

Survey of TCFD Disclosure Using Generative AI

March 2024
Japan Exchange Group, Inc.



Introduction

- Almost seven years have passed since the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) were published in June 2017. In that time, the TCFD Recommendations have become widely accepted around the world. In Japan, they are mentioned as an internationally recognized disclosure framework in the Corporate Governance Code (revised 2021) and the Principles Regarding the Disclosure of Narrative Information (Attachment), which was published in tandem with the January 31, 2023 amendments to the Cabinet Office Ordinance on Disclosure of Corporate Affairs, etc. and other rules*.
- In order to shed light on the situation around Japanese companies' TCFD disclosure (that is, climate-related information disclosure based on the TCFD Recommendations) and provide listed companies with helpful reference information for preparing their own climate-related disclosure, in FY2021 and FY2022, Japan Exchange Group, Inc. (JPX) carried out two "Surveys of TCFD Disclosure in Japan" and published their results. From these, we could see that while judgements of materiality and categories considered "easier" to tackle vary depending on the company's attributes and external environment, companies are starting from where they can depending on their circumstances, and gradually expanding information disclosure in their Annual Securities Reports, integrated reports, or other places.
- This fiscal year's survey utilizes the results of research which looked to use generative AI to automatically determine whether information was disclosed corresponding to each of TCFD's Recommended Disclosures in the Annual Securities Reports of Tokyo Stock Exchange (TSE) listed companies (see JPX Working Paper "Automated Determination of TCFD Recommended Disclosures through Zero-shot Text Classification Using Large Language Models"). Given that the amended Cabinet Office Ordinance applied to Annual Securities Reports covering business years ending on or after March 31, 2023, this research used generative AI to try to automatically determine disclosure rates in Annual Securities Reports submitted on or after April 1. For this reason, the coverage in this year's survey is much wider than in previous years, and it has become possible to shed light on differences between disclosure rates by market segment, company size, and sector. On the other hand, it must be noted that since the method and subjects differ from the previous two years' surveys, the data is not directly comparable, and is not suitable for time series analysis.
- We hope that this survey can be of help to listed companies preparing their climate-related disclosure, as well as to all parties in their work to enhance the quality and quantity of disclosed information.

*These amendments, among other things, added a section for disclosure of some sustainability-related information in statutory Annual Securities Reports.

Overview of the Survey

Purposes	<ul style="list-style-type: none">To understand the current situation around TSE listed companies' disclosure of climate-related information based on the TCFD Recommendations, and provide useful reference information to companies working on their own climate disclosureExperimental use of generative AI for processing of sustainability-related information
Subject	Domestic companies listed on the Tokyo Stock Exchange as of October 31, 2023 that submitted Annual Securities Reports between April 1, 2023 and October 31, 2023 (2,198 companies)
Method	<p>Analysis of presence of information disclosure by "TCFD recommended disclosure criteria" and by company attributes (market segment, market capitalization, sector) based on the results of research* which used generative AI to automatically determine whether information was disclosed corresponding to each of TCFD's Recommended Disclosures in the Annual Securities Reports of Tokyo Stock Exchange listed companies</p> <p>*This research presented and carried out a method to use generative AI to determine whether information corresponding to each of the disclosure categories recommended by the TCFD Recommendations is present in text or table form in the Annual Securities Reports of companies covered by the survey.</p> <ul style="list-style-type: none">The researchers created 27 types of "TCFD recommended disclosure criteria" (see pages 4 and 5) as standards to mechanically determine whether there is information on each of the 11 Recommended Disclosures.After using evaluation datasets to test the accuracy of the classification, they used generative AI to automatically determine whether there was information corresponding to each of the TCFD recommended disclosure criteria, using a dataset created from the "Approach to Sustainability and Related Initiatives" sections of the Annual Securities Reports of each of the companies covered by the survey. <p>It should be noted that although the presented method resulted in high classification accuracy, "Strategy" and "Risk Management" elements saw relatively lower levels of precision, and there is room for improvement here. Also, since the evaluation dataset was of limited size, caution is needed when generalizing the results.</p> <p>For more details on the research, please see JPX Working Paper "Automated Determination of TCFD Recommended Disclosures through Zero-shot Text Classification Using Large Language Models."</p> <p>Full Text https://www.jpx.co.jp/english/corporate/research-study/working-paper/JPXWP_Vol43e.pdf Summary https://www.jpx.co.jp/english/corporate/research-study/working-paper/Summary_JPXWP_Vol43e.pdf</p>

TCFD Recommended Disclosure Criteria 1/2

TCFD Recommended Disclosure Item	Criterion Title	Criterion Definition	
<p>Governance Disclose the organization's governance around climate-related risks and opportunities.</p>	<p>a) Describe the board's oversight of climate-related risks and opportunities.</p>	01-01 Process of reporting to the board on climate-related issues	Does it describe the processes by which the board and/or board committee are informed about climate-related issues?
		01-02 Frequency of reporting to the board on climate-related issues	Does it quantitatively describe the frequency by which the board and/or board committee are informed about climate-related issues?
		01-03 Consideration of climate-related issues by the board	Does it describe that the board or committee will consider climate-related issues in its decision-making or review? Decision-making in this context includes decisions related to developing management plans and promoting activities aimed at resolving business issues.
		01-04 How the board monitors and oversees progress	Does it describe that the Board of Directors provides monitoring or oversight on the status of efforts to address climate-related issues? The term "monitoring or oversight" here does not include merely receiving reports or promoting activities.
	<p>b) Describe management's role in assessing and managing climate-related risks and opportunities.</p>	02-01 Organizational structure	Does it describe the organizational structure regarding climate-related issues? Exclude, however, if the description relates only to the Board of Directors.
		02-02 Process by which management is informed about climate-related issues	Does it describe the process by which management receives information on climate-related issues?
02-03 How management monitors climate-related issues		Does it describe that management provides monitoring or oversight of efforts to address climate-related issues? The term "monitoring or oversight" here does not include receiving reports or promoting activities.	
<p>Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.</p>	<p>a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.</p>	03-01 Time horizon(s) for the consideration of climate-related risks and opportunities	Does it describe what time range (e.g., short-, medium-, or long-term) perspective is considered for climate-related issues?
		03-02 Climate-related issues in each specified time horizon	Does it describe specific climate-related issues with financial implications in each time range (e.g., short-, medium-, or long-term)?
		03-03 Process for determining risks and opportunities with a financial impact	Does it describe the process for identifying climate-related issues with significant financial impact?
	<p>b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning</p>	04-01 Impact on businesses or strategy	Does it describe the impact of climate-related issues on the business or strategy? Examples of such impact destinations include "products and services," "supply and value chains," "adaptation and mitigation activities," "R&D-related investments," and "business operations (including the type of business and location of facilities)."
		04-02 Impact on financial planning	Does it describe the impact of climate-related issues on financial planning? Examples of such impact destinations include "financial performance (revenues, expenses, etc.)," "financial position (assets, liabilities, etc.)," "acquisitions or divestitures," and "access to capital."

TCFD Recommended Disclosure Criteria 2/2

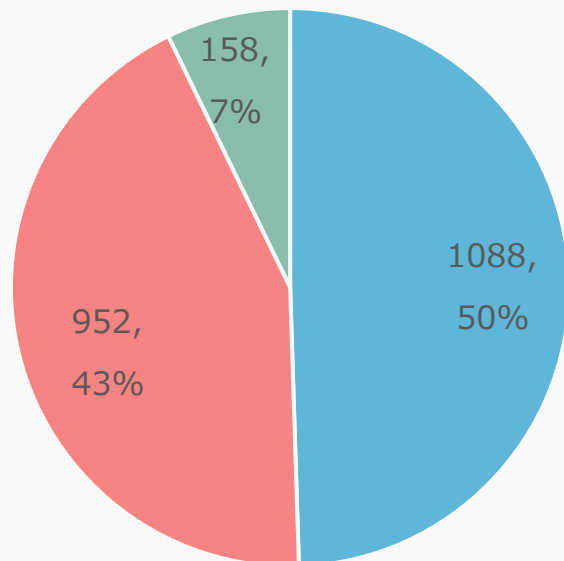
TCFD Recommended Disclosure Item		Criterion Title	Criterion Definition
Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	05-01 2°C or lower scenario	Does it describe a scenario for transition to a low-carbon economy in line with the below 2°C scenario?
		05-02 Climate-related scenarios and associated time horizon(s)	Does it describe the climate-related scenarios being considered and their time ranges?
		05-03 Impact of climate-related scenarios on strategy	Does it describe how climate-related issues will affect its strategy in the climate-related scenarios being considered?
		05-04 Strategic action taken in relation to climate-related scenarios	Does it describe how they would change their strategies in response to the impact of climate-related issues in the climate-related scenarios being considered?
		05-05 Impact of climate-related scenarios on financial planning	Does it describe the impact of climate-related issues on financial planning in the climate-related scenarios being considered?
Risk Management Disclose how the organization identifies, assesses, and manages climate-related risks.	a) Describe the organization's processes for identifying and assessing climate-related risks.	06-01 Process for identifying and assessing risks	Does it describe the process for identifying and assessing climate-related risks?
	b) Describe the organization's processes for managing climate-related risks.	07-01 Process for managing risks	Does it describe the process of managing climate-related risks? Managing risks here refers to decisions regarding mitigation, transfer, acceptance, and control of risk.
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	08-01 Integration of the identification and assessment process into overall risk management	Does it describe how the process of identifying and assessing climate-related risks is integrated into the overall organizational risk management?
		08-02 Integration of the management process into overall risk management	Does it describe how the process of managing climate-related risks is integrated into the overall organizational risk management?
Metrics and Targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	09-01 Evaluation metrics	Does it specifically describe the indicators used to measure and manage climate-related risks and opportunities? An example would be CO ₂ .
		09-02 Historical performance based on evaluation metrics	Does it describe at least two years of historical performance values for the indicators used to measure and manage climate-related risks and opportunities? An example would be CO ₂ .
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	10-01 Greenhouse gas emissions	Does it describe greenhouse gas emissions in Scope 1 and 2?
		10-02 Historical greenhouse gas emissions	Does it describe at least two years of historical greenhouse gas emissions for Scope 1 and 2?
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	11-01 Climate-related targets	Does it describe targets for the indicators used to measure and manage climate-related risks and opportunities?
		11-02 Time horizon(s) for climate-related targets	Does it describe the time horizon of the targets set for the indicators used to measure and manage climate-related risks and opportunities?

Overview of Surveyed Companies

- The survey covered 2,198 Tokyo Stock Exchange listed companies (as of October 31, 2023) which submitted Annual Securities Reports between April 1, 2023 and October 31, 2023.
- 1,088 of these were listed on the TSE Prime Market, 952 on the Standard Market, and 158 on the Growth Market.
- Using TSE's 17 sector categories, the largest numbers were in IT & Services, Others (509) and Commercial & Wholesale Trade (201).

Number of Surveyed Companies by Market Segment

■ Prime Market ■ Standard Market ■ Growth Market



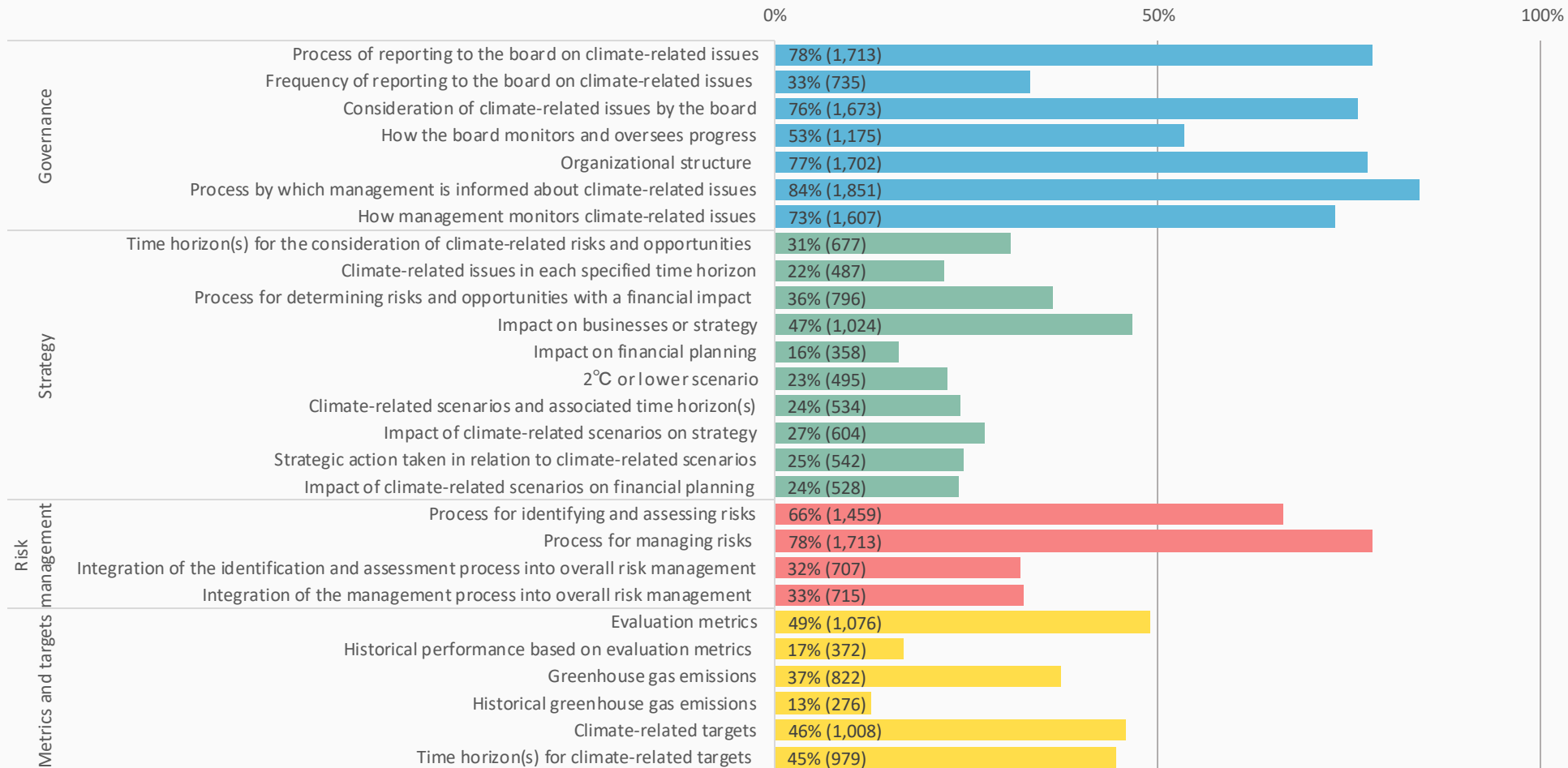
Surveyed Companies by Sector (TSE 17 Sector Categories)

IT & Services, Others	509
Commercial & Wholesale Trade	201
Raw Materials & Chemicals	199
Electric Appliances & Precision Instruments	199
Construction & Materials	197
Machinery	149
Retail Trade	139
Transportation & Logistics	94
Automobiles & Transportation Equipment	93
Foods	91
Banks	74
Financials (Ex-banks)	66
Steel & Non-ferrous Metals	63
Real Estate	53
Pharmaceutical	40
Electric Power & Gas	21
Energy Resources	10
Total	2,198

Disclosure by Criteria

- Of the 27 criteria, the highest rates of disclosure were on "Governance - process by which management is informed about climate-related issues" (1,851 companies, 84%), "Governance - process of reporting to the board on climate-related issues" (1,713, 78%), and "Risk management - process for managing risks" (1,713, 78%).
- On the other hand, the lowest rates of disclosure were on "Metrics and targets – historical greenhouse gas emissions" (276, 13%) and "Strategy – impact on financial planning" (358, 16%).

Disclosure by TCFD Recommended Disclosure Criteria (All 2,198 Companies)



Disclosure by Criteria – Market Segment Breakdown

		Prime Market (1,088)			Standard Market (952)			Growth Market (158)		
		Comps. Disclosing	%	Average*	Comps. Disclosing	%	Average*	Comps. Disclosing	%	Average*
Governance	01-01 Process of reporting to the board on climate-related issues	997	92%	75%	633	66%	48%	83	53%	35%
	01-02 Frequency of reporting to the board on climate-related issues	519	48%		195	20%		21	13%	
	01-03 Consideration of climate-related issues by the board	982	90%		617	65%		74	47%	
	01-04 How the board monitors and oversees progress	770	71%		364	38%		41	26%	
	02-01 Organizational structure	1006	92%	92%	621	65%	67%	75	47%	51%
	02-02 Process by which management is informed about climate-related issues	1034	95%		723	76%		94	59%	
	02-03 How management monitors climate-related issues	953	88%		581	61%		73	46%	
Strategy	03-01 Time horizon(s) for the consideration of climate-related risks and opportunities	567	52%	51%	108	11%	9%	2	1%	2%
	03-02 Climate-related issues in each specified time horizon	435	40%		50	5%		2	1%	
	03-03 Process for determining risks and opportunities with a financial impact	677	62%		113	12%		6	4%	
	04-01 Impact on businesses or strategy	733	67%	49%	274	29%	16%	17	11%	6%
	04-02 Impact on financial planning	327	30%		29	3%		2	1%	
	05-01 2°C or lower scenario	456	42%	46%	38	4%	4%	1	1%	1%
	05-02 Climate-related scenarios and associated time horizon(s)	494	45%		39	4%		1	1%	
	05-03 Impact of climate-related scenarios on strategy	551	51%		51	5%		2	1%	
	05-04 Strategic action taken in relation to climate-related scenarios	497	46%		44	5%		1	1%	
	05-05 Impact of climate-related scenarios on financial planning	492	45%		35	4%		1	1%	
Risk Mgmt	06-01 Process for identifying and assessing risks	881	81%	81%	511	54%	54%	67	42%	42%
	07-01 Process for managing risks	974	90%	90%	654	69%	69%	85	54%	54%
	08-01 Integration of the identification and assessment process into overall risk management	537	49%	49%	160	17%	17%	10	6%	7%
	08-02 Integration of the management process into overall risk management	540	50%		163	17%		12	8%	
Metrics & Targets	09-01 Evaluation metrics	820	75%	52%	246	26%	16%	10	6%	3%
	09-02 Historical performance based on evaluation metrics	318	29%		54	6%		0	0%	
	10-01 Greenhouse gas emissions	677	62%	42%	139	15%	10%	6	4%	2%
	10-02 Historical greenhouse gas emissions	234	22%		42	4%		0	0%	
	11-01 Climate-related targets	762	70%	70%	236	25%	24%	10	6%	7%
	11-02 Time horizon(s) for climate-related targets	756	69%		212	22%		11	7%	

*Average percentages for each of the 11 TCFD Recommended Disclosures.

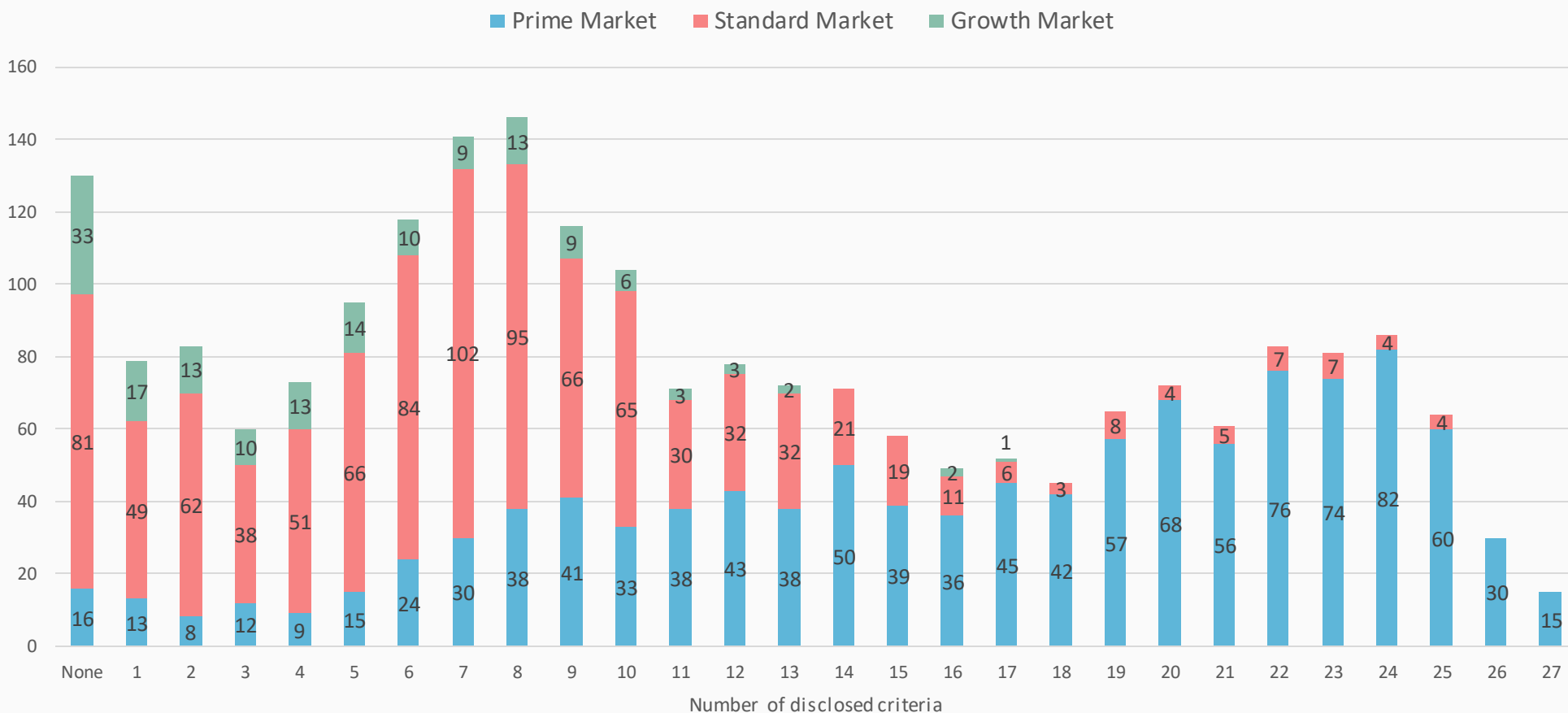
Disclosure by Criteria – Market Segment/Market Capitalization Breakdown

		Prime Market			Standard Market			Growth Market
		JPY 100 bil. and over	JPY 25 bil. and over, less than JPY 100 bil.	Less than JPY 25 bil.	JPY 10 bil. And over	JPY 4 bil. and over, under JPY 10 bil.	Under JPY 4 bil.	
		(523 comps.)	(447)	(118)	(365)	(371)	(216)	
Governance	Process of reporting to the board on climate-related issues	95%	90%	83%	73%	64%	60%	53%
	Frequency of reporting to the board on climate-related issues	51%	46%	42%	23%	19%	19%	13%
	Consideration of climate-related issues by the board	93%	89%	83%	73%	63%	56%	47%
	How the board monitors and oversees progress	74%	68%	69%	41%	38%	33%	26%
	Organizational structure	95%	91%	86%	74%	63%	55%	47%
	Process by which management is informed about climate-related issues	97%	94%	92%	82%	76%	65%	59%
	How management monitors climate-related issues	91%	86%	79%	68%	60%	51%	46%
Strategy	Time horizon(s) for the consideration of climate-related risks and opportunities	62%	45%	39%	18%	9%	4%	1%
	Climate-related issues in each specified time horizon	47%	34%	31%	10%	3%	2%	1%
	Process for determining risks and opportunities with a financial impact	70%	55%	53%	19%	7%	7%	4%
	Impact on businesses or strategy	77%	59%	55%	36%	22%	28%	11%
	Impact on financial planning	35%	26%	26%	6%	1%	1%	1%
	2°C or lower scenario	47%	37%	37%	8%	2%	0%	1%
	Climate-related scenarios and associated time horizon(s)	51%	39%	42%	9%	2%	0%	1%
	Impact of climate-related scenarios on strategy	58%	43%	47%	10%	3%	3%	1%
	Strategic action taken in relation to climate-related scenarios	54%	37%	40%	9%	3%	0%	1%
Impact of climate-related scenarios on financial planning	51%	40%	40%	7%	2%	0%	1%	
Risk Mgmt	Process for identifying and assessing risks	85%	80%	66%	62%	51%	44%	42%
	Process for managing risks	92%	89%	84%	74%	67%	63%	54%
	Integration of the identification and assessment process into overall risk management	54%	45%	44%	22%	15%	13%	6%
	Integration of the management process into overall risk management	55%	46%	41%	22%	13%	15%	8%
Metrics & Targets	Evaluation metrics	82%	71%	64%	36%	21%	17%	6%
	Historical performance based on evaluation metrics	34%	26%	19%	9%	4%	2%	0%
	Greenhouse gas missions	69%	57%	53%	24%	11%	6%	4%
	Historical greenhouse gas emissions	24%	21%	13%	7%	4%	1%	0%
	Climate-related targets	79%	64%	54%	33%	21%	17%	6%
	Time horizon(s) for climate-related targets	80%	63%	45%	29%	20%	15%	7%

Disclosure by Number of Disclosed Criteria

- The number of companies disclosing information corresponding to all 27 of the criteria was 15, and there were 130 companies for which there was no information corresponding to any of the criteria.
- The average number of criteria disclosed on by companies in each market segment was 17 for Prime, 7 for Standard, and 4 for Growth.

Companies by Number of Disclosed Criteria (All 2,198 Companies)



Disclosure by TSE's 17 Sector Categories (All Segments) 1/2

		Foods	Energy Resources	Construction & Materials	Raw Materials & Chemicals	Pharmaceutical	Automobiles & Transportation Equipment	Steel & Nonferrous Metals	Machinery	Electric Appliances & Precision Instruments
		(91 comps.)	(10)	(197)	(199)	(40)	(93)	(63)	(149)	(199)
Governance	Process of reporting to the board on climate-related issues	87%	90%	79%	86%	73%	82%	87%	78%	82%
	Frequency of reporting to the board on climate-related issues	42%	30%	32%	36%	35%	42%	48%	33%	36%
	Consideration of climate-related issues by the board	80%	90%	77%	86%	68%	85%	86%	80%	80%
	How the board monitors and oversees progress	51%	70%	47%	65%	53%	57%	65%	52%	59%
	Organizational structure	88%	90%	81%	83%	73%	85%	89%	81%	85%
	Process by which management is informed about climate-related issues	93%	100%	87%	91%	75%	90%	92%	85%	86%
	How management monitors climate-related issues	84%	90%	70%	83%	73%	75%	87%	74%	78%
Strategy	Time horizon(s) for the consideration of climate-related risks and opportunities	31%	50%	40%	36%	38%	41%	52%	34%	37%
	Climate-related issues in each specified time horizon	20%	40%	26%	25%	23%	23%	33%	25%	24%
	Process for determining risks and opportunities with a financial impact	32%	70%	41%	41%	43%	42%	49%	38%	44%
	Impact on businesses or strategy	47%	50%	56%	52%	43%	53%	60%	52%	53%
	Impact on financial planning	13%	20%	15%	16%	18%	13%	11%	21%	14%
	2°C or lower scenario	18%	40%	28%	26%	28%	24%	35%	23%	26%
	Climate-related scenarios and associated time horizon(s)	24%	50%	29%	30%	33%	26%	32%	26%	28%
	Impact of climate-related scenarios on strategy	26%	60%	31%	34%	33%	29%	38%	29%	32%
	Strategic action taken in relation to climate-related scenarios	22%	50%	29%	31%	30%	32%	38%	28%	28%
Impact of climate-related scenarios on financial planning	25%	40%	28%	31%	28%	22%	33%	23%	29%	
Risk Mgmt	Process for identifying and assessing risks	81%	70%	65%	73%	70%	77%	83%	70%	73%
	Process for managing risks	85%	90%	79%	84%	70%	81%	94%	83%	83%
	Integration of the identification and assessment process into overall risk management	32%	40%	32%	39%	30%	43%	48%	30%	37%
	Integration of the management process into overall risk management	32%	30%	36%	39%	28%	45%	51%	36%	40%
Metrics & Targets	Evaluation metrics	62%	80%	52%	61%	50%	68%	70%	51%	56%
	Historical performance based on evaluation metrics	21%	20%	17%	22%	20%	16%	27%	19%	17%
	Greenhouse gas emissions	40%	50%	41%	47%	45%	52%	49%	43%	43%
	Historical greenhouse gas emissions	13%	10%	13%	17%	13%	12%	21%	11%	11%
	Climate-related targets	62%	70%	52%	56%	45%	66%	70%	49%	55%
	Time horizon(s) for climate-related targets	59%	70%	49%	56%	48%	66%	63%	46%	53%

Disclosure by TSE's 17 Sector Categories (All Segments) 2/2

		IT & Services, Others	Electric Power & Gas	Transportation & Logistics	Commercial & Wholesale Trade	Retail Trade	Banks	Financials (Ex- banks)	Real Estate
		(509 comps.)	(21)	(94)	(201)	(139)	(74)	(66)	(53)
Governance	Process of reporting to the board on climate-related issues	67%	100%	83%	76%	73%	100%	77%	79%
	Frequency of reporting to the board on climate-related issues	24%	38%	38%	32%	28%	62%	32%	40%
	Consideration of climate-related issues by the board	63%	100%	79%	76%	66%	99%	85%	70%
	How the board monitors and oversees progress	42%	76%	61%	56%	41%	85%	59%	55%
	Organizational structure	64%	100%	85%	75%	71%	96%	77%	72%
	Process by which management is informed about climate-related issues	73%	100%	86%	84%	83%	100%	89%	81%
	How management monitors climate-related issues	62%	86%	80%	73%	62%	99%	74%	72%
Strategy	Time horizon(s) for the consideration of climate-related risks and opportunities	14%	67%	39%	27%	22%	54%	30%	26%
	Climate-related issues in each specified time horizon	11%	62%	33%	20%	15%	53%	26%	15%
	Process for determining risks and opportunities with a financial impact	18%	76%	40%	38%	28%	80%	41%	36%
	Impact on businesses or strategy	26%	86%	54%	49%	41%	82%	44%	49%
	Impact on financial planning	10%	38%	24%	16%	14%	49%	26%	17%
	2°C or lower scenario	12%	62%	29%	23%	16%	43%	24%	19%
	Climate-related scenarios and associated time horizon(s)	13%	71%	35%	23%	16%	42%	24%	19%
	Impact of climate-related scenarios on strategy	14%	86%	37%	26%	19%	50%	30%	25%
	Strategic action taken in relation to climate-related scenarios	12%	76%	35%	24%	17%	34%	26%	23%
Impact of climate-related scenarios on financial planning	12%	67%	33%	24%	17%	50%	21%	19%	
Risk Mgmt	Process for identifying and assessing risks	55%	76%	74%	65%	59%	73%	62%	58%
	Process for managing risks	69%	81%	80%	78%	72%	91%	74%	70%
	Integration of the identification and assessment process into overall risk management	22%	62%	34%	34%	30%	45%	26%	30%
	Integration of the management process into overall risk management	19%	62%	32%	32%	29%	47%	35%	30%
Metrics & Targets	Evaluation metrics	25%	90%	63%	48%	38%	91%	44%	43%
	Historical performance based on evaluation metrics	8%	33%	15%	17%	9%	58%	20%	8%
	Greenhouse gas emissions	20%	52%	36%	40%	25%	72%	36%	36%
	Historical greenhouse gas emissions	7%	24%	10%	15%	8%	46%	12%	8%
	Climate-related targets	23%	86%	61%	40%	32%	88%	42%	32%
Time horizon(s) for climate-related targets	22%	90%	57%	42%	27%	86%	38%	36%	

Disclosure by TSE's 17 Sector Categories (Prime Market) 1/2

		Foods	Energy Resources	Construction & Materials	Raw Materials & Chemicals	Pharmaceutical	Automobiles & Transportation Equipment	Steel & Nonferrous Metals	Machinery	Electric Appliances & Precision Instruments
		(50)	(8)	(93)	(109)	(23)	(45)	(38)	(73)	(120)
Governance	Process of reporting to the board on climate-related issues	94%	100%	94%	97%	100%	91%	97%	90%	94%
	Frequency of reporting to the board on climate-related issues	60%	38%	46%	47%	57%	58%	61%	44%	48%
	Consideration of climate-related issues by the board	90%	100%	91%	97%	96%	93%	97%	86%	94%
	How the board monitors and oversees progress	60%	75%	63%	83%	78%	71%	76%	62%	76%
	Organizational structure	98%	88%	94%	97%	100%	98%	97%	95%	97%
	Process by which management is informed about climate-related issues	98%	100%	95%	98%	100%	96%	100%	95%	96%
	How management monitors climate-related issues	96%	100%	87%	94%	91%	89%	97%	86%	89%
Strategy	Time horizon(s) for the consideration of climate-related risks and opportunities	50%	63%	65%	56%	65%	58%	71%	58%	49%
	Climate-related issues in each specified time horizon	36%	38%	46%	40%	39%	38%	55%	45%	36%
	Process for determining risks and opportunities with a financial impact	52%	75%	70%	66%	74%	64%	76%	64%	63%
	Impact on businesses or strategy	64%	50%	75%	72%	74%	69%	79%	67%	69%
	Impact on financial planning	22%	25%	29%	28%	30%	24%	16%	38%	22%
	2°C or lower scenario	32%	38%	53%	43%	48%	40%	55%	41%	40%
	Climate-related scenarios and associated time horizon(s)	44%	50%	55%	50%	57%	42%	50%	47%	42%
	Impact of climate-related scenarios on strategy	46%	63%	58%	56%	57%	49%	61%	53%	50%
	Strategic action taken in relation to climate-related scenarios	40%	50%	55%	51%	52%	53%	61%	49%	44%
	Impact of climate-related scenarios on financial planning	46%	38%	52%	52%	48%	40%	53%	45%	43%
Risk Mgmt	Process for identifying and assessing risks	84%	88%	87%	86%	91%	87%	92%	82%	81%
	Process for managing risks	90%	100%	94%	93%	91%	87%	100%	88%	90%
	Integration of the identification and assessment process into overall risk management	36%	50%	52%	59%	48%	58%	61%	47%	51%
	Integration of the management process into overall risk management	40%	38%	56%	60%	48%	47%	61%	56%	53%
Metrics & Targets	Evaluation metrics	84%	88%	75%	79%	83%	80%	89%	77%	78%
	Historical performance based on evaluation metrics	32%	25%	29%	32%	35%	22%	42%	29%	26%
	Greenhouse gas emissions	62%	50%	69%	66%	78%	69%	71%	66%	64%
	Historical greenhouse gas emissions	20%	13%	23%	25%	22%	13%	32%	16%	17%
	Climate-related targets	82%	88%	72%	74%	78%	80%	89%	73%	75%
Time horizon(s) for climate-related targets	80%	88%	72%	75%	78%	80%	84%	71%	76%	

Disclosure by TSE's 17 Sector Categories (Prime Market) 2/2

		IT & Services, Others	Electric Power & Gas	Transportation & Logistics	Commercial & Wholesale Trade	Retail Trade	Banks	Financials (Ex- banks)	Real Estate
		(187)	(20)	(51)	(95)	(52)	(63)	(36)	(25)
Governance	Process of reporting to the board on climate-related issues	82%	100%	96%	88%	85%	100%	92%	88%
	Frequency of reporting to the board on climate-related issues	36%	40%	51%	46%	40%	68%	50%	52%
	Consideration of climate-related issues by the board	80%	100%	92%	89%	79%	98%	97%	88%
	How the board monitors and oversees progress	65%	75%	75%	72%	58%	86%	67%	76%
	Organizational structure	83%	100%	96%	87%	87%	97%	92%	88%
	Process by which management is informed about climate-related issues	89%	100%	96%	95%	90%	100%	100%	88%
	How management monitors climate-related issues	81%	85%	90%	83%	73%	98%	86%	88%
Strategy	Time horizon(s) for the consideration of climate-related risks and opportunities	33%	70%	65%	48%	44%	60%	53%	52%
	Climate-related issues in each specified time horizon	28%	65%	61%	32%	31%	60%	44%	32%
	Process for determining risks and opportunities with a financial impact	39%	80%	69%	64%	58%	89%	69%	60%
	Impact on businesses or strategy	45%	90%	82%	67%	60%	87%	72%	68%
	Impact on financial planning	24%	40%	43%	29%	31%	57%	42%	36%
	2°C or lower scenario	30%	65%	53%	45%	35%	51%	42%	36%
	Climate-related scenarios and associated time horizon(s)	34%	75%	63%	46%	35%	49%	42%	36%
	Impact of climate-related scenarios on strategy	34%	90%	67%	49%	42%	59%	53%	44%
	Strategic action taken in relation to climate-related scenarios	29%	80%	63%	46%	38%	40%	44%	40%
	Impact of climate-related scenarios on financial planning	32%	70%	59%	46%	38%	59%	36%	40%
Risk Mgmt	Process for identifying and assessing risks	70%	80%	90%	81%	77%	78%	78%	76%
	Process for managing risks	85%	85%	90%	92%	83%	94%	92%	76%
	Integration of the identification and assessment process into overall risk management	40%	65%	47%	53%	58%	51%	36%	48%
	Integration of the management process into overall risk management	33%	65%	49%	49%	54%	54%	53%	48%
Metrics & Targets	Evaluation metrics	52%	95%	86%	79%	67%	97%	72%	76%
	Historical performance based on evaluation metrics	20%	35%	24%	31%	21%	63%	33%	16%
	Greenhouse gas emissions	45%	55%	57%	73%	50%	76%	58%	64%
	Historical greenhouse gas emissions	16%	25%	16%	28%	17%	49%	19%	16%
	Climate-related targets	47%	90%	84%	60%	62%	94%	69%	56%
	Time horizon(s) for climate-related targets	44%	95%	86%	63%	54%	94%	64%	64%

Conclusions

- In this survey, we used generative AI to shed light on the situation around climate-related disclosure among 2,198 TSE listed companies that had submitted Annual Securities Reports between April 1 and October 31, 2023, breaking down the results by "TCFD recommended disclosure criteria" and company attributes (market segment, market capitalization, sector).
- Looking by market segment, disclosure rates among Prime-listed companies were higher than for Standard or Growth-listed companies for all criteria. The average number of criteria disclosed on was 17 for Prime, 7 for Standard and 4 for Growth. In the Standard and Growth Markets, there was a trend by which criteria under "Governance" and "Risk Management," for which TCFD recommends disclosure for all companies, saw higher rates of disclosure than those under "Strategy" and "Metrics and Targets," which should be based on materiality.
- Looking by market capitalization, in both the Prime and Standard Markets, the groups with higher capitalizations had higher disclosure rates. By sector, those in the Electric Power & Gas and Banks sectors disclosed most.
- Climate-related disclosure in the Annual Securities Report should be carried out based on a materiality assessment by each company. The survey results suggest that companies are taking into account factors such as the nature of their business, their size, the area in which they operate, and requests from stakeholders including shareholders when considering the content of their disclosure.
- It should be noted that while this survey covered only Annual Securities Reports, as indicated in the previous surveys, many companies publish information relevant to this topic using a variety of media including integrated reports and sustainability reports.
- The situation surrounding climate-related disclosure is undergoing a fundamental shift. In June 2023, the IFRS Foundation's International Sustainability Standards Board (ISSB) published its IFRS S1 standard, which provides a set of disclosure requirements for sustainability as a whole, and IFRS S2, which is specific to climate. The ISSB standards are partially based on the TCFD Recommendations, leading TCFD to disband last year stating that its work is complete. From this year, by request from the Financial Stability Board, the IFRS Foundation is taking over monitoring of climate disclosure from TCFD. Meanwhile, the Sustainability Standards Board of Japan (SSBJ) is developing disclosure standards specific to this country.
- With voluntary corporate disclosure encouraged by the TCFD Recommendations as a base, we look forward to seeing further deepening of initiatives from companies leading to enhanced quality and quantity of disclosed information, which in turn leads to more active dialogue with shareholders and other stakeholders. This should then contribute to sustainable growth and mid- to long-term improvements of corporate value, eventually enhancing the attractiveness of the Japanese market as a whole.

- This material was prepared only for the purpose of widely providing information to investors and other market participants about the financial instruments markets that Japan Exchange Group, Inc. (JPX) provides, and not for the purpose of soliciting investment.
- While every effort is taken to ensure the accuracy of the information contained in this material, JPX shall hold no responsibility or liability for any actions taken using said information.
- The contents of this material are subject to change without notice. JPX shall hold no responsibility or liability for any damage or loss incurred based on such changes.
- JPX shall hold no responsibility or liability for the links or content of materials linked to within this material.
- JPX shall hold no responsibility or liability for any other actions taken using the information in this material