Capstone Project Group 12

Evaluating Climate-Related Initiatives of Bursa and SGX Listed Companies

BACKGROUND · METHODOLOGY · KEY FINDINGS · RECOMMENDATION

Introduction

With effect from FY2025, companies listed on Bursa and SGX are obligated to incorporate **sustainability disclosures** into their sustainability or annual reports. Yet, the combined sustainability disclosure rate for these companies was **only 10.54%** in **FY2024**.

As shown in Figure 1, these companies are most lacking in the IFRS S2 Risk Management and Strategy pillars for their sustainability reporting. This highlights the need for a **gap analysis** of the **climate disclosure maturities** of **Bursa- and SGX-listed companies** in **FY2024**.

Figure 1.
Bursa and SGX Listed Companies Disclosure Adoption by Selected LSEG Indicators

Research Objectives

Objective 1

Determining the climate disclosure maturities of Bursa and SGX in FY2024

- Via an in-house **IFRS S2 scoring matrix** and a **gap analysis**

Objective 2

Ascertaining how climate initiatives affect the financial performance of Bursa- and SGX-listed companies

- Via a **regression analysis (research based on FY2024 LSEG data)**

Company Selection

Table 1.
Breakdown of Bursa- and SGX-listed companies

Parameter	# Bursa	# SGX
All Companies	1,119	588
Listed on Exchange Mainboard	798	373
2024 LSEG E-Pillar Score Available	428	93
Sector Breakdown	Total	Total
Industrials	114	14
Consumer Staples	53	10
Consumer Discretionary	49	2
Materials	47	2
Real Estate	42	41
Information Technology	37	4
Financials	24	8
Energy	22	1
Health Care	17	5
Utilities	11	3
Communication Services	11	3
Not Found	1	-
Target Companies Breakdown	60	60
Consumer Staples	10	10
Industrials	10	10
Financials	8	8
Real Estate	32	32

Samples are overweighted on companies from Real Estate sector – most SGX-listed companies possessing 2024 LSEG E-pillar scores are from Real Estate sector (41)

1. Disclosure Scoring Method

This research develops an in-house scoring matrix to assess the climate-related disclosures of 120 companies against IFRS S2.

The assessment uses a **content analysis methodology supported by artificial intelligence (AI)** to identify gaps between companies' 2024 disclosures and upcoming reporting requirements.

Assessment will include:

Sustainability Report / Integrated Report

Supporting Documents within the same year that is publicly available

Key aspects to consider during designing the in-house scoring matrix:

- Khan, Serafeim, and Yoon (2016) found that strong performance on **financially material disclosure**, particularly SASB-defined requirements, is associated with higher financial returns.
- Muck and Schmidl (2024) and Gai et al. (2023) suggest that **equal weighting** and limited substitutability better capture ESG performance by preventing strengths in one area from masking weaknesses in another.
- Prior content analysis methodology assess disclosure through information volume, disclosure type, or predefined indicators (Pratama et. al, 2022; Wang et. al, 2025; Amran et. al, 2014), thus highlighting that **manual judgement is still prevalent in assessing climate disclosure**.

Dimension	Topics	Total # Mandatory	Total # Conditional	Grand Total # Requirements
General Industry (GI) Score	Governance	9	-	9
	Strategy	23	4	27
	Risk Management	7	1	8
	Metrics & Target	31	9	40
Industry Specific (IS) Score			325 (subject to the company's industry and business activities)	325 (subject to the company's industry and business activities)

Our selected methodology:

- Having 2 scoring dimensions (IFRS S2 general and SASB industry-specific requirements) with 50:50 weight
- Within each dimension, each requiremen is equally weighted
- Scores are based on Key Aspects disclosed: 3 = all aspects, 2 = more than half, 1 = half or fewer, and 0 = none.
- Key Aspects is self-defined based on important aspects for investors.

2. Regression Model: Financial Performance = $\alpha + \beta_1 \cdot$Compliance $+ \beta_2 \cdot$E-Performance $+ \beta_3 \cdot$Sector $+ \beta_4 \cdot$Firm Size $+ \beta_5 \cdot$Maturity $+ \beta_6 \cdot$Profitability $+ \beta_7 \cdot$Leverage $+ \varepsilon$

Dependent Variable

Financial Performance - **ROE, ROA, Tobin's Q in 2025**

- **Why ROE?**
- ROE captures the return generated for shareholders specifically, making it directly relevant for investors. It complements ROA by reflecting how effectively management uses equity financing.
- **Why ROA?**
- ROA measures how efficiently a company generates profit from its asset base.
- **Why Tobin's Q?**
- Tobin's Q captures whether the market assigns a premium above book value — reflecting investor expectations of future performance, not just past profitability.

Independent Variable

Compliance Score - **Company's AR/SR 2024 report compliance over 3 requirements dimensions (IFRS S2, Industry-specific, and Investor Usefulness)**

- Schiehll & Kolahgar (2021): Financial ESG disclosures improve stock price clarity

E Performance Score - **Company's E-performance compared against benchmark (source: LSEG)**

- **Matsumura, Prakash & Vera-Muñoz (2014) :** Every additional 1,000 metric tons of CO_2 reduces firm value.

Control Variable

Sector - **GICS Sector**

- ROA, ROE, and Tobin's Q baselines differ dramatically by industry. A bank with 1.5% ROA and an oil company with 12% ROA cannot be compared without sector controls. GICS sector determines which ESG topics are material, it prevents sector composition from confounding compliance score results.

Maturity - **Company's tenure since the first listing date**

- Older, more established companies have longer track records, more institutionalised ESG infrastructure, and more stable financial profiles.
- Rosman et al. (2023): Malaysian listed company ESG disclosure quality significantly related to firm age and listing tenure

Firm Size – **Log total asset**

- Larger firms have more resources to invest in ESG reporting systems, external assurance, and sustainability initiatives
- Fama & French (1992): Firm size is a fundamental risk factor explaining cross-sectional return differences.

Profitability - **Revenue Growth (%)**

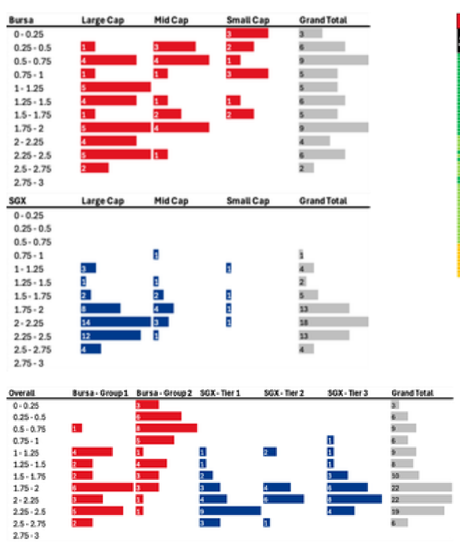
- Revenue growth controls for firms' expansion trajectory, which independently drives market valuation multiples
- Flammer (2015) identifies sales growth as a direct performance channel in CSR research.

Leverage - **Debt to Equity (%)**

- Chang et al. (2022): D/E ratio standard control in Asia-Pacific ESG–ROE studies shows that omitting it inflates positive ESG coefficients by 15–25%

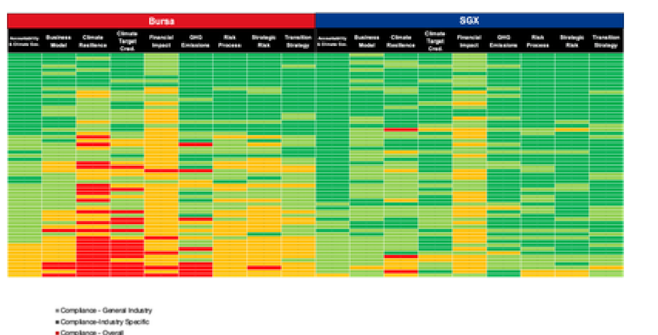
Objective 1 - Climate Disclosure Maturities of Bursa and SGX

Figure 2.
Climate disclosure score distribution



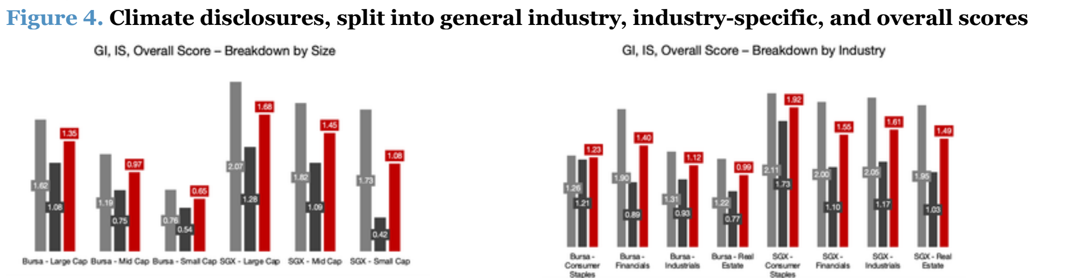
- SGX is leading the disclosure score since performance is less affected by company size and implementation timeline.
- Bursa's score, on the other hand, is more affected by the these two conditions.

Figure 3.
Climate disclosure heatmap over nine decision-useful indicators for investors



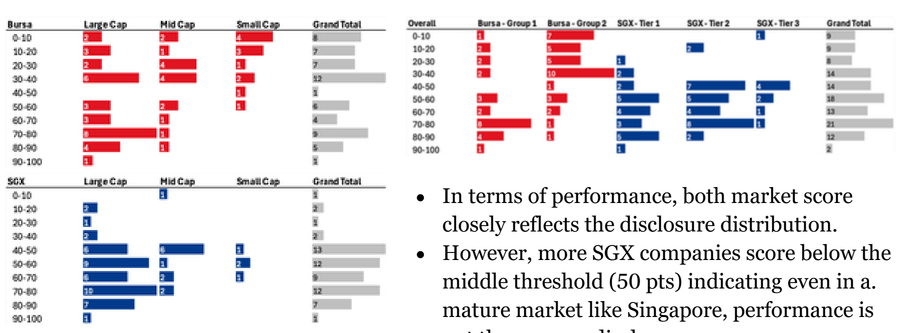
- Upon breaking down the 84 requirements based on investors decision usefulness, key issue lies in Climate Resilience that reflects company's strategy against climate effects, particularly for Bursa
- Meanwhile, SGX companies are still having issues to disclose financial impact aspect to its business operations.

Figure 4. Climate disclosures, split into general industry, industry-specific, and overall scores



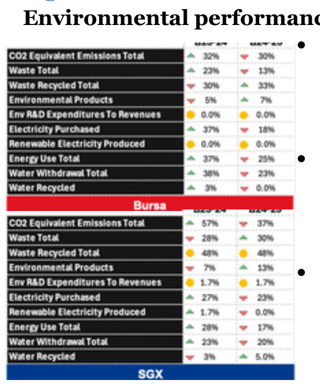
- Despite lower overall score, Bursa has maintain the 2 dimensions score more closely to one another
- SGX's small cap had the largest overall drop.
- In both market, consumer staples can maintain the overall score due to SASB requirements typically already embedded in the existing operational reporting

Figure 5.
Environmental performance score distribution



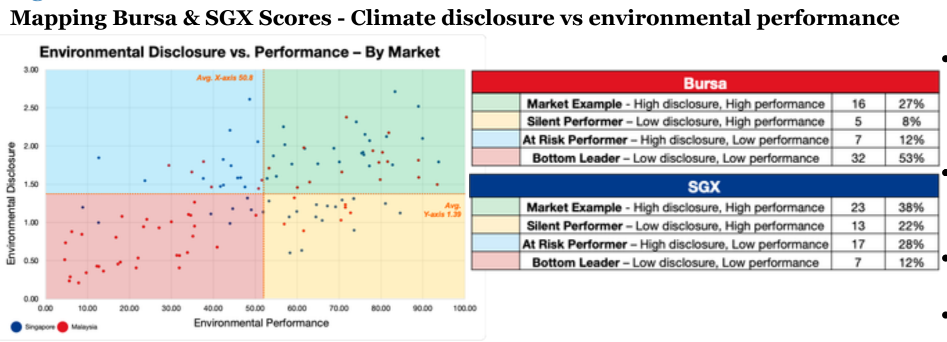
- In terms of performance, both market score closely reflects the disclosure distribution.
- However, more SGX companies score below the middle threshold (50 pts) indicating even in a mature market like Singapore, performance is not the same as disclosure

Figure 6.
Environmental performance score distribution



- In both market, the % companies improving their performance from last year has decreased
- Highest decline occurs in the Resources Use indicators (Energy Use & Water Withdrawal)
- Although the % of companies improving declines, the avg. score remains. Thus, it indicate performance is maintained only by selected few.

Figure 7.
Mapping Bursa & SGX Scores - Climate disclosure vs environmental performance



- Both market have relatively similar percentage of company populating the best quadrant (Market Example)
- Issues for Bursa lies in improving the Bottom Leader. However, this can be considered as a low-hanging-fruit as improvement can be made either through disclosure / performance respectively.
- Lower performance of Bursa can be associated with smaller company size, later implementation date, and technical limitation for Climate Resilience disclosure.
- For SGX, many companies remain At-Risk Performers, suggesting reporting may be ahead of implementation.
- SGX's Silent Performers might need better industry-specific and financially material disclosure.

Objective 2 - Ascertaining How Climate Initiatives Affect the Financial Performance of Bursa- and SGX-Listed Companies

As Figure 8 shows, **none** of the six relationships between the independent and dependent variables are **statistically significant**, with correlations ranging from -0.112 to 0.112 and all p-values above 0.2.

Table 2 shows the results of three regressions, one for each measure of financial performance (ROE, ROA, and Tobin's Q). Each regression uses the same set of control variables, adjusts for industry, and uses robust standard errors. **Both Compliance and E-performance** are **significantly associated** with **at least one measure of financial performance**, consistent with theory. The relationship is best described as **low-to-moderate**, varying by financial measure. While **climate-related initiatives provide some financial benefits**, these are **limited and concentrated in specific outcomes**, so they should be **evaluated carefully** before justifying major spending decisions.

Figure 8. Compliance and Eperformance plotted against each dependent variable, winsorized

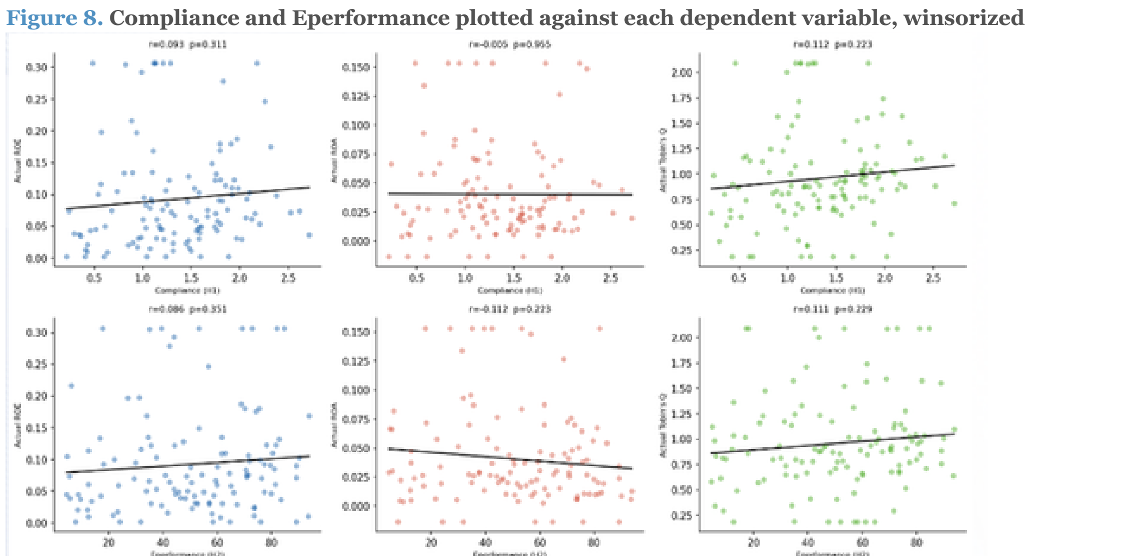


Table 2. Correlation matrix of variables used in regression analysis

	Actual ROE	Actual ROA	Actual Tobin's Q
Compliance (H1)	0.0173	0.0087	0.1944**
	(0.0148)	(0.0077)	(0.0778)
Eperformance (H2, orthog.)	0.0007**	0.0001	0.0060***
	(0.0004)	(0.0001)	(0.0023)
Tenure	-0.0007**	-0.0003**	-0.0053***
	(0.0003)	(0.0002)	(0.0016)
Log(Total Asset)	-0.0059	-0.0046*	-0.0769***
	(0.0052)	(0.0027)	(0.0273)
Debt-to-Equity	0.0077	-0.0103***	0.0477
	(0.0118)	(0.0039)	(0.0664)
Revenue Growth	0.0572***	0.0265***	0.1455**
	(0.0112)	(0.0052)	(0.0622)

	Actual ROE	Actual ROA	Actual Tobin's Q
R^2	0.4148	0.4074	0.2826
Adj. R^2	0.3669	0.3589	0.2239
F-statistic	8.4359	8.7705	4.5143
Prob (F-statistic)	0.0000	0.0000	0.0000
N	120	120	120
Industry FE	Yes	Yes	Yes
Robust SE (HC1)	Yes	Yes	Yes
DVs winsorized 5-95%	Yes	Yes	Yes
Eperf. orthogonalized	Yes	Yes	Yes

Significance: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Standard errors, adjusted using the HC1 method, are shown in parantheses.

Summary of Climate Disclosure Maturities of SGX and Bursa

Table 3. Details of what has been done well in SGX and Bursa, respectively

SGX - Singapore		The goods.	The bads.	Improvement
Size		Large cap	None	None
Implementation		Good across all groups	None	None
Industry		Good across all industries	None	None
Specification	Materiality Information	Consumer Staples	Energy total usage	• Provide simplified disclosure templates suited to smaller reporting teams • Encourage granular public data (electricity, water, emissions), since IS score tracks closely with data availability • Close remaining gaps in climate resilience, target credibility and financial impact disclosures
	Performance Importance	All except for Climate Resilience And Financial Resilience	Financial Resilience Climate Resilience	

Bursa - Malaysia		The goods.	The bads.	Improvement
Size		Large Cap	Small and Mid Cap	• Provide simplified, resource-light disclosure frameworks for Mid & Small Cap companies • Investigate root causes behind underperforming Large Cap firms (mainly data-availability issues) to close remaining gaps
Implementation		Group 1	Group 2	• Place close oversight on Group 2 ahead of the FY26 mandatory implementation deadline • Use Group 1 as a benchmark/template to fast-track Group 2 and Group 3 readiness
Industry		Financials	All four industries	• Implement targeted, industry-specific disclosure policies for non-Financial sectors to push adoption & quality
Specification	Materiality Information	Innovation & Resource Use	Emission score performance	• Provide guidance/templates for Small & Mid Cap firms to disclose climate-exposed assets and sustainability investment
	Performance Importance	All except for: Climate resilience Climate target credit Financial impact	Climate resilience Climate target credit Financial impact	

Incentives for Better Climate Disclosures/E-Performance

Table 4. Recommendations for improving disclosures and environmental performance of companies

Category of Companies	Recommendations for Disclosures	Recommendations for Environmental Performance
Market Example (High disclosure, high performance)	Commend such companies on high disclosure quality, such as through **leaderboard showing companies with highest IFRS S2 disclosure scores** on **website of exchange**	Exchange can publish material to **reiterate to such companies** the idea that **good environmental performance likely contributes to better financial performance**
Silent Performer (Low disclosure, high performance)	Stock exchange can take steps such as producing infographics to **highlight future benefits of performing scenario analyses** Alternatively, exchange can invite experts to conduct **short courses** to **train company personnel on performing scenario analyses**	Exchange can publish material to **reiterate to such companies** the idea that **good environmental performance likely contributes to better financial performance**
At Risk Performer (High disclosure, low performance)	Commend such companies on high disclosure quality, such as through **leaderboard showing companies with highest IFRS S2 disclosure scores** on **website of exchange**	Government intervention, e.g. **tax rebates** to encourage companies to decarbonise Encourage companies to **start small by disclosing more simplified data** on such subjects, before progressively increasing data granularity
Bottom Leader (Low disclosure, low performance)	Can implement **industry-specific disclosure policies/regulations** to stimulate higher disclosure quality in these industries	Government intervention, e.g. **tax rebates** to encourage companies to decarbonise Encourage companies to **start small** by **publishing more simplified data** on such subjects, before progressively increasing data granularity

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