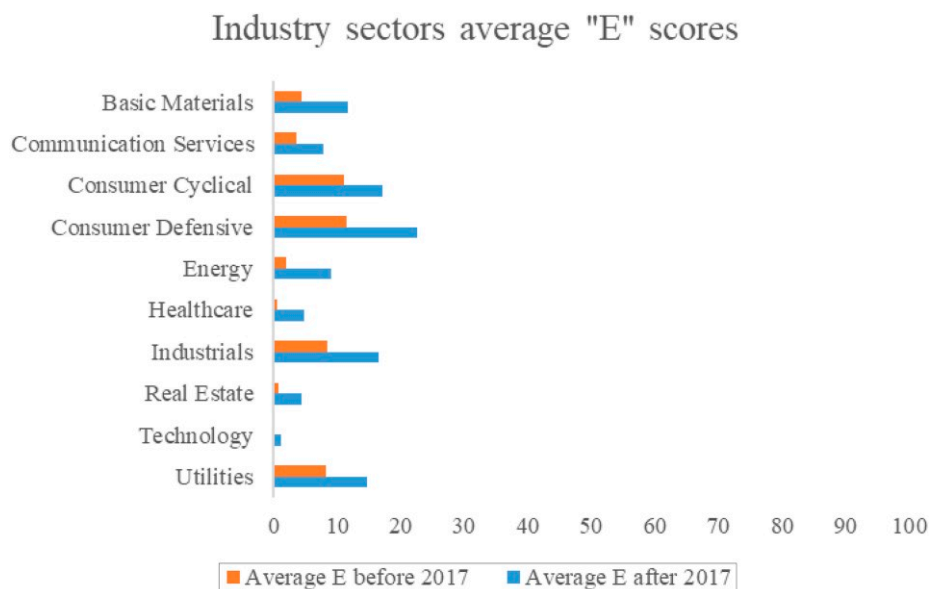
Source: Authors' own work

### Industry sectors average "ESG" scores



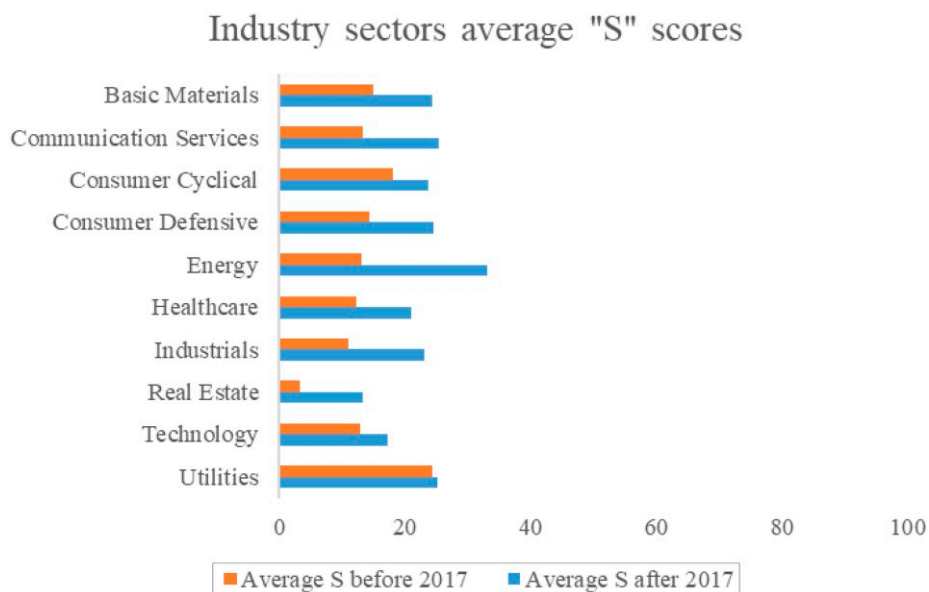
**Figure A2.** The average ESG disclosure scores between 10 different sectors in New Zealand before and after 2017

**Source:** Authors' own work



**Figure A3.** The average E disclosure scores between 10 different sectors in New Zealand before and after 2017

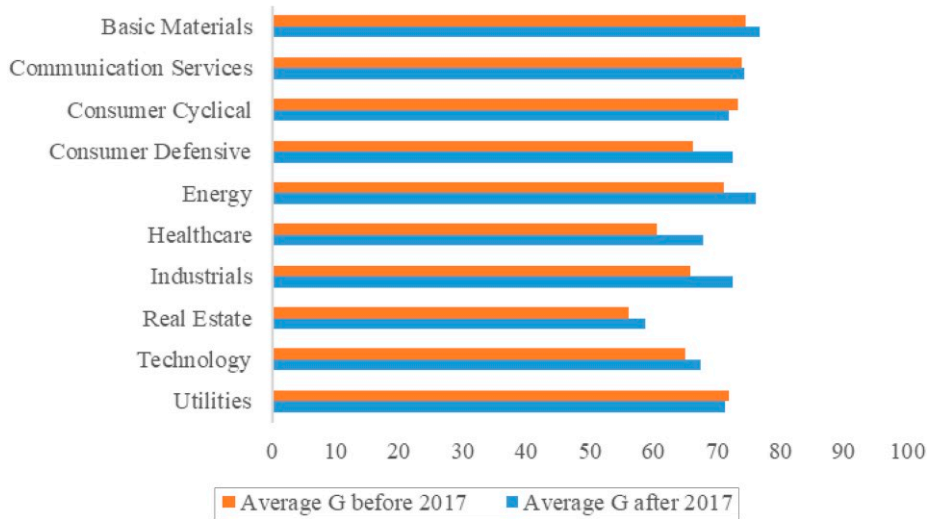
Source: Authors' own work



**Figure A4.** The average S disclosure scores between 10 different sectors in New Zealand before and after 2017

Source: Authors' own work

Industry sectors average "G" scores

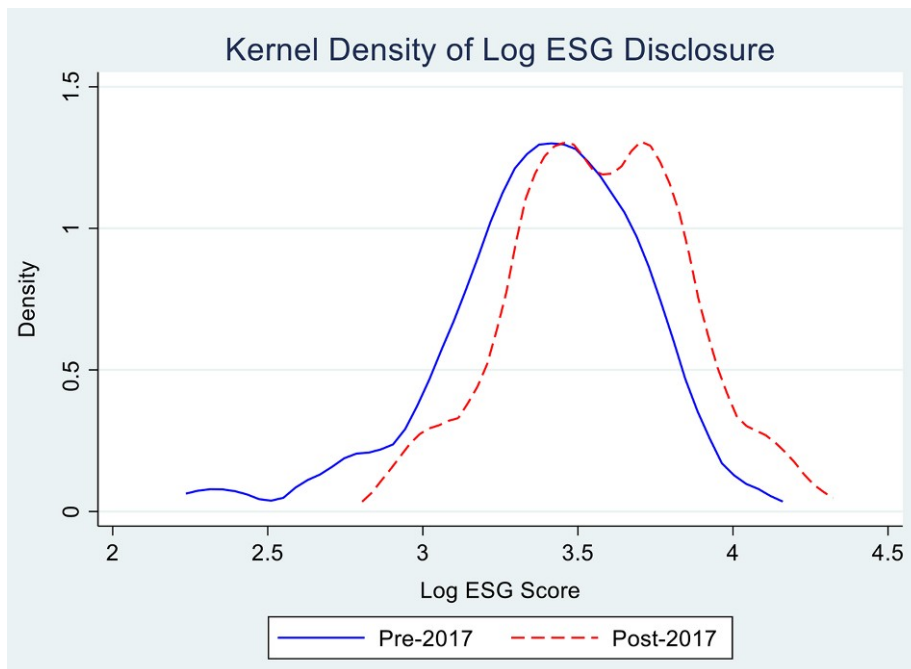


**Figure A5.** The average G disclosure scores between 10 different sectors in New Zealand before and after 2017

**Source:** Authors' own work

**Appendix 4**

Appendix 4 Figure A6 presents kernel density estimates of ESG disclosure scores across the periods before and after 2017 Code. The average level of ESG disclosure increased after the Code as expected. In addition, the overall shape and width of the distribution remained comparable. The post-2017 distribution remains wide, indicating that cross-sectional variation in ESG disclosure persists after the Code.



**Figure A6.** Kernel density estimates  
Source: Authors' own work

**Table A3.** The moderating role of financial constraints on ESG disclosure in retirement village firms before and after the 2017 Code

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Before 2017 ESG	Before 2017 E	Before 2017 S	Before 2017 G	After 2017 ESG	After 2017 E	After 2017 S	After 2017 G
<i>Retire</i>	5.267*** (3.758)	8.446 (1.729)	10.349** (2.768)	3.366*** (3.797)	5.306*** (5.529)	3.802 (0.521)	0.135 (0.045)	3.853*** (3.379)
<i>SAX Retire</i>	1.836*** (4.273)	2.807* (1.852)	3.508** (2.964)	1.207*** (4.415)	1.645*** (5.822)	1.305 (0.598)	-0.017 (-0.019)	1.158*** (3.371)
<i>SA</i>	-0.119 (-0.201)	-0.483 (-0.167)	-1.792 (-1.014)	-0.677 (-1.299)	0.133 (0.631)	-0.358 (-0.329)	-0.108 (-0.231)	0.064 (0.264)
Constant	2.960** (2.821)	-2.546 (-0.372)	-3.721 (-1.028)	3.224*** (3.669)	2.029*** (3.680)	-6.764* (-2.111)	-0.606 (-0.453)	3.776*** (7.416)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	180	180	180	180	334	334	334	334
Adjusted R-squared	0.474	0.447	0.446	0.370	0.641	0.629	0.529	0.310
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Note(s):** Appendix 5 presents the results of the moderating effect of financial constraints in retirement village firms across the period before and after the 2017 Code. We interact the retirement village dummy with the financial constraint measure and find that prior to 2017, financially constrained retirement village firms are more likely to disclose ESG information – presumably to attract capital and reduce information asymmetry. However, this effect diminishes after 2017, when disclosure pressure became more uniformly expected through the updated Code. This result supports the idea that ESG disclosure is likely driven by a cost–benefit calculation in a weak regulatory environment

**Source(s):** Authors’ own work