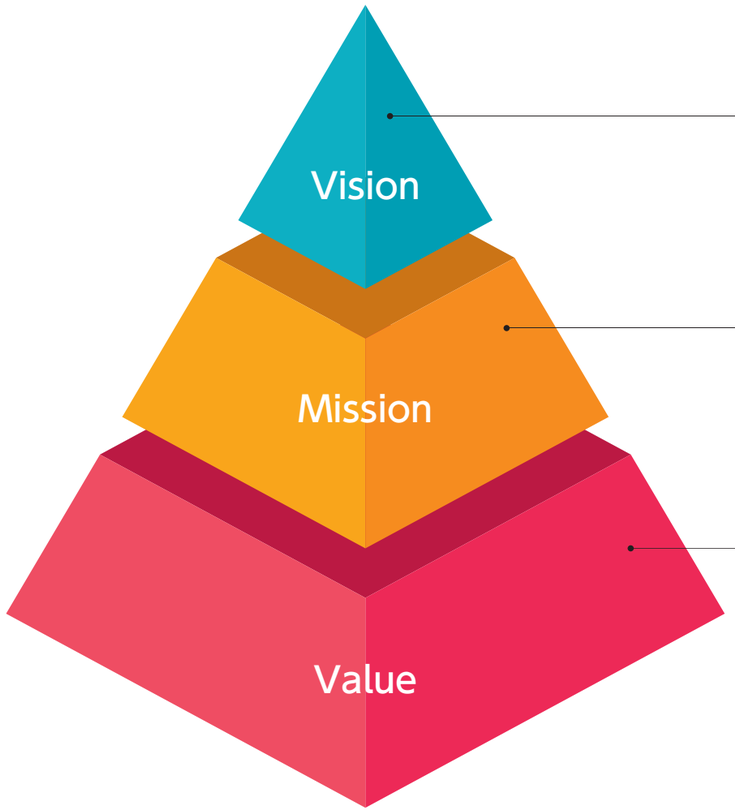
TCFD REPORT **2023/2024**

June 2024

SUMITOMO MITSUI TRUST ASSET MANAGEMENT

CONTENTS

Corporate Philosophy Structure



The corporate philosophy of Sumitomo Mitsui Trust Asset Management is to share various ideas with our diverse stakeholders from a global perspective, continue searching for possibilities leading to a better future, and work to create a society that is not just economically wealthy, but truly affluent.

Based on such concepts, we have established our ideal Vision, our Mission for achieving our ideals, and behavior policies for Values to pursue asset management that aligns with current trends together with our stakeholders.

Our Vision includes our sincere desire in regard to all potentialities in harmony with our founder's ideals and to "open up" new possibilities for a better future.
It also includes our desire to warmly cultivate a "truly affluent society" together with our various stakeholders that is not just economically wealthy, but a "truly affluent society" envisioned by all.

We feel it is our Mission to help everyone to reach future goals and ideals through asset management. For this purpose, our Mission includes working closely with our clients, pursuing the best outcome through dialogue with stakeholders, continuously addressing challenges, and pursuing asset management in harmony with current trends.

Realizing opportunities today to ensure sustainable prosperity for tomorrow.

Your goals are our goals. Your success is our success.
We strive to create the new standard of asset management that acknowledges the aspirations of all our investors and stakeholders
and work with each of you every step of the way.

The first step in achieving our Vision and Mission is to have our employees adhere to the following six Values as their individual behavior policy.

Stand in the shoes of others and engage in dialogue with empathy

At all times, we will never forget to be considerate of others.
By always putting ourselves in the shoes of others,
we will build relationships of mutual trust through ongoing dialogue based on empathy and consideration.

Have self-awareness and seek constant self-improvement

Growth is possible at any age.
To achieve personal growth, we must consider what we can do for the society in which we live,
first looking carefully at ourselves and continuing to pursue self-improvement to achieve even greater heights.

Expand curiosity and transform awareness into action

Going beyond our own specialized fields, we will keep our sense of curiosity alive,
connecting the insights and ideas we gain from this curiosity to the actions we take.

Create synergies by bringing unique personalities together

Each individual among us brings different strengths to the table.
By respecting talents and personalities that differ from our own,
and by proactively multiplying each other's strengths, we will create innovative synergies.

Pursue quality and value that goes one step ahead

We will continue pursuing quality and value one step ahead of the rest: this is our DNA.
"How can we exceed client expectations?" "How can we become their best partner?"
With these questions in mind, every small step taken by each of us will lead to a major step forward for the company.

Look ahead to the future, continuously challenging ourselves

We will not only respond to the voices of our clients and the changing times,
but also recognize current trends and create new value that is not merely an extension of what we have provided in the past.
Moreover, we will continue to take on the never-ending challenge
of creating products and services that engender both inspiration and excitement.

Forewords

We believe that important issues concerning the Environment, Society, and Governance (hereinafter, ESG) will affect the long-term return of assets under management entrusted from our clients. In particular, the effects of climate change have certainly begun to materialize and are beginning to have an impact on the corporate value of our investee companies. Therefore, while it is important to reduce our own greenhouse gas emissions, we believe it is also important to evaluate the potential profit opportunities and risks related to climate change in these investee companies. As such, we are reflecting the evaluation in investment decision processes and leveraging it in business management.

Based on the thought mentioned above, SMTAM endorsed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) in February 2019. The following is an explanation of the measures taken by our company on climate change issues in accordance with the recommendations.

David Semaya
Representative Director and Chairperson / Chairperson of the Board of Directors

Our approach against climate change issues

Climate change issues are a variety of phenomena caused by the progression of global warming, mainly attributable to human economic activities. Changes in weather patterns due to global warming cause ecosystem changes and damage to food, water, health, and the economy, which can adversely affect sustainable social/economic activities. Under the Paris Agreement that came into force in November 2016, signatory nations globally agreed to “hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels,” in order to ensure global sustainability. We agreed with the purpose of the Paris Agreement, and as a global initiative for helping to achieve its goals, in July 2021, we joined "The Net Zero Asset Managers initiative” (hereinafter, NZAMI) by asset management companies who have committed to achieve net zero greenhouse gas emissions from investee companies by 2050. In May 2022, we also established and announced our interim targets that should be achieved by 2030.
At the same time, the impact of climate change issues is becoming more obvious. According to the Synthesis Report for the Sixth Assessment Report announced in March 2023 by the Intergovernmental Panel on Climate Change (IPCC), the cause of global warming was again connected to human activities, and the importance of efforts to reduce greenhouse gas emissions over the next 10 years in order to prevent temperature from rising more than 1.5°C by 2100 was restated. In May 2023, we participated as a panelist in the “Net Zero Delivery Summit” hosted by the City of London with other financial institutions and policymakers throughout the world to discuss policies for achieving a net zero society. At this meeting, the main theme was accelerating transition by companies for achieving a net zero society, and there were active discussions on the importance of utilizing private funds and engaging with investee companies (constructive dialogue). We again recognize the high level of expectations placed on asset management companies for achieving a net zero society along with its importance. Based on this, as a responsible investor, we are promoting effective engagement with company groups that have a significant global impact on the reduction of greenhouse gas emissions in order to help resolve climate change issues while also implementing standards related to these issues in the Principles for Exercising Voting Rights.

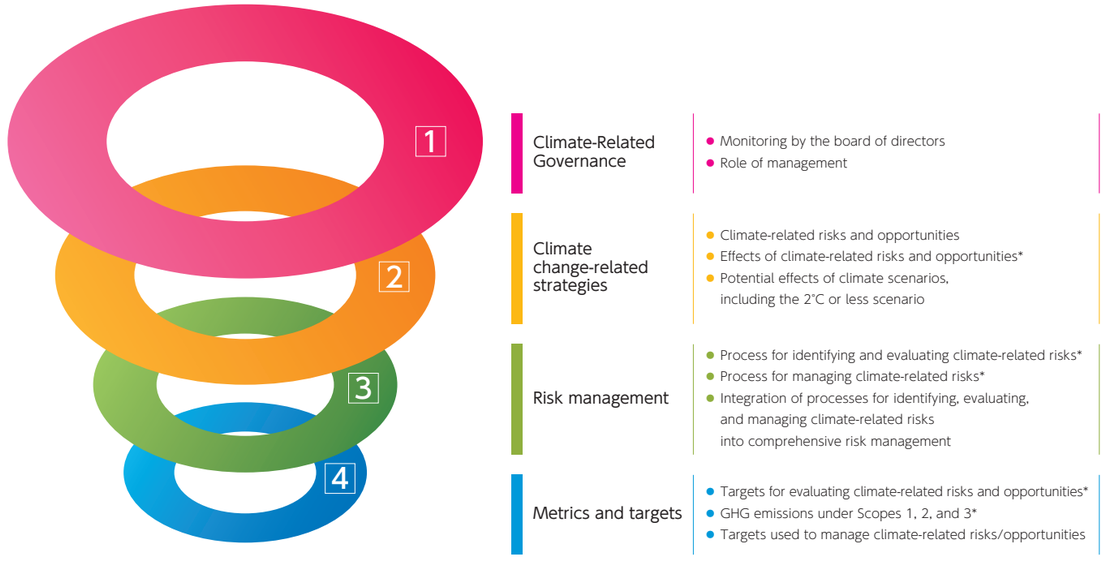
The NZAMI, mentioned previously, is a part of the Glasgow Financial Alliance for Net Zero (hereinafter, GFANZ), which is a coalition of financial institutions that are working to achieve a net zero society. GFANZ has established a Country Chapter in Japan to spearhead the net zero transition in the Asia-Pacific region, and began operating in June 2023. Since we participated in its establishment as a core working group member, we have continued to discuss the approach for transitioning in the Asia-Pacific region with other financial institutions. In this way, awareness of the importance of transitioning to a net zero society is increasing globally, and the role of investors to promote company transitions over the long term is drawing attention.

We believe that climate change has the potential to cause the global environment to deteriorate in an irrecoverable manner in the medium to long term, and have a significant impact on the corporate value of our investee companies over time. Based on this, we understand the importance of working on climate change issues over the long term while also being able to respond flexibly to changes. From this broad perspective, we are bolstering various activities and information disclosure on climate change issues as one of the biggest challenges facing the international community, while fulfilling our fiduciary duty of maximizing the return on medium- to long-term investments and reducing downside risks of the assets entrusted by our clients.

TCFD

According to the TCFD Recommendations, companies and other organizations are suggested to consider four key elements: (1) governance, (2) strategy, (3) risk management, and (4) metrics and targets when disclosing climate change-related information. The following is an explanation of the measures taken by SMTAM on climate change issues in accordance with the recommended information disclosure framework.

Figure 1: Recommended core elements for climate-related financial information disclosure



* Items are particularly required for asset managing companies

1 Climate-related governance

(1) Policies related to climate change

As a member of the Sumitomo Mitsui Trust Group, we have established a basic policy for promoting measures on sustainability, including on climate change issues, and are continuously working to improve systems for "Realizing opportunities today to ensure sustainable prosperity for tomorrow" as our philosophy in harmony with the Sustainability Basic Philosophy and the Sustainability Policy of the Group. In the investment management business rules and related rules, we regulate concepts and processes for engagement, the exercise of voting rights, and ESG investment while taking climate change issues into consideration.

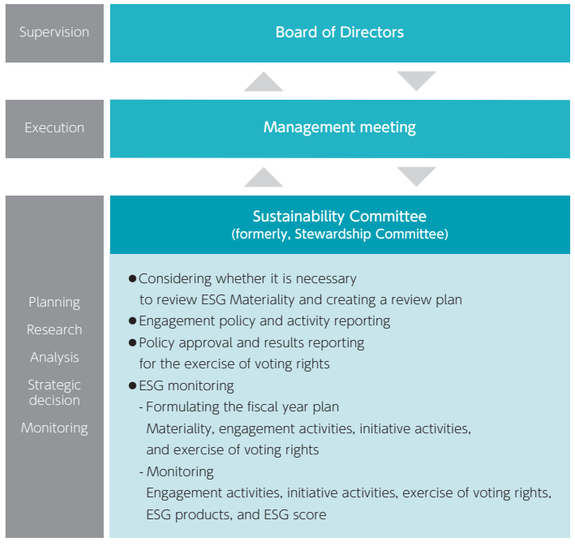
(2) Governance related to climate change

We recognize climate change as risk and opportunity factors that greatly impact SMTAM and investee companies, and our Board of Directors performs its supervisory functions on these issues as well as other important management issues. Since 2020, issues related to climate change have been clarified as matters to report to the Board of Directors in the board of directors regulations so that more direct oversight can be carried out.

The matters to be reported to the Board of Directors consist of progress on responding to climate change-related issues, risk management, and monitoring of metrics and targets. These matters are considered and discussed at management meetings chaired by the President together with executive officers responsible for each business field.

Under this structure, administrative work on risk management and strategies related to climate change is conducted by the Sustainability Committee as a cross-company organization acting as a secretariat, while related departments are responsible for promotion and implementation.

Figure 2: SMTAM's climate-related governance structure



(3) Remuneration for executives

At SMTAM, evaluation methods for remuneration of the CEO and Named Executive Officers have been determined by the Compensation Committee comprised mainly of external directors. One KPI in the evaluation method includes the reduction of greenhouse gas emissions in our portfolio. For example, the level of achievement for climate-related KPIs is reflected at a certain rate in the long-term incentive remunerations of CEOs. The methods to evaluate the remunerations of other Named Executive Officers are similar to CEOs.

2 Climate change-related strategies

(1) Common climate change risks and opportunities

As average temperatures and sea levels rise, weather-related disasters including large-scale wildfires, floods, droughts, extreme heat, and heavy rains are occurring more often around the world. The increase in temperature affects climate patterns over the medium to long term, and there is concern that this will impact farming production and marine and fishery resources. Since resolving these changes will require a large amount of money, there is an ongoing global debate on how such economic costs will be borne. Thus, climate change issues are increasingly recognized as a serious risk to social and economic activities all over the world.

Based on recommendations by the TCFD, transition risks are defined as changes in climate change policies, changes in financial markets and social norms, and rapid transition to a low-carbon society through technical innovations, etc., while physical risks are defined as damage to social infrastructure and nature, etc., as a result of medium- to long-term climate change and abnormal weather. Transition risks include stricter environmental standards, obsolete existing technologies, stranded fossil fuel assets, and risk of boycotts by consumers, while physical risks include flooding risk and drought risk.

Figure 3: Common climate change risks and opportunities

Transition risks	
Regulatory risk	Stricter environmental standards Example: Stricter emission regulations and higher carbon tax
Technological risk	Obsolescence of existing technology Example: Prohibiting sales of gasoline vehicles
Market risk	Shift of fossil fuel assets into stranded assets Example: Oil, coal, and natural gas
Reputational risk	Risk of boycotts by consumers Example: Exclusion from ultimate consumers and supply chain

Physical risks	
Acute risk	Flood risk, etc. Example: Stoppage of equipment and social infrastructure, and increased restoration costs
Chronic risk	Drought risk, etc. Example: Damage to crops and wildfires

Opportunity	
More efficient resources	Energy-saving technologies/products Example: Heat pump technology and inverter technology
Energy shift	Renewable energy Example: Solar power, wind power, hydrogen power, and biomass power generation
Products/services	Expansion of environmentally-friendly products and services Example: Electric and fuel cell vehicles, zero-emission buildings/houses
Financial market	Carbon credit, etc. Example: J Credits, Non-Fossil Fuel Certificates, and Renewable Energy Certificates
Resilience	Recycled products, etc. Example: Carbon dioxide capture and utilization (CCU) and battery reuse/recycling

These recommendations define things such as the increased demand for energy-saving technology and renewable energy as business opportunities related to climate change, and organize them into five categories ranging from resource efficiency to resilience. In particular, energy-saving technologies and products, renewable energy, environmentally-friendly products and services, carbon credits, recycled products, and the like are expected to increase. Figure 3 shows an overview of this. Moreover, these recommendations request business entities and financial institutions to identify climate change risks and opportunities that will impact their business activities, and to disclose and explain the impact on business and resilience. We understand such climate change risks and opportunities, and utilize these in investment decisions and business management.

(2) Approach to climate change risks and opportunities for SMTAM

This section will explain climate change risks and opportunities that we have identified as well as their impact on Company management.

A. Climate change risks

First, we believe that it is necessary to properly control climate change risks in order to fulfill our fiduciary duty. Risks for financial institutions are generally categorized into areas such as market risk, credit risk, liquidity risk, and operational risk. Rather than adding it as a new risk category, we have positioned climate change risks as a "risk driver" that can raise or lower the risks in existing risk categories as a result of climate change.

Next, we recognize how climate change risks impact our business management through three routes, which are damage to the value of assets under management, loss of entrusted assets and of newly entrusted opportunities, and loss of business continuity, all of which can ultimately worsen our finances and lower our viability as a company.
Figure 4 shows a list of the climate change risks that we have identified, their assumed impact on management, and when they are expected to appear according to risk category. Main market risks are expected to be a failure of investee companies to handle transition risks and physical risks, which can greatly damage corporate value and significantly reduce our assets under management. Main reputational risks include existing clients no longer choosing us due to our failure to properly handle climate change risks, and difficulty in acquiring personnel and increasing turnover due to insufficient responses to climate-related risks.
Operational risks include an increase in compliance risks due to a delay with system response such as disclosure of climate-related information, damage to servers and lines due to increased wind/water damage, and decreased employee safety.
Finally, credit risk is assumed to be a drawdown of overall financial markets resulting in a sudden loss of assets under management when credit risks for companies and markets increase when transition risks and physical risks become manifest.
We have positioned these risks according to their impact on our business management. Those that impact finance such as periodic profit and loss are classified as "medium," and those that may have a major impact on our viability as a company are classified as "major." As for the time axis of their manifestation, although there are differences with each risk factor, risk factors related to transition risks are expected to last approximately 10 years from now (short/medium term), whereas risk factors related to physical risks are expected to last around 10 to 30 years (medium/long term).

Figure 4: Climate change risks for SMTAM

Risk category	Specific risk factor		Impact*2	Time axis*3
Market risk	Damage to value of investee companies due to insufficient response to transition risks	Transition	Major	Short/medium term
	Damage to value of investee companies due to insufficient response to physical risks resulting in loss of business assets	Physical	Major	Medium/long term
	Lower profitability due to complex and diverse climate-related data and indices, and increased costs	Transition	Medium	Short/medium term
Reputational risk (Strategic risk)	Loss of existing clients due to the Company's improper response to climate-related risk*1	Transition	Major	Short/medium term
	Missed opportunities to acquire new clients due to the Company's improper response to climate-related risk	Transition	Medium	Short/medium term
	Difficulty in acquiring personnel and increased turnover due to the Company's insufficient response to climate-related risk	Transition	Major	Short/medium term
Operational risk	Compliance risk (wash) due to the Company's failure to comply with regulations	Transition	Major	Short/medium term
	Lack of personnel and resources due to advancement of climate-related response	Transition	Medium	Short/medium term
	Decreased business continuity of business partners and vendors	Transition / Physical	Medium	Medium/long term
	Damage to servers and lines, and decreased employee safety	Physical	Major	Medium/long term
Credit risk	Drawdown of financial markets due to increased credit risk with companies and markets as a result of climate change issues	Transition / Physical	Major	Medium/long term
	Decreased viability due to lowering of Company credit as a result of climate change issues (Loss of existing clients and missed opportunities to acquire new clients)	Transition	Major	Short/medium term

*1 Gaps in SMTAM's product lineup, obsolete investment decisions and strategies, improper response to regulations on information disclosure, etc.
*2 Major: Impact assumed on SMTAM's viability, Medium: Impact assumed on SMTAM's finances.
*3 Short to medium term: Assumed to be 10 years from now, Medium to long term: Assumed to be 10 to 30 years from now.

B. Climate change opportunities

We view climate change opportunities as opportunities to fulfill our fiduciary duty, and that taking advantage of these to implement strategies can help to expand the Company's assets under management, and improve business continuity and viability.
We have identified six items related to improving SMTAM's response to climate change as "opportunities" to convert climate change risks to business growth, which are engagement, exercise of voting rights, enhancement of investment decisions and investment strategies, enhancement of product lineups, and strengthening of information dissemination. For example, regarding engagement, in addition to engagement with investee companies, we engage in dialogue with diverse stakeholders, including governmental agencies, industry groups, NGOs, and universities, referred to as multi-engagement. As for exercise of voting rights, there is a measure to strengthen guidelines related to climate change issues in our Principles for Exercising Voting Rights. In this way, we encourage companies to change their behavior toward decarbonization in order to maintain and increase assets under management while reducing climate change risks. Through enhancement of investment decisions and investment strategies, and enhancement of product lineups, we will reflect climate change factors based on the style of individual funds, and provide new investment opportunities related to climate change for meeting the investment needs in the climate change field for existing and potential clients. We expect that we will be able to maintain/increase the balance under management while minimizing loss of opportunities. We also believe that strengthening information dissemination can help raise awareness of climate change issues for existing and potential clients, and that improving SMTAM's evaluations will help expand our client base.
There are two items we view as "opportunities" from a broad perspective that are essential for acquiring such growth opportunities. One is enhancement of our climate-related organizational structure, and another is strengthening engagement with the value chain. As specific actions to strengthen our climate-related organizational structure, we have been making efforts to establish a system that can appropriately respond to standards and regulations on climate-related information disclosure such as those of the TCFD and SFDR, and to advance our human capital management by recruiting and developing the necessary personnel, while improving our ability to execute business. As specific actions to strengthen engagement with the value chain, we have begun engaging in dialogue with data vendors and index vendors that handle ESG data in order to maintain and improve the quality of climate-related data. Figure 5 gives an overview of these opportunities.

Figure 5: Climate change opportunities for SMTAM

Opportunity	Strategy (Action)	Example (Action)
Engagement	Engagement with investee companies	- Focus on companies with high greenhouse gas emissions - Horizontal development of best practices - Increasing the frequency of adoption as an agenda
Engagement	Engagement with government agencies, industry groups, NGOs, academia, etc.	- (Investee company) Indirectly promoting changes to Company behavior - Improving SMTAM value by acquiring and using the latest information
Exercise of voting rights	Strengthening guidelines related to climate change issues in our Principles for Exercising Voting Rights	- Reflecting global trends and knowledge
Enhancement of investment decisions and investment strategies	- Reflecting climate change factors according to the individual fund style - Taking climate change factors into account in investment decisions on individual securities	- ESG monitoring (fund governance) - Expansion of target assets
Product lineup enhancement	Supporting actions to address climate change issues by providing investment opportunities	- Developing indices that contribute to climate change issues - Developing management products that contribute to climate change issues
Strengthening information dissemination	Enhancing awareness of climate change issues by clients, and approaching potential investors	- Public dissemination and discovering investors
The following are considered to be essential items for acquiring a growth base and opportunities as a broad definition, "opportunities."		
Enhancement of SMTAM's organizational structure for responding to climate change	- Proper actions to address climate-related regulations - Enhancement of human resource development and resources for responding to climate change (strengthening retention, maintaining creditworthiness)	- Responding to disclosure regulations such as SFDR - Investment in employees (Human capital)
Engagement	Engagement with the value chain	- Engaging in dialogue for maintaining and improving data vendor and index vendor viability and quality, and for improving response to climate change issues

(3) Strategy

We have demonstrated our specific strategies as shown above according to "Approach to climate change risks and opportunities for SMTAM." These are sorted into six items, which are "Engagement," "Exercise of voting rights" "Investment considerations," "Providing clients with investment opportunities," "Engagement with clients," and "Enhancing SMTAM's response to climate change."
The targets of "engagement" are A. Investee companies, B. Government agencies and other stakeholders, and C. the Value chain. Among these, for A. Investee companies, we encourage investee companies to change their behavior by promoting top-down engagement and the horizontal implementation of best practices, especially for companies with high greenhouse gas emissions (hereinafter, high-emission companies), and by proactively using this approach as an agenda for bottom-up engagement. As for "exercise of voting rights", in order to enhance connectivity, especially if the guidelines in our Principles for Exercising Voting Rights are not being met and there is no legitimate reason, we would principally vote against proposals for electing directors for high-emission companies. Moreover, we will not simply withdraw from investment (divestment) to exclude high-emission companies from the investment universe. Rather, through engagement and the proper exercise of voting rights, our aim is to encourage investee companies to promote realistic solutions for addressing climate change including transition, and to achieve sustainable growth and sustainability for companies and society as a whole. As for B. Engagement with stakeholders, targets include government agencies, industry groups, NGOs, and academic institutions, and our aim is to be a bridge with investee companies while indirectly encouraging them to change their behavior. Also, regarding C. Engagement with the value chain, targets include data vendors and index vendors, and our aim is to enhance the sustainability of collaborative relationships with them and enhance responses to climate change issues through collaboration.

Regarding “investment considerations”, climate change factors are reflected in accordance with the individual fund style, and climate change factors are considered when making investment decisions for individual securities. Recently, we have enhanced fund governance by ESG monitoring including climate change issues, and have promoted expansion of target assets with climate change factors considered.

Figure 6: SMTAM’s strategy on climate change issues based on risks and opportunities

Strategy	Target	Actions
Engagement with investee companies	Investee company	- Promotion of top-down engagement for companies with high greenhouse gas emissions - Horizontal development of best practices for investee companies - Proactively use it as an agenda for bottom-up engagement
Engagement with various stakeholders including governments	Governments, industry groups, NGOs, academia, etc.	- Engaging in dialogue with the Ministry of Economy, Trade and Industry to implement a carbon pricing system - Engaging in dialogue with the Ministry of the Environment to promote decarbonization (Explaining requests by companies and awareness of issues) - Exchange of opinions with the Central Research Institute of Electric Power Industry - Providing feedback on the Consultation Report “Financing the Managed Phaseout of Coal-Fired Power Plants in Asia Pacific” by GFANZ
Strengthening guidelines related to climate change issues in our Principles for Exercising Voting Rights	Investee company	- Having implemented specific standards on climate change issues and already had a record of approval for shareholder proposals
Reflecting climate change factors according to individual fund styles, and taking climate change factors into account in investment decisions on individual securities	SMTAM (Clients)	- ESG monitoring results for each fund are reported quarterly at in-house meetings - In addition to equity, climate change factors are also considered for investment in corporate bonds and J-REIT
Supporting actions to address climate change issues by providing investment opportunities	Clients	- Setting S&P/JPX Carbon Efficient Index-tracked type strategy (Japanese equity) - Setting Bloomberg MSCI Global Aggregate Sustainability A+ Strategy (Global bonds)
Enhancing awareness of climate change issues by clients, and approaching potential investors	Clients (Including potential clients)	- Publishing online articles - Promoting onsite financial lectures - Providing content to Nikkei MOOK Datsutanso Toshi Nyumon [Introduction to Decarbonization Investment] (in Japanese) - Engaging in dialogue with asset owners as a member of NZAMI advisory group
The following are considered to be essential items for acquiring a growth base and opportunities as a broad definition, “strategies.”		
Proper response to climate-related regulations	SMTAM	- Disclosing information on climate-related risks based on SFDR disclosure regulations - Disclosing information based on TCFD
Improving personnel development and resources for climate-related response	SMTAM	- Employees taking classes at the PRI Academy - Providing in-house e-learning - Holding in-house workshops on TCFD disclosure
Engagement with the value chain	Data vendors Index vendors, etc.	- Engaging in dialogue with Bloomberg to improve ESG data - Engaging in dialogue with ISS to clarify guidelines for the exercise of voting rights related to climate change and voting recommendations - Engaging in dialogue with MSCI to change the calculation process for ESG scores - Engaging in dialogue with S&P to enhance climate change information disclosure via the Carbon Efficient Index

“Providing clients with investment opportunities” is for providing investment products, while “Engagement with clients” is for providing diverse information to clients. Providing investment opportunities means setting an investment strategy in consideration of climate change issues, and having the clients use related investment products for contributing to reduction of greenhouse gas emissions. Engagement means having future or potential investors deepen their knowledge of climate change issues through information dissemination by means of online articles, and helping them see that they can help resolve such issues through investment.
Finally, “Enhancing SMTAM’s response to climate change” is the foundation of our growth, and we believe it to be an important “Strategy” for obtaining a foundation for growth. In recent years, we have disclosed information on climate-related risks in accordance with SFDR disclosure regulations, and prior to that, we were already performing TCFD information disclosure. We believe that it is very important for us to be recognized as an asset management company and to be sustainable. At the same time, improving personnel development and resources for climate-related response is essential for the continued existence of our company, and we have been providing various types of in-house education and workshops.

3 Risk management

(1) Our climate change risk management process

Climate change risk management policy

The board of directors of Sumitomo Mitsui Trust Holdings formulates “the Action Guidelines for Mitigating Climate Change” as a fundamental policy of the group relating to climate change. we also formulated the sustainability risk management policy, including climate change risks in the "risk management policy" stipulated by the board of directors' resolution. We articulated the basic policy of sustainability risk management, the definition of each sustainability risk, the meaning of sustainability-related risk management, the role, responsibility, and organizational structure of the board of directors/management meeting, and the three lines defense system. Also, as to the asset management risk of assets under management, we stipulate proper management in terms of fiduciary duty, etc., based on "the investment management business rule" as well as related rules which are separately determined and integrated asset management risks, with comprehensive risk management process.

Definition of climate change risks

We define climate change risks as risks which give adverse effects on our group, clients, markets, financial infrastructure, and society by realizing physical and transition risks, and further define sustainability-related risks, including climate-related risks as a possibility in which each factor of medium and long-term issues in environment, society, and governance becomes a risk driver and gives our company adverse effects by influencing existing risk categories cross-sectionally or in which the adverse impact on our company influences existing risk categories cross-sectionally, which affects our company's stakeholders negatively.

Classification of climate change risks

We regularly review risks which our group companies face, and identify the risks that should be monitored based on the scale and trait of these risks under the framework of enterprise risk management with our parent company, Sumitomo Mitsui Trust Holdings. Among critical risks, we identify particularly significant risks as "significant risks" and classify them by risk driver, risk category, etc., and by doing so, we manage significant risk inventory. Regarding significant risk management, we assess significant risk inventory one by one under monitoring in terms of importance for the corporate management and decide whether they are applicable for top risks (risks which management needs to take care of because they will have significant influence within one year) or emerging risks (risks which will not give substantial influence within one year but will give considerable influence over one year or in medium and long term), etc. Besides, "climate change risks" were reclassified in 2021 from "emerging risks" to "top risks."

Organizational process for identifying and managing climate change risks

To manage climate change risks, our board of directors has developed a risk management policies and risk management plans for sustainability-related risks, including climate change risks, based on risk management rules. The management meeting develops and reviews the organization to exhibit checking functions of sustainability-related risks, including climate change risks, formulates appetite framework relating to sustainability-related risks, including climate change risks, and creates GHG emissions reduction targets. Executive officers fully recognize belittling the risk management relating to sustainability-related risks, including climate change risks, will significantly affect our company to achieve the strategic targets and, therefore, need to consider sustainability-related risks, including climate change risks at risk management.
Our sustainability-related risk management, including climate change risks, is conducted by the three lines defense system.
The first line of defense is defined as departments that are responsible for each business operation directly in our company. These departments understand sustainability-related risks, including climate change risks, that our stakeholders, such as clients and employees, etc., face and think together about how to cope with such sustainability-related risks, including climate change risks in cooperation with stakeholders (engagement) and endeavor product development and expansion of client base by identifying sustainability-related opportunities. Also, the first line of defense departments plays a significant role in risk identification, risk assessment, and control based on our risk appetite relating to climate change and risk-taking policy. They correctly report the ongoing operation of risk management and risk itself to departments of the second line of defense.
Our second line of defense that has formulated management policy for sustainability-related risks, including climate change risks, develops risk management plans, which are resolved at the Management meeting and the board of directors. Maintaining an independent position from the first line of defense, the second line of defense monitors and checks the first line of defense's identification, assessment, and controlling of sustainability-related risks, including climate change risks, and instructs and supports the first line of defense's risk-controlling activity.

Maintaining an independent position of risk management functions by the first and second line of defense, our third line of defense conducts internal audits to assess the efficacy of climate change risk management.
Also, the Sustainability Committee discusses and monitors all stewardship activities relating to asset management. Conditions of consideration of ESG factors including climate change investment risks is monitored by the committee quarterly. This TCFD report is reported to the committee, and that means governance makes effective to contents of disclosure of climate-related financial information.
The Sustainability Committee is composed of not only market front departments and the Stewardship Development Department, but also the Investment Risk Management Department, an independent and specialized department for monitoring. Discussion at the Sustainability Committee is reported as necessary to the Management meeting, composed of executive officers, with the president at the top as needed. By doing so, we develop and operate a corporate-wide, multitiered, and multifaceted risk management system. Utilizing these organization, the role, and the process, we enhance the effectiveness of climate change risk management.

Contribution to risk management through engagement activities, exercising voting rights and investment decision-making in portfolio companies, taking into account climate change factors.

(Identification of climate change risks as ESG materiality)
We define climate change as an ESG materiality on our ESG investment policy. ESG materiality refers to ESG issues that we view as important for improving the value of the investee company and promoting sustainable growth. We consider this ESG materiality when performing ESG investment including ESG evaluation of investee companies, engagement activities, and decisions for exercise of voting rights. The Sustainability Committee annually reviews ESG materiality based on information collected through ESG regulations by financial authorities, participations in various initiatives, dialogues with multiple stakeholders, etc., and if the committee decides to amend or abolish them, the amendment and abolishment are to be resolved at the Management meeting.
In conclusion, ESG materiality which we stipulate are considered through our engagement, exercise of voting right and investment activities, so that identification and response to climate change risks become possible.

(Engagement)
At SMTAM, we view engagement activities as opportunities to seek best practices from companies, and we communicate our views so as to contribute to the enhancement of corporate value over the medium to long term. Gaining a proper understanding of a company' s state of management and business situation is crucial to engagement. The ESG experts in our Stewardship Development Department work together with industrial corporate analysis professionals in the Research Investment Department to conduct in-depth engagement from both an ESG and business perspective, utilizing our proprietary MBIS® non-financial information assessments. We use our networks in Tokyo, New York and London to have our own engagement with investee companies. We also conduct various activities and engage with stakeholders outside our investee companies through a wide variety of initiatives.
While engagement is something we can do on our own, it is also done in collaboration with other investors who share the same beliefs. Engagement also includes activities that expand the investor base. Certain social issues such as climate change are global. Collaborative engagement is an approach to such issues across barriers in collaboration with other investors who share the same beliefs.

～Engagement cases～

CASE 1 A.P. Moller-Maersk
(Denmark / Marine transport)

- Climate change issues - Information disclosure

Perspective of Engagement Specialist

As a major European marine transporter, in 2018, they were one of the first in the marine transport industry to set the goal of being carbon neutral by 2050. Later, in January 2022, they set aggressive goals related to climate change such as by moving their goal for achieving net zero up to 2040.
However, disclosure of their progress including quantitative goals for specific initiatives is still insufficient, and as a global leader in the marine transport industry, further initiatives are needed.

Opinion from SMTAM

In order to increase the probability of achieving ambitious goals, it seems they need to actively disclose information related to engagement with their supply chain in addition to establishing various measures.
Their policy is to transition 25% of fuel to green fuel by 2030 for achieving their goal, but there has been little progress, so we want them to disclose information on measures for increasing the probability of achieving their goal.

Company Response

To increase usage of green fuel, which is the key to reducing greenhouse gas emissions for marine transport, we concluded supply contracts with eight energy companies, and we have taken measures to increase confidence in the plan such as by showing the management stage of price pass-through for each supplier.
At the same time, specific investment plans need to be examined for using green fuel. Since there are different types of green fuel, we have to consider future changes related to technology and supply and demand when making investment decisions.

Corporate Action

To increase the probability of achieving their ambitious commitment, they are managing the stages of their response status to price pass-through for each supplier, and disclosing information on their plan to secure green fuel with energy companies.

Evaluation by SMTAM / Future Policy

- We have proactively engaged in dialogue via email, the internet, and in person since 2019 because they are one of our target 100 companies on climate change response.
- It seems they will promote specific initiatives from now, and have determined that they are in a phase where progress must be confirmed.
- Our policy is to continue engaging in dialogue to encourage them to continue promoting aggressive initiatives as a leader in the industry.

CASE 2 AGL Energy
(Australia / Power company)

- Climate change issues - Information disclosure

Perspective of Engagement Specialist

While they will continue coal power generation business in Australia, they are enhancing initiatives for addressing climate change issues through organizational changes such as by dividing their power generation and distribution businesses. Based on their existing plan, they will not be able to reach the Paris Agreement scenario (1.5ºC), so they need to formulate and disclose an effective plan for addressing climate change issues, and establish climate change governance.

Opinion from SMTAM

It is estimated that their coal-fired thermal power generation accounts for 8% of greenhouse gas emissions in Australia, so they need to accelerate reduction of greenhouse gas emissions in order to achieve NDC*2 in Australia. Their transition plan was announced, but it remains insufficient, so we believe they should formulate an effective transition plan as quickly as possible for accelerating withdrawal from coal-fired thermal power generation and invest in renewable energy.

Company Response

Our policy is to withdraw from coal-fired thermal power generation from a mid- to long-term perspective. Then, we need to make decisions based on economic rationale and market conditions. We are also considering selling our coal-fired thermal power generation business when splitting the company. This issue involves business reorganization including investment in renewable energy, so a specific transition plan needs to be made after in-house restructuring is completed.

Corporate Action

A transition plan for climate change was proposed and approved by the company at their general meeting of shareholders in November 2022. At the same time, they announced that the time for closing operation of a coal-fired thermal power generation plant in Victoria, which had long been a concern, will be moved forward 10 years.

Evaluation by SMTAM / Future Policy

Our policy is to confirm the progress of just transition including formulation and implementation of an employment strategy due to announcement of their early transition plan such as withdrawal from coal-fired thermal power generation.

～Collaboration with various initiatives～

Activities at Climate Action 100+
As a lead manager, we continued to have collaborative engagement mainly with Asian companies in Japan, Indonesia, Korea, and Thailand. As a collaboration manager, we continued to have collaborative engagement with companies in the US. As a lead manager, we discussed ideal global decarbonization pathways for the steel industry, discussed disclosure and evaluation methods for contributing parts to decarbonization through provision of technologies, products, and services from major electronics industries, and discussed ideal disclosure on lobbying for examining engagement contents.

Activities at NZAMI (Net Zero Asset Managers initiative)
We acted as a contact point and conducted four consultations with Japanese asset management companies regarding their NZAMI membership and setting of interim targets. In addition, our president spoke at a webinar for asset managers to promote NZAMI membership. We supported these companies to join the NZAMI, among others.

When NZAMI asked its members to introduce policies to achieve Net Zero, we acted as an advisory board to the Asian signatories and encouraged them to consider regional approaches to 'Just Transition' through 'real solutions', including consideration of regional characteristics in Asia.

(Exercise of voting rights)
Engagement at SMTAM, we view the exercise of voting rights as an opportunity to call for a minimum standard of governance and consider it to be one method of governance-related engagement. We emphasize three key points when exercising voting rights: (1) high-quality governance that respects shareholders' equity; (2) efficient utilization of shareholders' capital for sustainable growth; and (3) appropriate action in the event an incident occurs that damages corporate value. We disclose our Principles for Exercising Voting Rights based on these criteria. We also actively pursue engagement with companies regarding the exercise of voting rights.
Regarding our response to climate change, we are opposed in principle to companies with relatively high levels of greenhouse gas emissions that fall into any of the following categories and do not provide a rational explanation for their actions.

①Cases where there has been inadequate disclosure in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) or equivalent framework.
②When there has been a failure to set medium- and long-term goals in line with the Paris Agreement or to disclose specific measures to achieve them.
③When there has been no evidence of progress in reducing greenhouse gas emissions.

(Investment decision making)
As a signatory asset manager on the Principles for Responsible Investment, we conduct investment activities (ESG investment) focusing on medium- to long-term environmental, social, and governance (ESG) on the basis of the values presented in the United Nations Global Compact and SDGs. We believe that fulfilling the role as an investment manager in an investment chain through ESG investment will make contributions in value improvement and sustainable growth in investee companies, maximizing the investment return of clients (beneficiaries) over a medium to long term, reducing downside risks, and achieving a sustainable society.
Including climate change risks, we conduct non-financial evaluations using our in-house ESG score calculation based on "ESG materialities" and MBIS®, which is a proprietary system, and reflect these into our investment decision-making process according to portfolio characteristics in order to maximize investment return.
Principally, we give an in-house ESG score on the investment universe for the whole asset, and our analysts give covered bands ratings of MBIS®. Our in-house ESG scores, which are granted to all investment asset universes, with information such as status of score granting, cases of score granting based on ESG materiality, verification of score effectiveness, etc., are quarterly reported to the Sustainability Committee. Also, we develop the system enabling the calculation of our in-house ESG scores by each portfolio. In particular, we chronologically monitor our primary products and funds that we certify as "ESG products" by comparing them with reference indices and similar strategies.

Climate change risks of investee companies and portfolio
As to climate change risks of investee companies, we capture and analyze not only carbon-related indices of the corporation itself but also recognition and contributed emissions, etc., of the life cycle and entire supply chain of investee companies' products and services through the utilization of our in-house corporate research and ESG scores and engagement. By doing so, we utilize them for our investment decision-making.
As to climate change risks of a portfolio, we capture and analyze them through ISS's analysis function and our own due diligence on foreign investment trust companies, which we have chosen and placed into our FoFs, etc. The Sustainability Committee monitors the risks and reports to the Management meeting and the board of directors as needed.

By doing so, we identify and assess climate-related risks to establish the management process, and integrate this process into the comprehensive risk management process.

(2) Climate change risk assessment of our portfolio

We evaluate risks for portfolios[*4] related to climate change by asset class, and then integrate asset classes to evaluate held assets. Our assessment method involves using (1) fixed point analysis based on the disclosed information of companies that make up our portfolio, along with their performance figures, (2) transition pathway analysis based on future climate change-related scenarios, and (3) portfolio resilience analysis related to climate change. The following is a summarized disclosure of analysis results related to domestic and foreign stocks as well as domestic and foreign bonds managed by SMTAM. The analysis was carried out using the data and analysis methods of an outside organization[*5]. (The base date is June 30, 2023.)

Besides, the analysis results on financed emissions from our sovereign bond portfolio are shown on pages 22 to 26.

A. Fixed point analysis (Greenhouse gas emissions, etc.)
This is an attempt to ascertain the status of greenhouse gas emission exposure and other conditions at a fixed point in time, based on investee company disclosure data and other information. For example, when looking at the greenhouse gas emissions by asset class (targets are Japanese equity, Japanese bonds, foreign equity, and foreign bonds), the GHG emissions based on Scope 1+2 of each asset are below the reference index. In addition, compared to the previous year[*6], although the greenhouse gas emissions from Japanese equity increased, there was a greater reduction in Japanese bonds and foreign equity, so the greenhouse gas emissions from the overall portfolio was 20.9 million tCO_2e (21.3 million tCO_2e the previous year), which was a decrease from the previous year. On the other hand, while GHG emissions were below the reference index for all asset classes for Scope 3, when compared to the previous year, with the exception of Japanese bonds, it increased for three asset classes. Therefore, the overall portfolio increased significantly to 197.0 million tCO_2e (171.2 million tCO_2e the previous year). Looking at the reason, the greatest increase was with Japanese equity because some companies expanded the measurement range for emissions compared to the previous year resulting in a sudden increase in Scope 3 emissions, so it is assumed that changes in the measurement range resulted in a temporary increase. Emissions according to industry showed the same tendencies as the previous year where the utilities sector and materials sector made up the largest amount for all asset classes.

Figure 7: Greenhouse gas emissions by asset class[*7*9*10]

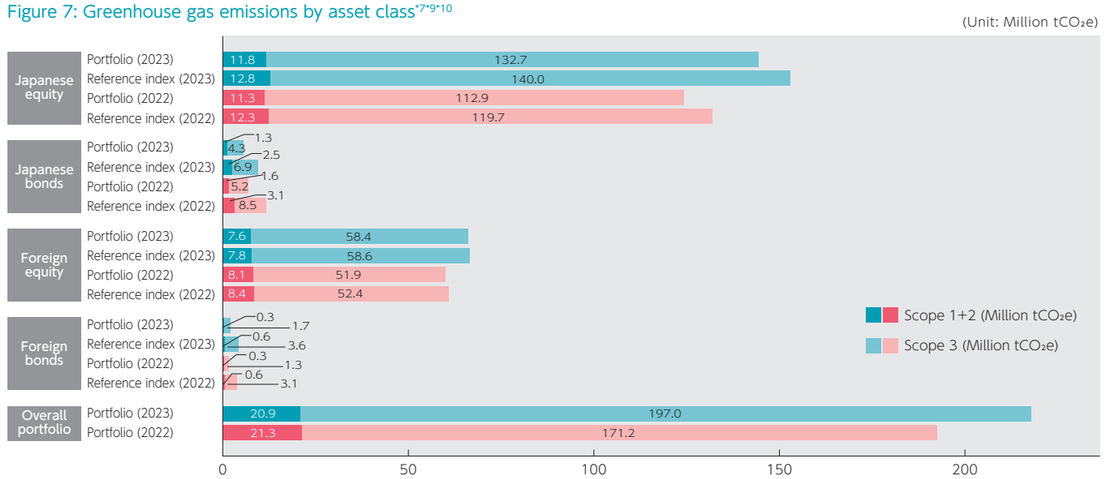


Figure 8: Industry breakdown of greenhouse gas emissions[*8*10]

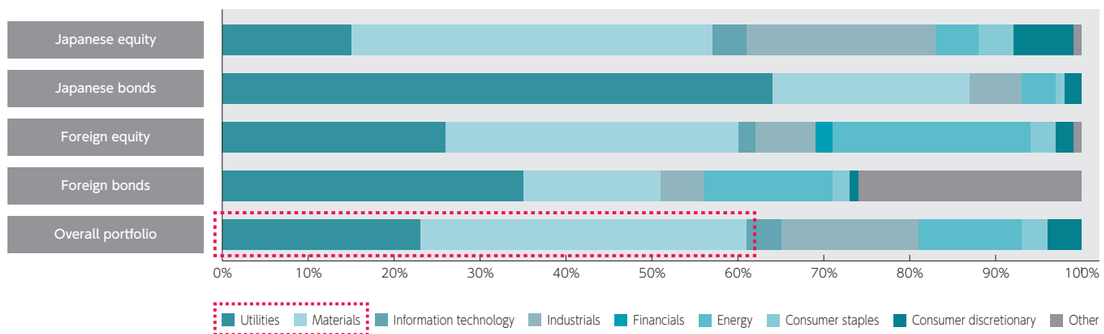
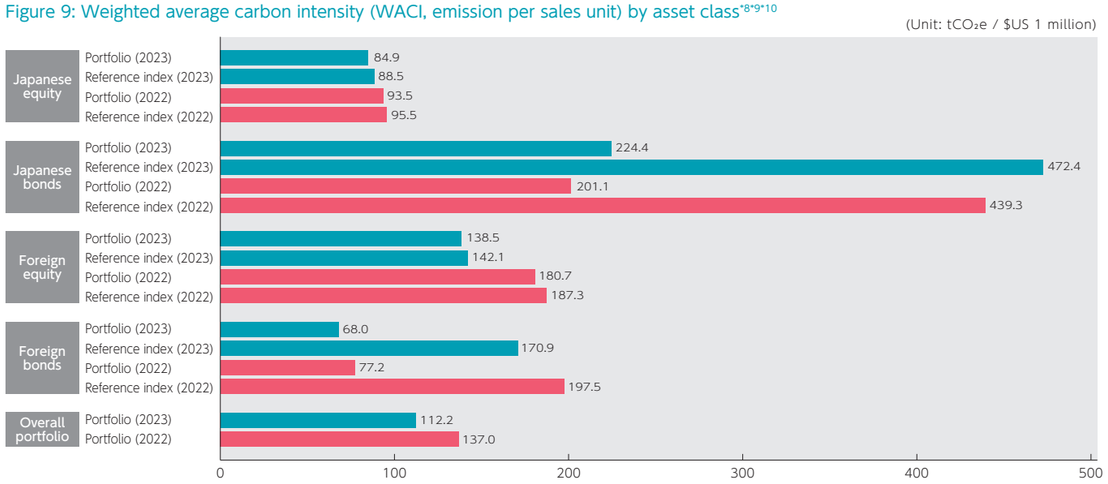


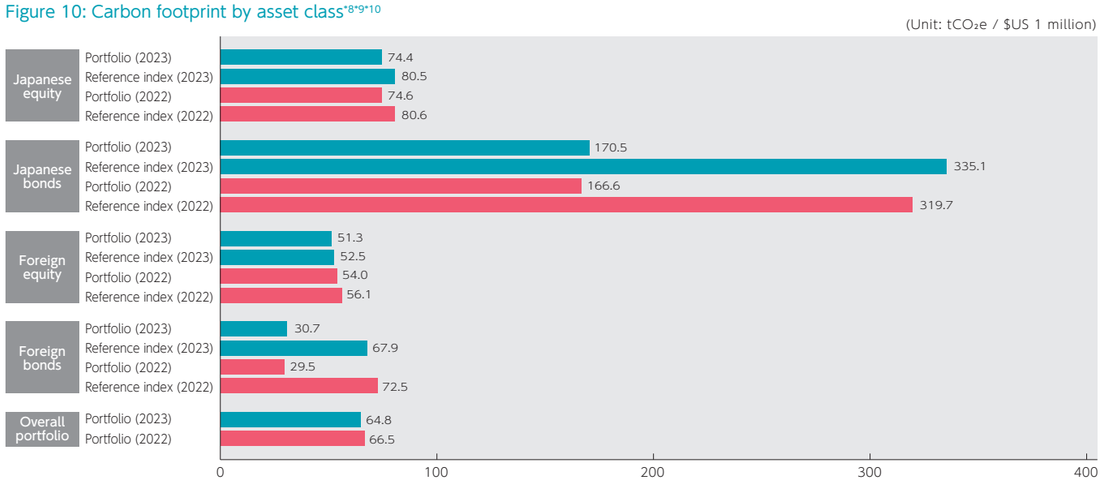
Figure 9: Weighted average carbon intensity (WACI, emission per sales unit) by asset class[*8*9*10]



On the other hand, as with the previous year, the weighted average carbon intensity (WACI, emission per sales unit) is below the reference index for all asset classes. Also, compared to the previous year[*6], improvement was seen for asset classes with the exception of Japanese bonds, and, as a result, for the overall portfolio with 112.2tCO₂e/million USD (137.0tCO₂e/million USD the previous year). The reason that the value of Japanese bonds is higher than other asset classes is that there is a high composition ratio from the utilities sector including power companies, which have a higher carbon intensity. In addition, the value of foreign equity is also higher than other asset classes, and it is believed that the shareholding ratio of companies' equity in the utilities and materials sectors, which have higher carbon intensity, is relatively high compared to other asset classes.

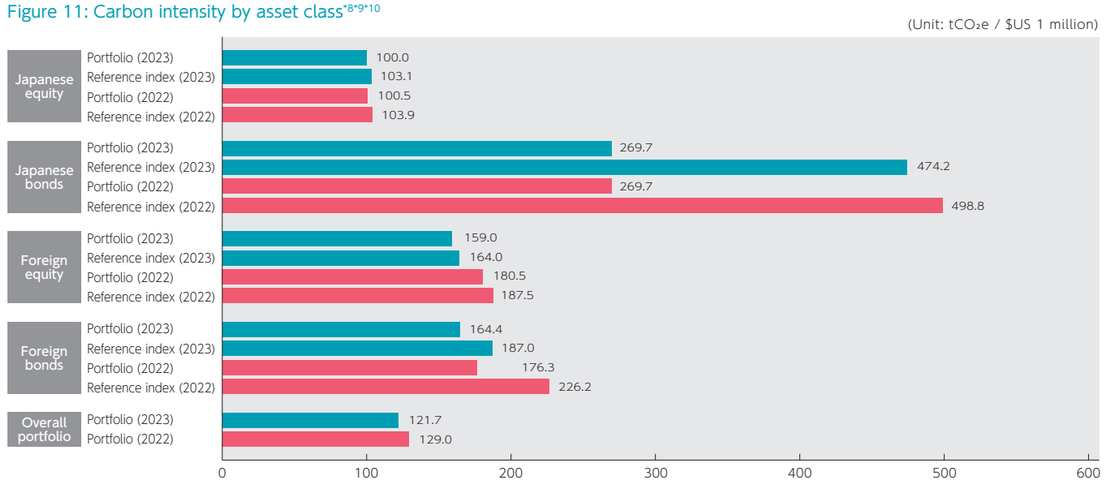
Regarding the carbon footprint, all asset classes are below the reference index, same as the last year' s. The carbon footprint of the overall portfolio improved to 64.8 tCO₂e/million USD (66.5 tCO₂e/million USD the previous year[*6]). By asset class, reducing the carbon footprint in foreign and Japanese equities that compose of large ratio contributes to the improvement.

Figure 10: Carbon footprint by asset class[*8*9*10]



Carbon intensity is also under the reference index in all asset classes, same as the last year's. Regarding the overall portfolio, carbon intensity improved to 121.7tCO₂e/million USD (129.0tCO₂e/million USD the previous year[*6]). By asset class, a reduction of carbon intensity in foreign equity contributed to the improvement.

Figure 11: Carbon intensity by asset class[*8*9*10]



B. Transition pathway analysis

(a) Climate change scenarios and transition path analysis of GHG emissions regarding our portfolio

Here, a method called transition pathway analysis is used to assess how the portfolio' s climate change risks will change in the face of different scenarios for future climate change. Specifically, future estimated values for greenhouse gas emissions from the portfolio are compared to the carbon budgets of the climate change scenarios, and the portfolio' s consistency with these scenarios is assessed. The scenarios used were the three scenarios of the International Energy Agency (IEA), which are the "SDS: Sustainable Development Scenario," "APS: Announced Pledges Scenario," and "STEPS: Stated Policy Scenario."

(Climate change scenarios)

IEA uses a forecast model called the global energy climate (GEC) model, and forecasts future CO_2 emissions using various carbon prices, which are supposed by scenario, country or region, and decade. Based on a carbon price (Figure13) as one of the significant inputs of this forecast model and CO_2 emissions (Figure14) as an output of this model, the characteristics of the three scenarios mentioned above are explained.

Figure 12: Scenarios used for analysis

SDS Sustainable Development Scenario	APS Announced Pledges Scenario	STEPS Stated Policy Scenario
Normative scenario in harmony with "initiatives to keep the temperature below +2°C and +1.5°C" as stipulated in the Paris Agreement.	Exploratory scenario where ambitious targets (NDC) set by each government are met (end of this century +2.1°C).	Exploratory scenario for achieving the goals stated by governments (end of this century +2.6°C).

Source: World Energy Outlook 2022

SDS Scenario

Under the circumstances all advanced countries and many emerging and developing countries are supposed to introduce carbon prices, which will be raised step by step, it is assumed that the high-level carbon prices are set in 2050 at 200 USD/tCO_2 in advanced countries declaring net-zero and at 160 USD/tCO_2 in other advanced countries which do not declare net-zero and emerging countries declaring net-zero. With this assumption, CO_2 emission is supposed to significantly reduce from 34.2 billion tCO_2 in 2020 to 8.2 billion tCO_2 in 2050, and therefore, it is forecasted that the temperature rise by 2100 will be able to be lower than 2℃.

APS Scenario

It is assumed that about 50 countries including countries/regions and China that have declared net zero, would introduce carbon prices, and the prices are same level as the SDS scenario according to APS scenario. Since it is assumed that countries other than those mentioned above would not introduce carbon prices, CO_2 emissions in 2050 are forecasted to be 20.7 billion

tCO_2. The emissions reduction remains half of the current emission level according to APS scenario. Therefore, the temperature rise is forecast to be 2.1℃, higher than the SDS scenario.

STEPS Scenario

According to STEPS scenario, the carbon prices are assumed, and future CO_2 emissions are estimated based on the price plans of countries/regions that have introduced or decided to introduce carbon prices. The carbon price in the EU, which will introduce the highest level, is supposed to remain at 90 USD/tCO_2 in 2050. Therefore, global CO_2 emissions are estimated to be 33.9 billion tCO_2 in 2050, which remains at as same as the current level. Therefore, the temperature rise will be 2.6℃ in 2100.

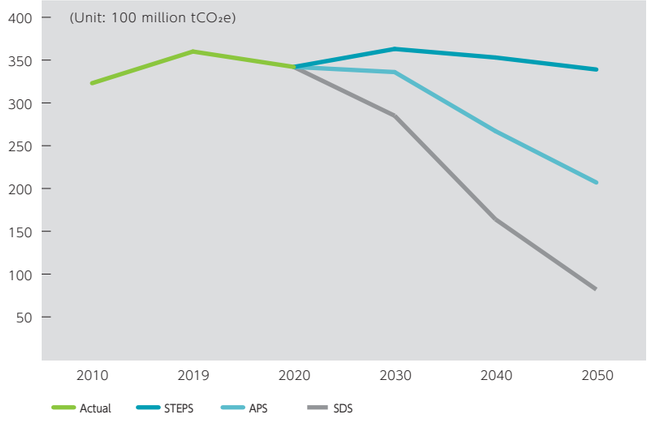
In conclusion, IEA's scenario analysis shows that a wide range of introductions of high-level carbon prices enables to reduce the emissions significantly and that it is inevitable to globally introduce high level carbon price to attain net-zero by 2050. We think that it is necessary to realize net zero society by accelerating investments and allocating more such investment capital for innovative use for decarbonization rather than bearing such high costs.

Figure 13: IEA's Carbon price assumption by scenario

Scenarios	Country/Region	Carbon price (USD/tCO_2)		
		2030	2040	2050
SDS	Developed countries declaring net-zero	120	170	200
	Developed countries other than those above	100	140	160
	Emerging and developing countries declaring net-zero including China	40	110	160
	Emerging and developing countries other than those above exluding some African and Asian countries	-	35	95
	African, Middle-east and Asian countries	-	-	-
APS	Developed countries declaring net-zero	120	170	200
	Emerging and developing countries declaring net-zero	40	110	160
	China	30	95	160
	Countries other than above	-	-	-
STEPS	EU	65	75	90
	Canada	55	60	75
	South Korea	40	65	90
	Chile, Columbia	15	20	30
	China	30	45	55
	Countries which do not either plan or implement carbon price	-	-	-

Source: added some comments by SMTAM based on Table B.2 of World Energy Outlook 2021(p.329)

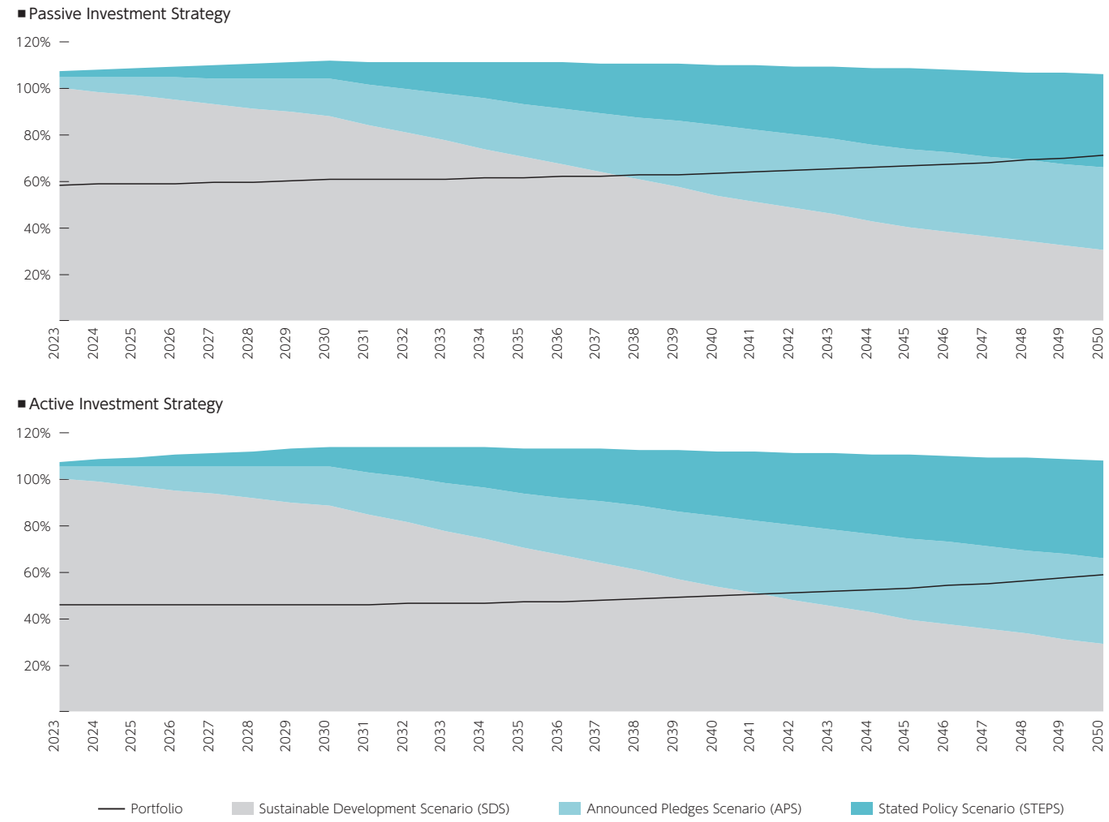
Figure 14: IEA's Global carbon emission estimation by scenario



Source: Made by SMTAM from World Energy Outlook 2021

(Transition path analysis of GHG emissions regarding our portfolio)

Figure 15: Expected transition pathway for each strategy[*10*11]

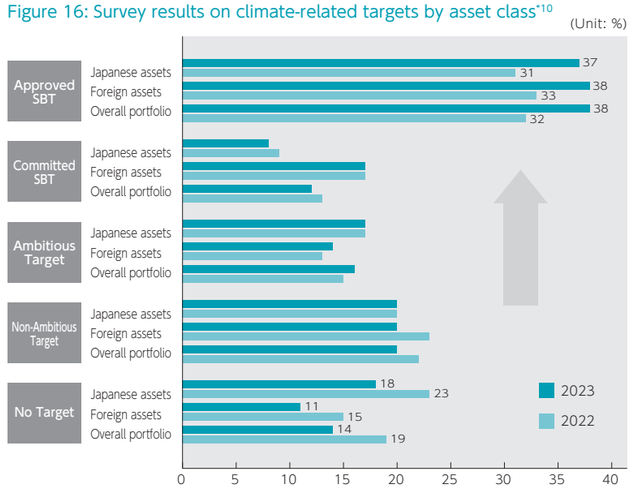


It was confirmed that SMTAM portfolio emissions would likely reach the upper limit of the SDS scenario by 2038 with the Passive Investment Strategy and by 2042 with the Active Investment Strategy. However, compared to the previous year[*6], the time to reach the upper limit was postponed by two years with the Passive Investment Strategy (2036 the previous year) and by about 6 years for the Active Investment Strategy (2036 the previous year), so there was some improvement. The Active Investment Strategy has a lower holding ratio in the energy sector, which is expected to greatly exceed the carbon budget, and is a possible reason why the acceptable level comes later than with the Passive Investment Strategy.

(b) Survey on climate-related targets

We confirmed that there are a certain number of investee companies in our portfolio that are not aggressively addressing climate change issues. We consider increasing the number of investee companies that can set ambitious goals, commit to SBT, and obtain certification[*12] to be an important measure, and we will actively work with investee companies. When looking at the composition ratio of companies with "SBT certification" by asset class compared to the previous year[*6], Japanese assets increased to 37% (31% the previous year) and foreign assets increased to 38% (33% the previous year). On the other hand, the composition ratio of "No Target" decreased to 18% (23% the previous year) for Japanese assets, and to 11% (15% the previous year) for foreign assets, which was recognized as a considerable achievement. We will continue to make such efforts so that this trend continues in the future.

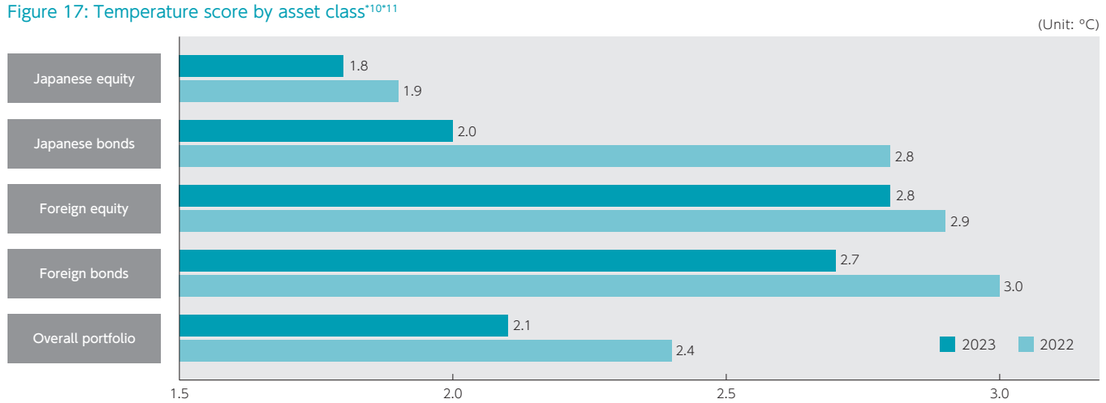
Figure 16: Survey results on climate-related targets by asset class*10



(c)Temperature score analysis

The temperature score index expresses how consistent the future estimated value of the portfolio greenhouse gas emissions is with the carbon budget for achieving the SDS scenario by converting it to a rise in temperature. For example, with a portfolio consistent with the SDS scenario in 2050, it will be 1.5°C. Looking at the temperature score for each asset class compared to the previous year, Japanese equity was 1.8°C (1.9°C the previous year), and Japanese bonds were 2.0°C (2.8°C the previous year), foreign equity was 2.8°C (2.9°C the previous year), and foreign bonds were 2.7°C (3.0°C the previous year), and the overall portfolio was 2.1°C (2.4°C the previous year). Although the result for the overall portfolio shows a temperature rise exceeding 1.5°C, compared to the previous year, the score itself is getting closer to 1.5°C. This indicates that consistency with the SDS scenario has improved.

Figure 17: Temperature score by asset class*10*11



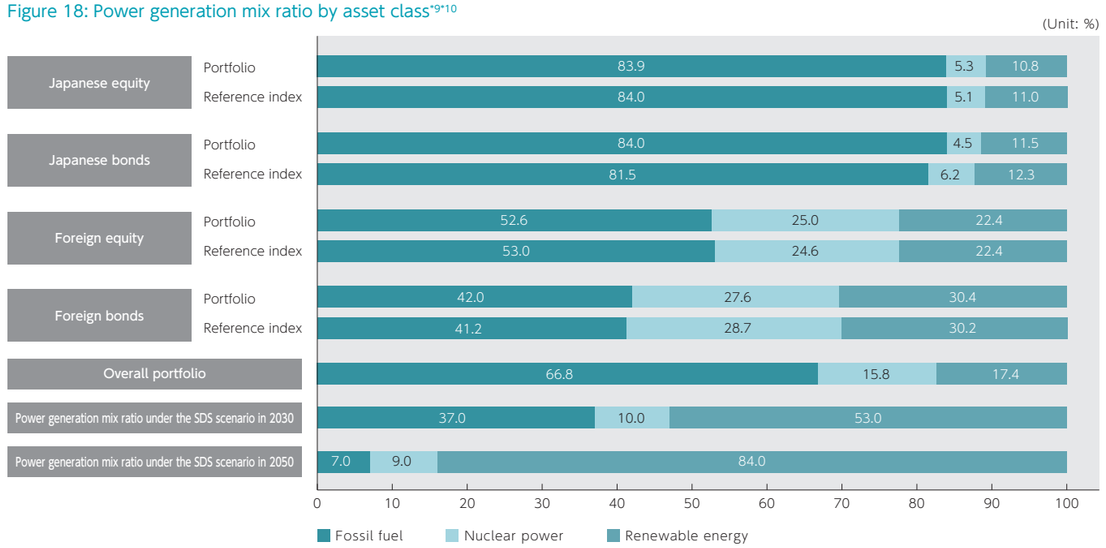
C. Portfolio resilience analysis related to climate change

(a)Transition risk analysis

①Portfolio power generation mix analysis

One index for evaluating portfolio transition risk is the power generation mix ratio of the portfolio based on the amount of power generation. Here, the power generation mix ratio is compared for each asset class and reference index. Additionally, the power generation mix ratio was estimated for the overall portfolio for 2030 and 2050 under the SDS scenario. Figure 18 shows an overview of these values. Based on this, the power generation mix ratio for each asset class is nearly the same as the reference index. Additionally, as of now, about 2/3 of the overall portfolio is based on fossil fuels, which shows the need to reduce the fossil fuel composition ratio to about 1/3 in 2030, and to reduce it to 7% for 2050.

Figure 18: Power generation mix ratio by asset class*9*10



*The total composition ratio may not be 100% depending on the way fractions are handled.

②Portfolio transition VaR analysis

Another transition risk evaluation indicator is called transition value at risk (hereinafter, VaR). Transition VaR is an indicator that converts the impact on investee companies to portfolio value based on the Net Zero Emission (NZE) Scenario announced by the International Energy Agency (IEA). When comparing each asset class and reference index using this indicator, as shown in Figure 19, the amount of transition risk for SMTAM with each asset class is equivalent to the reference index or lower. Domestic bonds and foreign bonds in particular have a very narrow risk range. Additionally, it was determined that the transition risk amount for the overall portfolio is 9%.

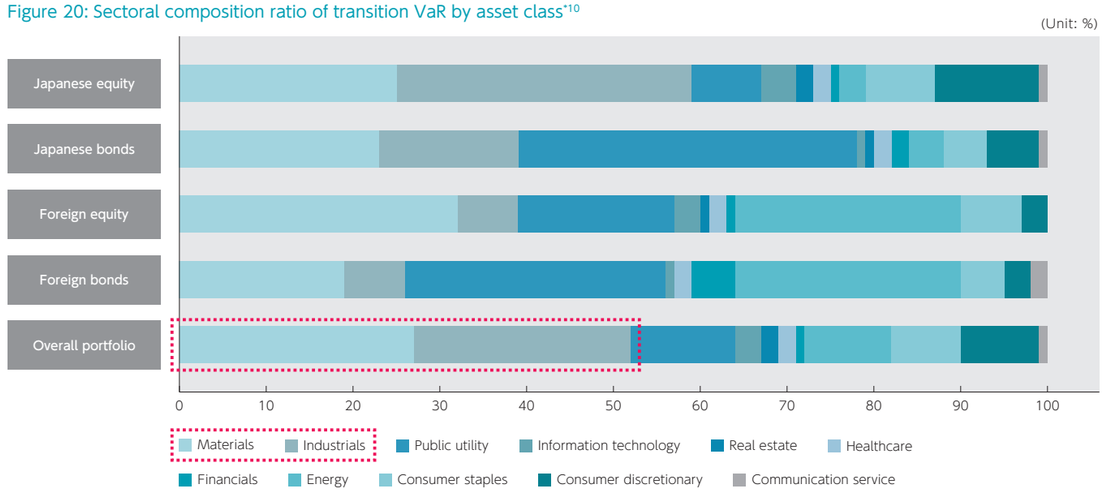
Figure 19: Transition VaR by asset class*9*10

(Unit: %)

	Japanese equity	Japanese bonds	Foreign equity	Foreign bonds	Overall portfolio
Portfolio (A)	12	19	5	2	9
Reference index (B)	12	32	5	6	-
Difference (A-B)	0	-13	0	-4	-

Figure20 shows the composition ratio of overall portfolio transition VaR by sector, and as can be seen, over half is comprised of the Materials and Industrials sectors. Since a high carbon price is introduced with the NZE Scenario, companies that have high emissions face a heavy burden, and this is believed to impact the corporate value of investee companies. As for transition risk, it can be seen that our portfolio is designed in such a way that it is strongly impacted by these two sectors.

Figure 20: Sectoral composition ratio of transition VaR by asset class*10



(b)Physical risk analysis (Portfolio physical VaR analysis)

There is also a physical risk evaluation indicator called physical value at risk (hereinafter, VaR). This is an indicator that converts the physical risk impact on investee companies to portfolio value based on the assumed scenario (a 2°C rise in temperature) prepared by the Intergovernmental Panel on Climate Change (IPCC). Figure 17 shows a comparison between the reference index and the physical risk by asset class based on this indicator. As can be seen, our physical risks by asset class are the same as the reference index or below. Additionally, physical risk for the overall portfolio is 1%, which is much lower than the transition risk of 9%.

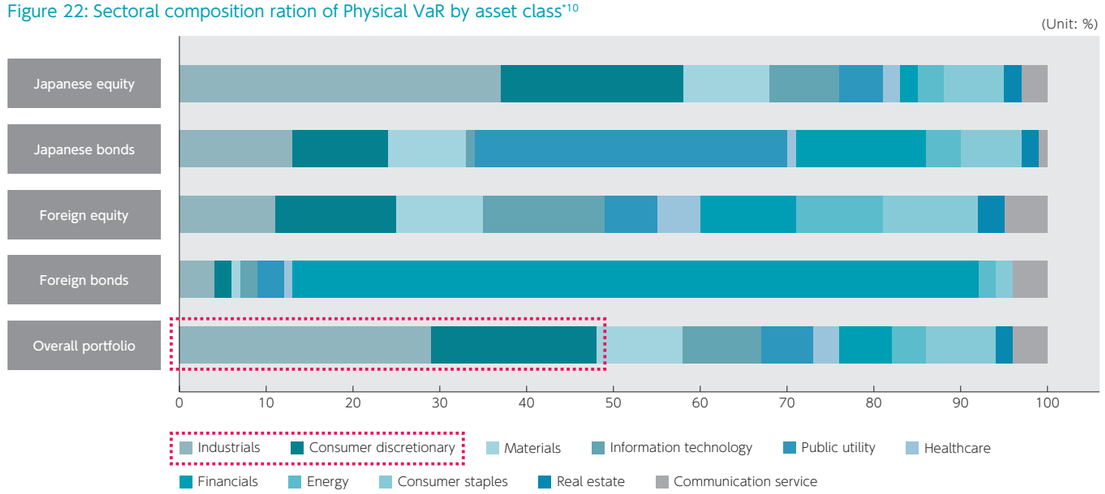
Figure 21: Physical VaR by asset class*9*10

(Unit: %)

	Japanese equity	Japanese bonds	Foreign equity	Foreign bonds	Overall portfolio
Portfolio (A)	2	3	1	1	1
Reference index (B)	2	4	1	1	-
Difference (A-B)	0	-1	0	0	-

Figure 22 shows the composition ratio of overall portfolio physical VaR by sector, and as can be seen, about half is comprised of the industrials and consumer discretionary sectors. It can be seen that our portfolio is designed in such a way that it is strongly impacted by these two sectors.

Figure 22: Sectoral composition ration of Physical VaR by asset class*10



Looking at the overall analysis results, to effectively reduce greenhouse gas emissions for our portfolio, Japanese equity and foreign equity are important as asset classes, and utilities and materials are important as sectors, and the approach to the industrials sector is important from the perspective of reducing transition risk. We will encourage investee companies in prioritized target assets and sectors to enhance their initiatives related to climate change issues through our engagement and exercise of voting rights.

*4. Based on assets under management excluding domestic and foreign sovereign bonds, etc.
*5. ISS (Institutional Shareholder Services)
*6. Since the values for the previous year (end of June 2022) were calculated (remeasured) using updated data such as carbon emissions, these do not match with the values in the SS report from last year.
*7. Based on Scope 1+2+3
*8. Based on Scope 1+2
*9. The following are reference indices used.
Japanese equity: Tokyo Stock Price Index (TOPIX)
Japanese bonds: NOMURA-BPI Overall (Corporate bonds only)
Foreign equity: MSCI-ACWI (ex Japan)
Foreign bonds: Bloomberg Global Overall (excluding Japan) (Corporate bonds only)
*10. Calculated based on SMTAM's holdings for the adjusted corporate value of each asset.
*11. All industries except the fossil fuel production industry: Scope 1+2, Fossil fuel production industry: Scope 3, Electric power: Scope 1
*12. SBT (Science Based Targets). Targets for reducing greenhouse gas emissions set by companies with a target year of 5 to 15 years in the future in harmony with the standards stipulated in the Paris Agreement. Numerical values must be aligned with the latest indicators from meteorological science. These are implemented as WMB (We Mean Business) initiatives, and are established and carried out by WMB constituent organizations such as the World Resources Institute (WRI) and CDP. SBT certification indicates that goals are certified based on the above. Even after being certified, it is necessary to disclose emission amounts, the progress of measures every year, and to regularly confirm the validity of targets. Also, SBT commitment refers to the declaration that SBTs will be set within 2 years.

D. Analysis of GHG emissions (Financed Emissions) of our sovereign bond portfolio

Partnership for Carbon Accounting Financials (PCAF) proposed a calculation methodology and a format of information disclosure of GHG emissions from sovereign bond investment, etc., (hereinafter, Sovereign GHG emissions) in "The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition" in December 2022.

(a)Sovereign GHG emissions

PCAF stipulates sovereign GHG emissions as "GHG emissions from production activities within a country's boundary" and sets it as "Scope 1." This scope 1 emission is also called the "production emissions," and PCAF set it as a mandate for disclosure. Regarding the production emissions, PCAF recommends disclosing both numbers: GHG emissions with LULUCF (Land Use, Land Use Change, and Forestry, hereinafter, "Forest absorption") and without it. In addition, these production emissions include GHG emissions from the companies because the production emissions are caused by the production facilities in that country. Though it is named "sovereign," it is worth noting that the emission does not mean the GHG emissions from only the public sector.

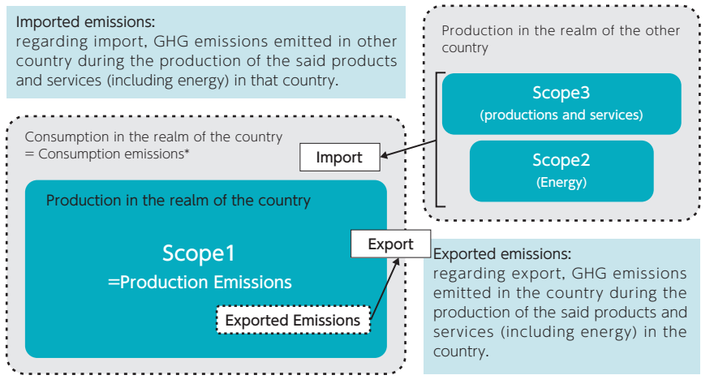
Figure 23: Definition of each scope relating to GHG emissions from sovereign bonds

Category	Disclosure Recommendation Level	Definition
Scope1*13 (Production emissions)	Mandatory (shall)	●GHG emissions from the production activities in the realm of the country are called production emissions, and it is recommended to disclose GHG emissions considering forest absorption (LULUCF), etc.
Scope2*14	Recommended (should)	●GHG emissions that are emitted when energy imported and consumed in that country was produced outside of that country.
Scope3*14	Recommended (should)	●GHG emissions that are emitted when products and services (excluding energy) produced overseas and consumed in that country were produced outside of that country.
Exported Emissions*15	–	●Regarding export, GHG emissions emitted in the country during the production of the said products and services (including energy) in the country.
Imported Emissions*15	–	●Regarding import, GHG emissions emitted in other country during the production of the said products and services (including energy) in that country.
Consumption Emissions	Recommended (should)	●GHG emissions that are emitted by production processes relating to products and services used within the country's realm.

Source: made by SMTAM based on PCAF report, etc

PCAF also recommends disclosing the "consumption emissions" as the metrics corresponds to the production emissions. The "consumption emissions" are defined as "GHG emissions that are emitted by production processes relating to products and services used within the country's realm." For example, a country where its consumption scale is more significant than its production scale globally contributes to increasing GHG emissions through imported products and services, although that country's production emissions are relatively small. To visualize the transfer of GHG emissions from a GHG production country to a GHG consumption country, PCAF recommends disclosing the consumption emissions.
The consumption emissions are calculated by adding the GHG emissions from the production process relating to imported products and services categorized by Scope 2 and 3 to the production emissions and by excluding the GHG emissions from the production process of products and services which are produced in the country and exported to other countries (exported emissions).
Besides, Scope 2 means "GHG emissions that are emitted when energy imported and consumed in that country was produced outside of that country, and Scope 3 means "GHG emissions that are emitted when products and services (excluding energy) produced overseas and consumed in that country were produced outside of that country. Also, exported emissions are "GHG emissions emitted in the country during the production of the said products and services (including energy) in the country" regarding the export goods. Figure 24 shows these relationships. The category of sovereign GHG emissions is as a same term as GHG protocol, but we have to be careful that it is different by coverage from the scope of GHG emissions that companies use as Scope2 and Scope3.

Figure 24: Coverage of each scope regarding sovereign GHG emissions



*Consumption emissions = Production emissions (Scope1) + Imported emissions - Exported emissions

Source: made by SMTAM

(b)Calculation methodology of GHG emissions from sovereign bond portfolio

PCAF defines the methodology of GHG emissions from the sovereign bond portfolio below, being based on the calculation methodology of GHG emissions emitted from a portfolio of invested and loaned companies, so called financed emissions.

【Formula】

$$\text{Sovereign Financed Emissions} = \sum_{S} \underbrace{\frac{\text{Outstanding Amount to Sovereign Bonds of Country S}}{\text{PPP-adjusted GDP of Country S}^{*16}}}_{\text{Attribution factor}} \times \text{GHG emissions of Country S}$$

S=all countries included in portfolio measured

The sovereign financed emissions are derived by GHG emissions of each country issuing sovereign bonds invested (= GHG emissions of country S) multiplied by each country's attribution factor, which shows to what extent invested money to the bonds contributes to GHG emission of each country (= invested money to sovereign bonds of country S / PPP-adjusted GDP[*16]), and adding up derived numbers of emissions among countries belonging to the portfolio. The calculation methodology is as same as that for the portfolio of investee and loan companies.

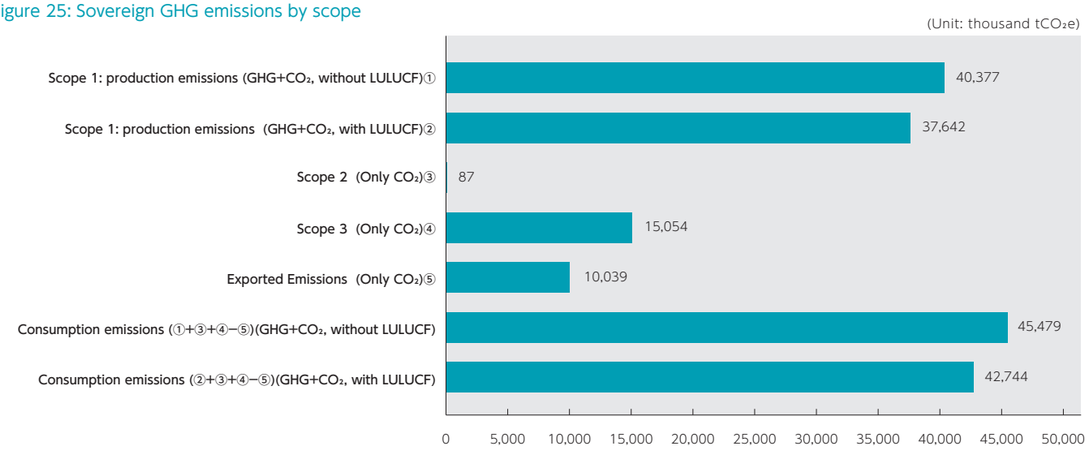
However, a different point of the calculation methodology of GHG emissions of sovereign bond portfolio from that of corporate stocks and bonds is the calculation methodology of the attribution factor. GHG emissions from the investment portfolio of corporate stocks and bonds are derived by making the investment exposure of investee companies the numerator while making the corporate value (EVIC) of investee companies the denominator; GHG emissions of sovereign bond portfolio are derived by making investment exposure of sovereign bonds of the invested country the numerator while nominal GDP adjusted by purchase power parity, the PPP-adjusted GDP[*16], the denominator.

PCAF explained "there was an option that the public debt of invested country should be a denominator based on the calculation methodology of the investment portfolio of corporate stocks and bonds, but we finally chose PPP-adjusted GDP, which had a higher correlation with each country's emissions, as the denominator because the attribution factor of a country with large outstanding public debt was underestimated."

(c)GHG emissions from our sovereign bond portfolio

Based on PCAF's recommended methodology, GHG emissions from our sovereign bond portfolio are shown in Figure25. Our production emissions without LULUCF amount to 40 million tCO_2e, and those with LULUCF amount to 38 million tCO_2e; also, our consumption emissions without LULUCF amount to 45 million tCO_2e, and those with LULUCF amount to 43 million tCO_2e.

Figure 25: Sovereign GHG emissions by scope



Also, PCAF recommends portfolio analysis using two ways of carbon intensities: the production emissions intensity and the consumption emissions intensity. Emissions intensities by country are derived from the formula below.

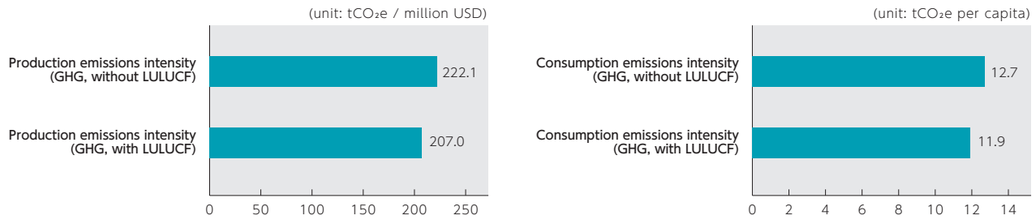
【Formula】

$$\text{Production emissions intensity of country S} = \frac{\text{Production emissions of country S}}{\text{PPP-adjusted GDP of country S}^{*16}}$$

$$\text{Consumption emissions intensity of country S} = \frac{\text{Consumption emissions of country S}}{\text{Population of country S}^{*17}}$$

Each invested country's emissions intensity is calculated based on the formula above. Then, based on the formula below, the portfolio-based emissions intensity is derived by weight-averaging each country's intensity using each country's investment weight of the portfolio, which is shown in Figure26. The production emissions intensity of our sovereign bond portfolio (without LULUCF) is 222.1tCO_2e / million USD, and our consumption emissions intensity (without LULUCF) is 12.7tCO_2e per capita.

Figure 26: Our production emissions intensity and consumption emissions intensity



【Formula】

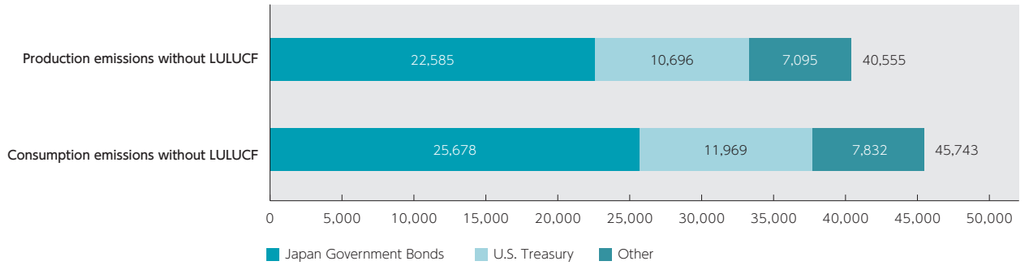
$$\text{Production emissions of sovereign bonds portfolio} = \sum_{S} \left[\text{Production emissions intensity of country S} \times \text{Investment weight of sovereign bonds of country S} \right]$$

$$\text{Consumption emissions of sovereign bonds portfolio} = \sum_{S} \left[\text{Consumption emissions intensity of country S} \times \text{Investment weight of sovereign bonds of country S} \right]$$

S=all countries included in portfolio measured
Investment weight of sovereign bonds of country S = investment value of country S's sovereign bonds / entire value of sovereign bonds portfolio

The result of the analysis of SMTAM's contribution to production emissions and consumption emissions by country is shown in Figure 27. Japan Government Bonds and U.S. Treasury are largely contributing to both production emissions and consumption emissions. To align our sovereign bond portfolio with 1.5℃ scenario, it is indispensable that Japan and U.S. firmly reduce their GHG emissions. Therefore, intensively and actively engaging with companies in our major invested countries, including not only Japan but also the U.S., is crucial.

Figure 27: Country contribution to GHG emissions from our sovereign portfolio



(d)Next step

We calculated GHG emissions from our sovereign bond portfolio using the PCAF recommended methodology. Based on this calculation, GHG emissions by country come from OECD and UNFCCC statistics; it is noted that two statistics coverages differ in data coverage: OECD statistics is based on CO_2 emissions while UNFCCC statistics is based on GHG emissions. Also, there is much room for improvement in user-friendliness because updating GHG emissions data is slow, and data of some countries are unavailable.

Despite such limitations, it is significant progress for us to visualize GHG emissions from our sovereign bond portfolio in realizing net zero of our entire portfolio under management. Our sovereign bonds portfolio amounts to 27.5 trillion JPY[*18], and it is one of our major asset classes. We will make efforts to monitor our sovereign bonds' GHG emissions and reduce them by further improving analysis methodologies and through policy engagement.

(Appendix) An analysis of forest absorption impact on our portfolio

Data that can derive the production emissions give us useful information relating to each country's GHG emissions profile. One of interesting information is LULUCF (hereinafter, forest absorption). Forest's role in absorbing and storing CO_2 is called "carbon sink." The importance has been recognized globally. On the other hand, the amount of CO_2 emitted by illegal lumbering and land use change, etc., is said to reach a significant scale. Therefore, seeing the scale of forest absorption by country gives us some understanding of the degree of contribution of forest benefit or impact on global warming through the emission of fixed CO_2 from land, etc, by deforestation.

Figure28 shows three countries with the largest net positive absorption and three countries with the largest net negative absorption in our sovereign bond portfolio, under the definition of difference between the number including gross forest absorption and the number excluding gross forest absorption as net forest absorption based on the production emissions data by country. Countries that most benefit from forest absorption are China and the U.S., which own large lands and enormous forest resource, while countries that have negative influence are unexpectedly Indonesia and Brazil. Both countries own large amounts of forest assets; however, it is thought that this fact indicates that the massive CO_2 emissions by decomposition of sludge and forest fire by influence of deforestation, etc., through plantation development and development to farmland and ranch is larger than the absorption capacity by the forest. The protection of tropical rainforests is an urgent matter internationally because the enormous amount of CO_2 emitted by deforestation can be a significant obstacle to achieving net zero by 2050 globally.

Figure 28: Comparison of net absorption by country in terms of sovereign bond portfolio

Ranking	The countries with significant net absorption	Absorption (thousand tCO_2)	The countries with negative net absorption	Absorption (thousand tCO_2)
1st	China	1,114,790	Indonesia	▲821,254
2nd	USA	754,225	Brazil	▲290,867
3rd	Malaysia	260,457	Peru	▲86,741

Next, the impact of forest absorption on our sovereign bond portfolio is considered. Our production emissions with forest absorption are 37.6 million tCO_2e and 40.4 tCO_2e without forest absorption; therefore, the net absorption of our sovereign bond portfolio is 2.7 million tCO_2e. The net absorption is equivalent to about 6% of our production emissions without forest absorption. Also, looking at the contribution to this net absorption country-by-county, countries that work negatively for this net absorption value, in other words, countries with significant CO_2 emissions by deforestation are Indonesia, Mexico, Ireland, Peru and Brazil. (Figure29)

Figure 29: Impact by country on net absorption in our sovereign bond portfolio

Ranking	Country	Impact on forest absorption of our portfolio (thousand tCO_2e)
1st	Indonesia	41.5
2nd	Mexico	11.6
3rd	Ireland	7.4
4th	Peru	7.4
5th	Brazil	6.8
(Reference) Forest absorption of our sovereign bond portfolio		▲2,735.2

We are collectively engaging in forest conservation and restoration activities with other investors through some global initiatives such as "The Investors Policy Dialogue on Deforestation (IPDD)" and "Financial Sector Deforestation Action (FSDA)." From these analyses, intensively engaging the Indonesian and Brazilian governments is very worthwhile because it substantially impacts reducing financed emissions from our portfolio.

*13. Calcuration of Scope1 uses GHG total data with and without LULUCF in 2021 of UNFCCC Annex I. Recent year's data from the non-Annex I list is used for non-Annex I countries. LULUCF is an abbreviation of land use, land use change, and forestry and shows the capacity for GHG emissions absorption. As to countries in which data is not available, GHG emissions are estimated based on a similar country's GDP intensity with a consideration of economic and geographical conditions. Unit is tCO_2 equivalent, including other GHGs like methane, etc.
*14. We use OECD statistics for the calculation of Scopes 2 and 3 . Countries that have no emission data are treated as "no emissions." Only CO_2 emission data is available in these statistics. Data from 2018, which is the most recent, is used for the analysis. The unit is tCO_2.
*15. Data used for calculating exported and imported emissions is from OECD statistics. Only CO_2 emission data is available in these statistics. Countries that have no emission data are treated as "no emissions." Data from 2018, which is the most recent, is used for the analysis. The unit is tCO_2.
*16. Data of PPP-adjusted GDP is from FY2021 of World Bank statistics.
*17. Data of Population is from FY2021 of World Bank statistics.
*18. Data of sovereign bond portfolio used for analysis is as of the end of June 2023. The total amount is 181.8 billion USD, which is calculated with the exchange rate at the end of June 2023 (144.99 yen/USD).

4 Metrics and targets

As a responsible institutional investor, we are promoting the reduction of greenhouse gas emissions by investee companies through our engagement and exercise of voting rights, collaboration with stakeholders such as asset owners and governmental agencies, improving investment strategies, and providing investment opportunities (products) to clients. In this way, we will help our investee companies achieve net zero greenhouse gas emissions by 2050, which is our commitment*19 when joining NZAMI, and reduce these by half compared to 2019, which is our interim target for 2030.
As for our own greenhouse gas emissions, we will also make effort under the net zero realization framework of the Group-based CO_2 emissions (Scope 1+2) by 2030, which was set by the Sumitomo Mitsui Trust Group.

*19. Our interim target for 2030 is to halve the emissions compared to the levels in 2019. The emission amount is calculated based on 43 trillion yen (excluding sovereign bond portfolio), which is about half of the total operational asset balance of approximately 85 trillion yen as of the end of June 2021. The ultimate goal is to achieve net zero for all assets under management

Plans for the Future

Under the supervision of the Board of Directors, we will continue our efforts and disclosures on climate change issues. In addition to reduction of greenhouse gas emissions generated by investee companies through collaboration with stakeholders such as engagement, exercise of voting rights, and policy advocacy activities, and in addition to the optimal allocation of resources through investment strategies and investment products for responding to climate change issues, we aim to both maximize customer returns on investments and contribute to climate change issues through customer initiatives and enhancement of our organizational structures for climate-related responses. We are committed to continuing our efforts to achieve this goal.

Reference

1 Our carbon emissions data list

(1) Data related to asset class

Asset class	Target year	Total portfolio (Billion USD)	Portfolio / Reference index	Carbon emissions (Scope 1+2) (tCO_2e)	Total carbon emissions (tCO_2e)	Carbon footprint (tCO_2e/ Million USD)	Carbon intensity (tCO_2e / Million USD)	WACI (tCO_2e / Million USD)	Temperature score (℃)	Transition VaR (%)	Physical VaR (%)
Japanese equity	2023	158.6	Portfolio	11,792,794	144,469,857	74.4	100.0	84.9	1.8	12%	2%
			Reference index	12,762,122	152,754,621	80.5	103.1	88.5			
	2022	152.3	Portfolio	11,349,818	124,249,405	74.6	100.5	93.5	1.9	10%	2%
			Reference index	12,278,324	131,983,314	80.6	103.9	95.5			
Japanese bonds	2023	7.5	Portfolio	1,274,893	5,529,261	170.5	269.7	224.4	2.0	19%	3%
			Reference index	2,505,642	9,427,194	335.1	474.2	472.4			
	2022	9.7	Portfolio	1,622,053	6,815,285	166.6	269.7	201.1	2.8	18%	2%
			Reference index	3,112,543	11,594,720	319.7	498.8	439.3			
Foreign equity	2023	148.3	Portfolio	7,606,930	65,971,960	51.3	159.0	138.5	2.8	5%	1%
			Reference index	7,781,838	66,365,578	52.5	164.0	142.1			
	2022	149.6	Portfolio	8,071,511	59,929,687	54.0	180.5	180.7	2.9	5%	1%
			Reference index	8,390,593	60,822,131	56.1	187.5	187.3			
Foreign bonds	2023	8.8	Portfolio	269,766	1,959,297	30.7	164.4	68.0	2.7	2%	1%
			Reference index	597,294	4,162,489	67.9	187.0	170.9			
	2022	9.0	Portfolio	263,703	1,560,023	29.5	176.3	77.2	3.0	2%	1%
			Reference index	649,546	3,749,770	72.5	226.2	197.5			
Overall portfolio	2023	323.2	Portfolio	20,944,383	217,930,375	64.8	121.7	112.2	2.1	9%	1%
	2022	320.5	Portfolio	21,307,085	192,554,400	66.5	129.0	137.0	2.4	8%	2%

(2) Data related to investment strategy

Investment strategy	Target year	Total portfolio (Billion USD)	Portfolio / Reference index	Carbon emissions (Scope 1+2) (tCO_2e)	Total carbon emissions (tCO_2e)	Carbon footprint (tCO_2e/ Million USD)	Carbon intensity (tCO_2e / Million USD)	WACI (tCO_2e / Million USD)	Temperature score (℃)	Transition VaR (%)	Physical VaR (%)
Passive investment strategy	2023	297.5	Portfolio	19,126,271	202,049,621	64.3	120.8	113.6	2.1	9%	1%
	2022	294.2	Portfolio	19,343,241	178,034,809	65.7	127.8	138.7	2.4	8%	1%
Active investment strategy	2023	24.3	Portfolio	1,754,741	15,214,855	72.3	134.9	98.7	1.9	11%	2%
	2022	24.8	Portfolio	1,874,264	13,806,562	75.5	142.4	119.5	2.5	10%	2%

2 Definition of main terms

Term	Description	Calculation formula
Total Carbon Emissions / Financed Emissions	● Portfolio GHG total emissions (Unit: CO_2 converted tons (tCO_2e)) ● GHG emissions for investee companies are based on Scope 1+2+3.	$\sum_{n}^{i}\left[\frac{\text{Investment market value } i}{\text{Investee company's EVIC } i^*} \times \text{Investee company's GHG emissions } i\right]$
Carbon Footprint	● Value that can be acquired by total carbon emissions over market value of portfolio (Unit: CO_2 converted tons (tCO_2e)) per million USD (present value of portfolio)) ● GHG emissions for investee companies in total carbon emissions are based on Scope 1+2.	$\frac{\text{Total Carbon Emissions}}{\text{Market Value of Portfolio}}$
Carbon Intensity	● Value that can be acquired by dividing the total carbon emissions by the total sales of each investee company in the portfolio (Unit: CO_2 converted tons (tCO_2e) per Million USD). ● GHG emissions for investee companies in total carbon emissions are based on Scope 1+2.	$\frac{\text{Total carbon emissions}}{\sum_{n}^{i}\left[\frac{\text{Investment market value } i}{\text{Investee company's EVIC } i^*} \times \text{Investee company's sales } i\right]}$
Weighted Average Carbon Intensity (WACI)	● Weighted average for carbon emissions per unit sales of each investee company using investment weight of each investee company (Unit: CO_2 converted tons (tCO_2e) per Million USD). ● GHG emissions for investee companies are based on Scope 1+2.	$\sum_{n}^{i}\left[\frac{\text{Investment market value } i}{\text{Portfolio market price}} \times \frac{\text{Investee company's GHG emissions } i}{\text{Investee company's sales } i}\right]$

* EVIC stands for Enterprise Value Including Cash and expresses corporate value including cash.
  EVIC = Market capitalization (Class stocks such as common stocks and preferred stocks) + Interest-bearing debt (Book value) + Controlling stockholder equity (Book value).

SUMITOMO MITSUI TRUST ASSET MANAGEMENT

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