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Impact of Sustainability Reporting on Brand Value: An Examination of 100 Leading Brands in Singapore

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Abstract: The recent sustainability reporting (SR) mandate by the Singapore Exchange has heightened stakeholder awareness and propelled sustainability disclosures. Albeit encouraging, more than half of listed companies in Singapore do not produce sustainability reports. This signifies a lack of sustainability commitment, or perhaps, local companies have limited understanding on the potential value of sustainability. Our study aims to fill this gap by examining if (1) the 100 leading brands in Singapore similarly benefit from a higher brand value when they produce sustainability reports; (2) if more disclosure leads to higher brand value; (3) if a lagged effect is present. The methodology of this study included the collation of sustainability information from the 100 leading brands in Singapore, scoring each company's sustainability performance using the Global Reporting Initiative (GRI) framework. Finally, we examine the correlations using regression analysis to compare the companies' sustainability performance with the reputed brand rankings by Brand Finance. Our findings revealed that one-fifth of the 100 leading brands in Singapore do not engage in sustainability, despite the positive correlation between sustainability reporting and brand value. Our results also suggest that greater disclosure leads to higher brand value, yet social and environmental indicators are undermanaged. Moreover, there is a lagged effect as public perceptions take time to shape. Internalising a company's sustainability vision through a multi-stakeholder consultative approach is critical. Brand managers and sustainability practitioners must be aware that failures to meet stakeholder expectations today may consequently impact investors' decisions.

Keywords: sustainability; sustainability reporting; brand value

1. Introduction

The alarmingly increasing rates of climate disasters have heightened global attention and pressure on businesses to operate sustainably with a long-term generational viewpoint [1]. Would sustainability efforts lead to brand differentiation? Academic researchers and practitioners often ask this question [2,3]. From a sustainability perspective, marketing researchers recommend for businesses to incorporate sustainability into their communication to promote brand differentiation [4]. The shifting trends in how customers perceive businesses compel changes in marketing strategies and communication [5]. Consumers are looking at how businesses address present-day threats alongside the future demands of their customers. Such change has been widely noted by academics and practitioners, as the demands of today's consumers gravitate to sustainable products [6].

Sustainability is not an asset that can be purchased or traded, yet it has evolved into a core philosophy of companies, with over 90% of CEOs highlighting that sustainability is a crucial

fundamental in their business [7]. We are not the first to begin the discourse on sustainability and its influence on brand value. Companies firmly grounded in sustainable ethos and a strong brand essentially minimise risk and safeguard future earnings, as value is created through a healthy cycle of demand generation, which potentially secures future earnings for the company [8]. Albeit attractive, both sustainability and brand value are classified as intangible assets which can be hard to quantify or to allocate a fair value [9]. Therefore, in this study, we attempt to assess the sustainability performance of companies using the sustainability information made publicly available and examine its correlation with brand value, using the rankings by Brand Finance.

The need for this study was prompted by the lack of sustainability commitment from companies in Singapore and the recent rise in availability of sustainability data since the Singapore Exchange introduced a new 'comply or explain' listing rule, whereby every listed issuer is expected to deliver a sustainability report annually [10]. There is much room for improvement to the sustainability landscape in Singapore, as more than half of the companies in Singapore do not produce sustainability reports [11]. This signifies a lack of sustainability commitment, or perhaps, limited understanding on the potential value of sustainability. We aim to close this gap by first, evaluating the level of sustainability performance in Singapore; thereafter, we examine the correlation between sustainability and brand value, and if more disclosures lead to higher brand value. The results were disappointing in that even within the top 100 leading brands in Singapore, environmental and social indicators were undermanaged, when these factors are at the core of sustainability. In this paper, we then discuss and propose recommendations to address the five least disclosed indicators: (1) economic impact from climate change, (2) product and service stewardship, (3) biodiversity, (4) human rights, and (5) labour practices and industrial relations.

Subsequently, we go further to investigate if sustainability communications have a lagged effect on brand value, and our results suggest that investor and consumer perceptions do take time to shape. This implies that failures to meet stakeholder expectations today might consequently impact investors' decisions. We urge practitioners to take on a multi-stakeholder collaborative approach and internalise sustainability as a long-term strategy [7]. As an overview, the paper begins with a literature review of the four key pillars of sustainability, followed by a discourse on the relationship between sustainability and brand value. Section 3 explores the theoretical approach and the three hypotheses in this study. In Section 4, we present our methodology and how the assessment framework is developed. Thereafter, we examine the regression results in Section 5. In the final section, main conclusions and discussions on managerial implications, limitations, and future research are presented.

2. Literature Review

2.1. The Four Pillars of Sustainability

Financial market regulators and stock exchanges are vigorously promulgating sustainability reporting [12], denoting a crucial need for businesses to not only grasp but internalise the Economic, Environmental, Social, and Governance (EESG) principles of sustainability reporting to reap its benefits. In 2017, the Singapore Exchange introduced a new 'comply or explain' listing rule, whereby every listed issuer is expected to deliver a sustainability report annually, describing the organisation's sustainability practices in accordance to the Listing Rules [10]. Since the introduction of the reporting mandate, the number of reporting companies soared from 186 companies in 2017, to 327 companies in 2018. Albeit encouraging, this only represents 48.2% of all the listed companies in Singapore [11].

Internalising the EESG principles of sustainability requires long-term commitment from stakeholders, beginning at the board of directors' level, to the managerial and front-line staff. From an economic standpoint, today's competitive climate compels businesses to seek differentiation through synthesising concepts of macroeconomics with microeconomics to examine trade-offs, rationalities, and incentives, as they review both implicit and explicit costs [13]. Adopting a sustainability lens, it is not always possible to value public goods (e.g., use of public space, air pollution) [14]. Exploitation or

irresponsible usage of public goods impacts a company's reputation [15,16] and changes in operations correlate to a company's profit. Therefore, businesses that can efficiently and responsibly manage public goods to address sustainability concerns are in an advantageous position to create value, which enhances reputation [17].

Businesses often attempt to use substitution to advance their operations towards sustainability, while driving savings and profits [1]. This transition requires practitioners to consciously adopt ethical practices to successfully produce and deliver its products. For instance, apart from adopting energy efficient measures to reduce cost or incentivising customers for recycling, attention must also be paid to no child labour and workforce diversity [18]. Shaping favourable perceptions in the eyes of consumers about the social and environmental contributions by brands brings economic benefits [19].

The environmental pillar in sustainability addresses issues pertaining to energy, air, water suppliers, raw materials, biodiversity, products, and services; while the social pillar addresses topics including human rights, workplace health and safety, labour practices, pricing, corruption, and corporate citizenship [20]. Businesses must be aware that sustainable practices that are implemented without transparency pose risks. Nevertheless, effective sustainability reporting aids companies in reviewing its operational efficiencies, maximising cost savings whilst delivering on stakeholders' expectations and staying abreast with industry performance standards and legislations. Thus, enabling companies to alleviate criticism or potential societal and environmental risks.

Finally, the governance dimension of sustainability centres upon effective leadership, as it is the linchpin of a successful organisation. The highest governance body is responsible for goal setting, ongoing reviews, monitoring of Economic, Environment and Social (EES) risks, and approval of sustainability reports [21]. Companies with a board of directors that takes ownership and addresses sustainability concerns tend to reap better financial returns. The onus is on companies to demonstrate active stewardship by pinpointing the needs, developing a vision, and executing it through strategies to influence change.

2.2. Relationship between Sustainability and Brand Value

Authentically sustainable brands integrate all three EESG considerations into its business operations [1,3], but often enough companies mistakenly regard themselves as sustainable when they only meet one-quarter of the definition [22]. A common imbalance is seen where financial and governance factors receive more attention [23], despite extensive studies validating environmental factors as strong drivers boosting brand value [5,24]. What needs to be addressed are the corporate vision and values that give direction to an organisation with hundreds and thousands of employees. This sets the tone of what the management stands for and how social or environmental investments are allocated. These decisions are intrinsically linked to the organisations' brand image [25,26]. Empirical evidence suggests that sustainability and brand strength have a strong correlation, observed throughout varying industries, companies across different regions, and enterprise values [24,27].

Sustainable brands demonstrate respect to the environment and community [20], boast of higher employee satisfaction and lower turnover [28], build good-will, enhance the company's reputation [29], generate dividends for shareholders through growing demand, and secure future earnings through stakeholder loyalty and advocacy [8,9], all of which amalgamate and elevate brand value. Unilever's winning brand strategy has a growth rate 30 percent faster than its competitors. Dove, Ben & Jerry's, and Knorr anchor environmental and social responsibility at the core of their corporate values and brand strategies, delivering not only consistent brand communication but also winning through community engagement, supply chain management, and product innovation [30]. Globally, companies that are more deeply engaged in sustainability tend to also see benefits of avid community support; they become trend setters and have the power to influence supply chains. Such continuous virtuous cycle of driving positive change leads to a "top of mind" brand [31]. Locally, we have seen pioneers such as City Developments Limited (CDL), Singtel, and CapitaLand listed amongst the world's top 100 sustainable companies [32], with CDL holding its spot for 10 consecutive years [33]. When ranked

by brand value, these companies emerged as the top 25 in Singapore, consistently year after year [34]. These are the few local companies that were the first to differentiate and are ahead of the pack.

3. Theoretical Approach

Legitimacy, stakeholders, signalling, and institutional theory are commonly referred to as the determinants of sustainability reporting [35]. In this paper, we examine the application of legitimacy theory for sustainability management, reporting, and disclosures. Legitimacy theory is grounded upon obtaining the 'license to operate' for businesses [36–38]. Bansal and Roth [39], in studying the motivations behind green practices, found firms to be predominantly concerned with legitimacy. Similarly, Bronn and Vidaver-Cohen [40] investigated the dominant intentions for social initiatives by Norwegian companies and discovered that managers placed legitimacy factors above financial outcomes, whilst brand image and reputation building were unanimously identified as the top two drivers for corporate responsibility [41].

Al-Tuwajri, Christensen, and Hughes [42], from an Investor Responsibility Research Center Institute examined 500 companies comprising of standard and poor businesses, found a statistically significant link between environmental disclosures and financial health. Echoing a similar view, Loh, Thomas, and Wang [43] reviewed the sustainability reports of Singapore companies and reported a positive correlation between sustainability reporting and firm value. Jones, Frost, Loftus, and van der Laan [44] examined the online reports and the websites of Australian companies and scored them against GRI's set of EESG indicators. The researchers compared the sustainability reporting scores of each Australian company to the market index and financial performance, using measurements comprising of profitability, financial structure, financial ratios, debt servicing capacity, cash flows, and several valuation multiples. The researchers derived an outcome which echoes earlier research, where sustainability reporting was found to improve financial performance. Undoubtedly, transparency in sustainability disclosures in the capital market wields a positive impact on the firms [45,46], as sustainability efforts serve as a means of increasing legitimacy and building brand image [47,48]. Moreover, businesses that publish sustainability reports are often perceived as being proactive in responding to stakeholder pressure and abiding to regulations [12,49].

Despite the attractive benefits of sustainability, the adoption in Singapore appears to be tardy, with only 48.2% of public listed companies producing sustainability reports in 2018, even after a "comply or explain" ruling introduced by the Singapore Exchange [10]. This denotes a lack of sustainability commitment, or perhaps, local companies have limited understanding on the potential value of sustainability. Our study aims to fill this gap by examining if the 100 leading brands in Singapore similarly benefit from a higher brand value when they produce sustainability reports. Hence, the following hypothesis is proposed to investigate the links:

Hypothesis 1 (H1). *Companies with sustainability reporting will have a higher brand value than those without sustainability reporting.*

Beyond meeting the mandate of the Singapore Exchange for listed companies to publish a sustainability report, would the robustness of a company's sustainability report affect its brand? Brown, Guidry, and Patten [50] investigated the reputational scores of first-time reporters and found no visible market reaction after the release of their sustainability reports. The review was based on the fortune most admired scores. As sustainability reports are typically published yearly like annual reports, companies are pressured into a cycle of reviewing and tracking their performances. However, first-time reporters demonstrated weaker performance in their sustainability disclosures, predominantly due to the lack of tracking and quantitative data to convincingly articulate their sustainability business case [43]. This, in turn, dilutes stakeholder confidence. Progressively, as businesses strengthen their capacity and strategise long-term goals and policies, they build up resilient business models. Kumar and Christodoulou [51] support the view that the best practice in sustainability reporting

comprises of ongoing review cycles, stakeholder engagements, and internalisation of sustainability values put into practice. Overtime, as stakeholders become more aware and involved with the company policies, targets, and long-term strategies, there is greater assurance, leading to a boost in investor confidence, brand value, and competitive advantage.

In a further study by Guidry and Patten [52], their findings evoked interest, as they discovered that only sustainability reports presented with the highest quality reaped improvements in corporate reputations. The results from the past literature showed consistencies in the positive influence of sustainability efforts on brand value. However, there are challenges in measuring or quantifying the influence of sustainability activities, given its wide range of tangible and intangible benefits. Legitimacy-centric targets, such as employee motivation and enhanced brand reputation, are also far harder to quantify than profit-centric targets like cost reductions or revenues [53,54]. There is limited understanding about whether increased sustainability disclosures would positively influence brand value. Hence, we propose the following hypothesis and begin by assessing the quality of sustainability reports by scoring each of the 100 leading brands in Singapore. Thereafter, we examine the relationship between the company's overall sustainability score with its brand value:

Hypothesis 2 (H2). *Companies with more sustainability disclosure (higher quality of sustainability reporting) will have a higher brand value than companies with fewer sustainability disclosures.*

Intentional CSR improves brand value, while unethical conduct that is contrary to societal norms and values carries adverse impacts on the companies' legitimacy and brand reputation [6]. Interestingly, the researchers also found CSR efforts to have a one to three years lagged positive effect on brand value. Feldman, Soyka, and Ameer [55] examined 300 US companies and found that the systematic risk of a company reduces as environmental performance improves. This was valued by the share market, where higher stock prices were seen. Later studies by Lorraine, Collison, and Power [56] reported similar findings that poor environmental performance results in a drop in the UK stock market, typically when penalties and fines are issued to the company. Furthermore, the researchers highlighted that market responses were delayed by a week after the release. To examine if this lagged effect is mirrored in Singapore, we postulate the following hypothesis:

Hypothesis 3 (H3). *The quality of sustainability reporting has a lagged effect on brand value.*

4. Research Methodology

4.1. Sample Size and Data Source

The study looked at 100 leading companies in Singapore by brand value in 2016 and 2018, as ranked by Brand Finance. Brand Finance computes brand value by employing the Royalty Relief method that is compliant with the ISO 10668 industry standard [34,57].

The full sample size was 180, with delisted companies omitted. This study analysed the sustainability information communicated by these leading companies in 2016 and 2018, assessing the sustainability performance based on disclosures. Similar to the earlier sustainability studies by Jones et al. [44], our sources of data included Brand Finance, corporate websites, annual reports, standalone reports, integrated reports, or equivalents if applicable.

As the company's brand value and sustainability scores were evaluated over a three-year time frame, the risk of undermining the data integrity due to one-off fluctuations or outliers were minimised. Lastly, industry news and guidelines, websites, and academic journals were used as benchmarks and references to draw insights.

4.2. Sustainability Reporting Framework

Guided by the internationally renowned Global Reporting Initiative (GRI) Standards, the methodology adopted in this paper was a modification of a previous study by Loh, Nguyen, Sim,

Thomas, and Wang [43]. The assessment framework comprised of 27 criteria, divided into 2 focal aspects. The first focal aspect was the drivers of sustainability, where the foundation was determined through key reporting principles and governance. The second focal aspect was clustered into 3 pillars: namely, economic, environmental, and social—EES (Table 1). A scale ranging from 1 to 5 was used in each criterion to denote the depth of each disclosure. One point was allocated in cases where there was no information given, and 5 points was awarded when disclosures were detailed and substantiated with performance measurements and targets.

Table 1. Assessment framework.

Drivers Score: 50%		EES Disclosures Score: 50%		
Reporting Principles	Governance	Economic	Environmental	Social
RP 1. Organisational profile	Gov 1. Sustainable-centric corporate governance	Econ 1. Economic value generated	Env 1. Energy	Soc 1. Diversity and equal opportunity
RP 2. Materiality and boundaries	Gov 2. Strategy and analysis regarding sustainability	Econ 2. Value and supply chain	Env 2. Water	Soc 2. Human rights
RP 3. Stakeholder engagement and inclusiveness	Gov 3. Corporate responsibility for sustainability issues	Econ 3. Economic impact from climate change	Env 3. Waste management	Soc 3. Occupational health and safety
	Gov 4. Anti-corruption and code of ethics	Econ 4. Indirect economic impact	Env 4. Emissions	Soc 4. Training and education
		Econ 5. Anti-competitive behaviour	Env 5. Product and service stewardship	Soc 5. Labour and industrial relations
			Env 6. Compliance	Soc 6. Community involvement
			Env 7. Biodiversity	Soc 7. Product responsibility
				Soc 8. Philanthropy

Each focal aspect presented 50% of the total score. The distribution for the first focal aspect—drivers was as follows: 25% for reporting principles and 25% for governance. In the second focal aspect, equal weightage was then allocated to the three pillars, namely, economic, environmental, and social, summing to 50%. The points allocated presented a quantitative means of investigating the quality of sustainability disclosure by the company. However, this scoring method was not fully representative of the organisation's actual sustainability performance as there could be errors of omission or false reporting.

5. Results and Analysis

5.1. Descriptive Statistics

In this section, we have examined the quality of sustainability disclosures by 100 leading brands in Singapore using the assessment framework guided by the Global Reporting Initiative (GRI) standards. Each company was given a sustainability performance score based on the information that has been made publicly available through their company reports and websites. Thereafter, we discuss the

correlation between the sustainability reporting performance and brand value of the 100 leading brands in Singapore. Table 2 below presents the summary statistics of all variables adopted in this study.

Table 2. Summary of statistics.

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
Year = 2018	180	0.5	0.501	0	1
Brand Value	158	498.620	960.331	8	6498
Sustainability Report	180	0.822	0.383	0	1
Total Debt	180	3625.690	10,787.600	0	83,696
Total Asset	180	22,447.190	84,068.520	15.470	540,004
ECON 1 Economic Value	180	4.111	1.917	0	5
ECON 2 Value and Supply Chain	180	1.717	1.458	0	5
1 ECON 3 Economic Impact from Climate Change	180	1.256	1.036	0	5
ECON 4 Indirect Economic Impact	180	1.522	1.485	0	5
ECON 5 Anti-Competitive Behaviour	180	1.567	1.119	0	5
ENV 1 Energy	180	2.072	1.641	0	5
ENV 2 Water	180	1.767	1.543	0	5
ENV 3 Waste Management	180	1.589	1.377	0	5
ENV 4 Emissions	180	1.539	1.346	0	5
2 ENV 5 Product and Service Stewardship	180	1.122	0.949	0	5
ENV 6 Compliance	180	1.439	1.220	0	5
3 ENV 7 Biodiversity	180	1.067	0.829	0	5
GD 1 Organisational Profile	180	4.058	1.909	0	5
GD 2 Materiality and Boundaries	180	1.978	1.308	0	5
GD 3 Stakeholder Engagement and Inclusiveness	180	1.751	1.443	0	5
GOV 1 Corporate Governance	180	3.538	1.771	0	5
GOV 2A Strategy and Analysis regarding Sustainability	180	1.856	1.291	0	5
GOV 2B Corporate Responsibility for Sustainability	180	2.743	1.610	0	5
GOV 3 Anti-corruption and Code of Ethics	180	2.112	1.415	0	5
SOC 1 Diversity and Equal Opportunity	180	1.656	1.305	0	5
4 SOC 2 Human Rights	180	1.167	0.906	0	5
SOC 3 Occupational Health and Safety	180	2.033	1.651	0	5
SOC 4 Training and Education	180	1.806	1.321	0	5
5 SOC 5 Labour Practices and Industrial Relations	180	1.350	1.190	0	5
SOC 6 Community Involvement	180	1.672	1.361	0	5
SOC 7 Product Responsibility	180	1.700	1.422	0	5
SOC 8 Philanthropy	180	2.511	1.660	0	5
ECON Average	180	2.034	1.080	0	4.8
ENV Average	180	1.513	1.056	0	4.571
GD Average	180	2.595	1.389	0	4.833
GOV Average	180	2.562	1.331	0	4.392
SOC Average	180	1.737	1.074	0	3.875
Government-Linked Companies	180	0.144	0.353	0	1
Risk	168	96.412	696.774	1.031	6375
Sustainability Reporting Score	180	2.172	1.153	0	4.213

Our research adds question to Singapore's current level of adoption and understanding of sustainability in application to the business, given that the results revealed a general poor performance in environmental and social indicators that are not compliance driven. In this section, we examine the top 5 sustainability indicators with the least disclosures (Table 2).

With the vast majority of Singapore listed companies being in the infancy stage of their sustainability journey, it is a relatively distant goal to adequately measure the "1—economic impact from climate

change". Nonetheless, companies, such as the City Developments Limited and Singtel [58,59] have embraced ambitious climate targets through the adoption of renowned standards such as the Carbon Disclosure Project [60] and the Task Force on Climate Related Financial Disclosures [61]. In "2—product and service stewardship", businesses are required to review their range of offerings from cradle to grave. In other words, ethical considerations begin at the conceptual and design phase, spanning across to manufacturing, distribution, point of sale, and final disposal. We have observed the majority of the top 100 leading Singapore companies averting this indicator. A recent study on all the listed companies in Singapore presented similar observations and suggested that companies could be deterred by the amount of concerted actions required to perform life cycle analysis [11]. Stewardship should ideally be driven internally, but it is highly effective when legislated. Extended Producer Responsibility (EPR) policy in similar developed countries such as Japan, France, and Germany [62] has placed the onus on businesses to account for end-of-life disposal; such policies are worth considering as a jumpstart for Singapore companies.

Protection of "3—biodiversity" was not identified as a material issue in any sector, even in the agriculture or construction sector, suggesting that companies often do not want to assume any responsibility of the environmental conduct of their partners within the supply chain and as a result, they narrow the reporting boundary to their own operations [11]. This similar practice is seen in the social indicator "4—human rights". We suspect that companies may not have given sufficient attention to the complexities of supply chain management and may be unaware of any exploitation of child labour or underpaid workers simply due to the lack of tracking measures in place to enforce ethical labour practices [27]. Companies that neglect their supply chain may have an inherent flaw in their operating values and this, similarly, could affect internal operations. "5—labour practices and industrial relations" refers to the way in which consultative practices with employees are undertaken. This indicator is often neglected as businesses often may not give enough attention to the way in which significant operational changes are communicated or they simply do not have a consultative culture with employees [63]. A mindset shift is much necessary. The authors in [27], in investigating 1094 companies across 54 countries, found that the strongest positive relationship between brand value and sustainability was influenced by the way a company regards its employees and its green policies.

Authentically sustainable brands integrate all EESG considerations into its business operations. However, many companies have mistakenly regarded themselves as sustainable when they meet one-quarter of the definition [22]. We have noticed amongst the top 100 leading brands in Singapore that environmental and social factors are under addressed, whereas governance factors performed better. This is likely driven by the obligation to meet the Code of Corporate Governance issued by the Monetary Authority of Singapore [64]. We stress the importance of a triple bottom line approach, backed by previous empirical studies that have argued that environmental and social factors are equally crucial drivers for boosting brand value [24,40,53].

Sustainability Reporting and Firm Status

There are 90 unique companies that have been awarded the 'Top 100 Singapore companies with the highest brand value' in both 2016 and 2018. Amongst the 90 companies, 74 companies (82%) have sustainability communication. Thirteen of them are government-linked companies, all of which have sustainability disclosures made publicly available (Table 3). Conversely, only 79% of non-government-linked companies had sustainability disclosures.

Governments play an essential role by employing enforcement or incentivising companies with exemplary sustainability performance. Potentially, this thrusts the nation's sustainability landscape from the current trend of conscientious philanthropy to a market that is driven by competitive and sustainable value proposition. Amongst the 74 businesses with sustainability disclosures, the average score is 52.8 (Table 4). Government-linked companies (GLC) have demonstrated better sustainability performance, which could be attributed to the greater need for transparency. Members of the public place more scrutiny on how government funds are used, and sustainability reports encourage visibility

to an organisation's values, ethics, performance, and directions. Interestingly, the best overall scores and weakest scores were from the non-GLC. The weak performance could be caused by the lack of pressure to report prior to the mandate by the Singapore Exchange in 2017. On the contrary, the strongest performers were also from the non-government sector. Businesses that integrated sustainability strategies saw the benefits of leveraging on it to build brand loyalty in an evolving competitive landscape.

Table 3. Sustainability communication by firm status.

	Number of Companies with Sustainability Disclosures	Number of Companies in Each Category	Percentage of Communication in Each Category
Government-Linked Companies (GLC)	13	13	100%
Non-Government-Linked Companies (Non-GLC)	61	77	79%
Total	74	90	82%

Table 4. Sustainability reporting scores by firm status.

	Maximum	Minimum	Average Score
Government-Linked Companies (GLC)	77.4	46.2	63.6
Non-Government-Linked Companies (Non-GLC)	84.2	34.7	50.5
Total			52.8

(Scores are out of 100).

5.2. Regression Results

Running a regression analysis, the dependent variable used in all three hypotheses was brand value. For H1 hypothesis, the presence of sustainability reporting was the independent variable, whereas in H2 hypothesis and H3 hypothesis, the independent variable used was quality of sustainability report. With reference to earlier research, similar control variables were then adopted based on the probable impact it has on brand value.

GLC and risk were controlled in the regression model to reduce omitted variable biases. GLC is defined in this paper as companies with a sizeable holding of minimally 20% by Temasek Holdings, a wealth fund owned by the Singapore government. This threshold was similarly adopted in previous studies examining GLCs in Singapore [65,66]. Risk is another control variable commonly adopted by researchers, where it is calculated using the ratio of the firm's total debt over its total assets [67–69].

5.2.1. Hypothesis 1 (H1)

Table 5 reports the estimated coefficients, robust standard error, and the significance level. The regression results of the SR variable in model 1 are positively significant at a 1% significance level. In other words, companies with sustainability disclosures reflected higher brand value than companies with no sustainability reports. The two control variables, government-linked companies and risks, have been incorporated in the regression model to reduce omitted variable bias. Our findings are aligned with previous studies, which reported brand value to be significantly correlated with CSR [67]; there are no out of the ordinary observations among the companies in Singapore, as sustainability reporting similarly yields a positive impact on brand value.

Table 5. Regression results for the 100 leading brands in Singapore.

	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)
VARIABLES	BV	BV	BV	lagBV	lagBV
Presence of Sustainability Report	243.674 *** (68.451)				
Government-Linked Companies	1251.036 *** (328.629)	705.066 *** (209.176)	691.887 *** (211.005)	451.820 (316.028)	419.665 (316.772)
Risk	−0.058 *** (0.014)	−0.044 *** (0.010)	−0.041 *** (0.014)	3.571 ** (1.685)	3.823 ** (1.656)
Overall Sustainability Reporting Score		95.242 *** (24.047)		120.855 *** (41.651)	
Overall Sustainability Reporting Score (<i>log form</i>)			321.237 * (193.738)		474.972 (311.425)
Constant	1348.675 *** (329.927)	803.335 *** (217.071)	739.581 ** (310.239)	514.299 (338.382)	348.356 (486.649)
Observations	149	146	124	63	55
R-squared	0.260	0.203	0.174	0.148	0.124

Notes: Robust standard errors in parentheses; ***: $p < 0.01$, **: $p < 0.05$, *: $p < 0.1$.

Concerningly, approximately one-fifth of the top leading brands in Singapore failed to produce any form of sustainability disclosures (Table 3). Sustainability is a strength, but it could be a threat, much like other evolving market trends, consumer demands, or technological advancements. These leading companies would have to adapt fast enough to retain their reign. Consumers associate green brands with higher quality, as products and services are produced through ethical operations [70]. There needs to be greater sustainability awareness across industries, down to departments from the management team to front liners. Businesses that are perceived to be more transparent and accountable for their sustainability practices [36–38] are rewarded with the ‘licence to operate’ and are perceived more favourably, essentially making work easier as there is less push-back from communities and more support. The shift needs to happen, from the conventional mindset of reducing unsustainability to innovating sustainably [71], from addressing symptoms to addressing causes [7], and ultimately, from being inward looking towards the health of the company, to outward looking towards the market and society.

5.2.2. Hypothesis 2 (H2)

Models 2 and 3 were employed to test the H2 hypothesis. Model 2 uses the linear form of SR score, while Model 3 uses a log form of SR score to capture the possible non-linear relationships. Both regression results show a significantly positive impact of the quality of sustainability reporting on brand value. The negative coefficients reflected in the two control variables are government-linked companies and risks. In model 2, the significance level of the coefficient of SR score is at a 1% significance level, whereas in model 3, it is at a 10% significance level. Compared to model 3, model 2 has a larger R-squared parameter; this linear regression model explains a larger proportion of the variance for brand value by the quality of sustainability reporting. Our results affirm the positive relationship between the quality of sustainability reporting and brand value with model 2. Therefore, this concurred with earlier studies that have argued that only sustainability reports presented with the highest quality reaped improvements in corporate reputations [50]. This positive correlation denotes that companies with more sustainability disclosures garner a higher brand value. Since the reporting mandate from the Singapore Exchange was issued in 2017 [10,12] and that many companies are still first time reporters [27], herein lies a clear signal urging businesses to strengthen their sustainability

practices, strategies, and reporting processes. Essentially, sustainability strategies must be aligned with corporate goals and be customer-centric, otherwise it results in undervaluation [67].

5.2.3. Hypothesis 3 (H3)

Finally, we investigated the H3 hypothesis. Within the 100 leading companies by brand value, there are a total of 63 companies with sustainability reports present in both 2016 and 2018. This enabled us to test the lag effect of the quality of sustainability reports on identical companies. Based on the lagged theory, linear regression was performed in model 4. As the result was significant, we cannot reject the H3 hypothesis. Model 5 was then tested as supplementary for possible non-linearity. Since model 5 had a smaller R square, model 4 was the more fitting model to explain the lagged effect. To conclude, the regression result validates a positive correlation, where the quality of a company's sustainability report has a lagged effect on its brand value.

Our findings are consistent with the results reported in past studies. Lorraine, Collison, and Power [56] found that market responses to sustainability information disclosed are lagged and argued that sustainability must be viewed as a long-term investment. Agus Harioto and Salas [6] echoed the same views when they studied the influence of CSR on brand value and the reputations of the Interbrand top 100 brands. The researchers found CSR efforts to have a one to three years lagged positive effect on brand value. As with Singapore Exchange's recent mandate for all listed companies in Singapore to publish sustainability reports, businesses face increasing pressure to operate ethically as their visibility increases, whilst consumers are better equipped to discern the brands to support.

H3 hypothesis postulates that public perception takes time to shape and the results validated our assumption. Businesses and regulators can leverage this knowledge of the lagged effect when implementing sustainability strategies and making policy decisions. For example, as more firms embark on publishing sustainability reports, practitioners must be aware of the inherent risks involved. Discontinuation of sustainability reporting at any time may arouse public questioning or negative publicity. The onus resides in the company to provide reasonable justifications and adequately communicate any changes in corporate practices to its stakeholders. Moreover, as a firm discloses more, the higher the likelihood auditors would require more new data for verification. With greater visibility, stakeholders exert more pressure for companies to deliver on their promises. The lagged effect implies that failures to meet stakeholder expectations today might consequently impact investors' decisions [72]. Government support could come in the form of permitting greater flexibility with the application of self-regulations, hence, allowing businesses to test-bed ideas and observe market responses. Essentially, a lack of awareness of the lagged effect can inherently impact the business.

6. Conclusions and Recommendations

In this paper, our focus was specifically on publicly disclosed sustainability information, centred upon economic, environment, social, and governance parameters. This study adds value to the existing literature by bringing to light (1) The five least disclosed sustainability indicators. (2) An awareness that one-fifth of the top 100 leading Singapore brands do not engage in sustainability, despite an affirmed postulation that sustainability reporting positively impacts brand value, much like how businesses around the world has reaped significant benefits by being on the sustainability bandwagon. (3) Higher quality sustainability reports reigns higher brand value. When managers actively confront their business risks transparently with counter strategies and targets, they build brand trust. (4) Public perception takes time to shape, typically over a few years. A possible reason that companies do not focus on sustainability is due to the lag effect. Sustainability reporting takes up organisational resources, of which it can take years to even realise brand value, let alone other benefits such as improved organisational processes and long-term value creation. Yet, brand value can form a starting point for companies to embark on sustainability reporting. Companies that are unsure of where to begin can kick start from its investor relations or communication department.

It is essential for sustainability practitioners to be aware of the notion of the lag effect and maintain consistencies throughout its communications, product, and service delivery. To strengthen a company's brand value, sustainability objectives must be integrated with corporate strategies and delivered consistently to earn stakeholder confidence. Regardless of a profit-orientation or legitimacy seeking motive to pursue sustainability, we recommend a multi-stakeholder collaborative and consultative approach to effectively drive sustainability.

Sustainability professionals and brand managers: The average sustainability performance score of the 100 leading brands in Singapore is 52.8. Companies should not cherry pick but rather pay attention to material issues relevant to their respective industry. As companies provide more disclosures on their material topics, they demonstrate robust risk management and stakeholder inclusion, which leads to a lower propensity of incidents and higher brand value. Greater awareness and application of the GRI standards [73] and SASB materiality map [74] would benefit companies if they take on a multi-stakeholder approach to identify material issues that pose financial impact on the business. Sustainability professionals can collaborate with brand managers to develop meaningful metrics to demonstrate and communicate successes in environmental, societal impact, or brand affinity [30], equipping investors and consumers to remember the brand in a favourable way.

Management: The current trend of one department holding responsibility must shift towards a shared responsibility across all levels and departments. Top sustainability performers have seen most effective results when individual remuneration is pegged to specific sustainability key performance indicators. There is a pressing need for managerial implementation models such as a sustainability road map that is aligned the business goals [24] and alignment with the organisation's investors relation's objectives.

Government: Awareness of the lagged effect can prompt governments to provide support in the form of permitting greater flexibility with the application of self-regulations; hence, allowing businesses to test-bed ideas and observe market responses. Such efforts aid in boosting the overall economic competitiveness of Singapore.

Investors and Fund managers: These results provide signals to investors and fund managers to eyeball the ESG commitments of their portfolio, as sustainable companies are more likely to become high quality stocks [75]. A global survey by FTSE Russell [76] reported >50% of asset owners to have incorporated ESG considerations in their investment strategies. Such rising uptakes put pressure on banks to provide green financing options [24], propelling sustainable finance, whereby a virtuous cycle is fostered when green investments receive more funds, enabling green businesses to speed up their growth and expansion [77]. Investors and fund managers are encouraged to develop sustainability metrics to gain a competitive advantage as they are perceived as value added [78].

6.1. Addressing the Five Sustainability Indicators with the Least Disclosures

Our research adds question to Singapore's current level of adoption and understanding of sustainability in application to business, given that the results revealed a general poor performance in environmental and social indicators that are not compliance-driven. Addressing the five sustainability variables with the least disclosures, first, we recommend the adoption of the Science Based Targets Initiative (SBTI) and the Task Force on Climate Related Financial Disclosures (TCFD) to effectively measure the economic impact from climate change through climate scenario planning [61]. Secondly, product and service stewardship require resources and tools such as life cycle analysis, research and development, environmental impacts assessments, and alignment with the Singapore government's sustainability direction, such as the Resource Sustainability Bill and voluntary Singapore Packaging Agreement (SPA). All of these require management commitment and some extent of sustainability investment; however, it puts the company amongst a favourable circle of businesses to innovate and keep abreast with global trends [79]. Forward looking companies will find ways to meaningfully contribute to government policy formulation [7].

Thirdly, to address the lack of biodiversity protection, we urge businesses operating with largely fragmented outsourcing practices, such as the agriculture sector, to include the supply chain within their reporting boundary. Progressive steps to assume responsibility of the environmental and social impact in their supply chain fosters investors' trust and stakeholder confidence. Addressing the last two indicators on labour practices and industrial relations, and human rights, we firmly discourage cutting of expenditures on human rights, internal staff communication platforms, or on supply chain improvements [27]. Essentially, ESG commitments strengthens brand value, but it must be put into practice. A grotesque mistake like the collapse of the eight-story garment factory in Dhaka is detrimental to the brand and its impact could almost be irreversible [6,80].

6.2. Implications and Future Research

This research paper has its limitations as it covers only two sets of cross-sectional data from 2016 and 2018, before and after the mandate to report set by Singapore Exchange in 2017. Therefore, this paper is unable to compare findings across a longer period of five to ten years, which is more ideal in observing the evolving trends. Our content quality analysis of sustainability reports (on a scale of 1 to 5) refers to the GRI guidelines, as it is globally recognised and extensively adopted. However, there are other popular frameworks such as the Dow Jones Sustainability Index (DJSI), Global Real Estate Sustainability Benchmark (GRESB), Sustainability Accounting Board (SASB), Carbon Disclosure Project (CDP), and the Integrated Reporting (IIRC), which concentrate on integrating an organisation's strategic goals with its governance, performance, and prospects, leading to value creation. In the future, as more companies adopt advanced guidelines such as Integrated Reporting (IR), new content quality analysis frameworks would be needed.

As the reporting mandate propels more companies to issue sustainability reports, firms that are not listed on the Singapore Exchange could similarly experience stakeholder or industry pressure to embark on sustainable ethics. This study does not consider research variables of firm characteristics such as industry type and size of companies. Further research may explore the brand value of high impact industries alongside with industry-specific performances and critical material issues. Does sustainability reporting pose a similar brand impact on smaller companies than larger listed companies or are larger companies more prone to reap higher brand value from their sustainable efforts? Further research on Singapore's growth in the sustainability landscape and stakeholder perspectives on reporting challenges would also benefit practitioners, investors, and regulators.

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