Discussion Paper

Supervisory Guidance on Climate-related Risk Management and Client Engagement

July 2022

Financial Services Agency

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I. Introduction

The "JFSA's supervisory approaches - Replacing checklists with engagement" (released in June 2018) lays out the basic concepts and approaches in common to overall inspections and supervisions. It also stipulates that the Financial Services Agency of Japan ("FSA") is to present concepts and approaches for each specific theme and area in the form of theme/area-specific documents ("Discussion Papers"), which serve as reference in dialogue between the FSA and financial institutions.

This Discussion Paper sets out the FSA's basic approach for supervision and inspection of financial institutions in the area of climate change as supervisory guidance, following the recommendations in the report of the Expert Panel on Sustainable Finance ("Building a Financial System that Supports a Sustainable Society") published in June 2021.

Financial institutions need to ensure both sound climate-related risk management and financial intermediary functions to support the decarbonization of clients and industries (hereinafter including the underwriting function of insurance companies). Thus, addressing climate change relates to a wide range of areas in the FSA's supervision and inspection. In this regard, this guidance follows the concepts in the existing Discussion Papers on prudential supervision and lending practice and presents the FSA's specific approach for supervision and inspection with respect to climate change.

This guidance begins with an overview of discussions around climate change (Section II), followed by the FSA's viewpoints on supervisory dialogues with financial institutions on their efforts to address climate change (Section III). Then, this guidance illustrates approaches and case examples of client engagement, which should serve as references for financial institutions to take actions (Section IV). Finally, the guidance presents the FSA's next steps on supervision related to climate change (Section V).

This guidance is to be used as a reference document in dialogue between the FSA and financial institutions to establish better practices in each financial institution, in the course of the FSA's supervision and inspection primarily of banks and insurance companies. Therefore, the FSA does not intend to mechanically and uniformly apply viewpoints raised in this guidance or use them as a checklist in supervision and inspection. While this guidance illustrates the FSA's approach as of today, practices and methodologies as well as international discussions to address climate change are still evolving, so the guidance is to be revised in the future to reflect progress in those areas. The examples in this guidance should not be interpreted as best practices, but should be

interpreted as reference cases as of June 2022.

When engaging in dialogue with financial institutions, the FSA will take full account of the fact that practical approaches to addressing climate change, including client engagement, may vary among financial institutions depending on the size and business characteristics of the financial institutions such as the significance of the impact of climate change on clients and their own business operations.

Cooperative financial institutions may also use this guidance as a reference in advancing their efforts to address climate change, including client engagement.

The FSA is committed to holding discussions with a wide range of stakeholders, including financial institutions and users, while taking into account developments in international discussions and practices and making efforts to continuously improve the FSA's dialogue with financial institutions.

II. Discussion and background on climate change

(Efforts in Japan and around the world to achieve carbon neutrality)

The world is facing the problem of rising sea levels and an increase in the number and severity of natural disasters such as heavy rainfall due to the progression of global warming. Therefore, the acceleration of efforts to achieve carbon neutrality[1] is an urgent issue common to Japan and the world.

In 2015, the “Paris Agreement” was adopted at the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). Under the agreement, it was stipulated that efforts should be made to hold the increase in the global average temperature to well below 2ºC above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 ºC. To this end, a universal long-term goal was set to peak out greenhouse gas (GHG) emissions as early as possible and achieve carbon neutrality in the second half of this century.

In this regard, the United Nations Intergovernmental Panel on Climate Change (IPCC) released a Special Report "Global Warming of 1.5 ºC". The report points out that in order to achieve the 1.5°C effort goal, carbon neutrality must be achieved around 2050. Furthermore, at COP26, held in November 2021, the commitment to continue efforts to realize the 1.5°C target was reiterated, calling for intensified efforts in the "Decisive Decade" to 2030.（See BOX 1: Climate change and GHG emissions.）

In October 2020,[2] Japan announced its goal of achieving carbon neutrality by 2050, and its plans to mobilize a variety of policies to achieve this goal. At the Global Warming Prevention Headquarters and the Leaders’ Summit on Climate hosted by the United States in April 2021, it was declared that Japan aims to reduce GHG emissions by 46% in fiscal year 2030 from its fiscal year 2013 level, and that Japan will continue strenuous efforts in its challenge to meet the lofty goal of cutting its emission by 50%. In January 2022,[3] the government also made it clear that it will position climate change as one of the greatest issues that should be solved by a new form of capitalism as well as an important growth field, and will work to increase investment in clean energy and other areas to decarbonize the economy.

Similarly, many countries around the world have set a goal of achieving carbon

[1] To reduce the balance of GHG emissions produced and emissions absorbed/removed to zero (net zero) in the world as a whole or in a country as a whole.
[2] Prime Minister Suga’s Policy Speech to the 203rd session of the Diet
[3] Prime Minister Kishida’s Policy Speech to the 208th session of the Diet

neutrality by 2050, and are promoting public and private efforts to accelerate the decarbonization of companies and industries, and to strengthen industrial competitiveness under such a trend by encouraging technology development, capital investment, and participation in international consensus building.

Figure 1: NDCs[4] and carbon neutrality targets of major countries (as of Jun 2022)

Country	NDC	Carbon neutrality target
Japan	46% reduction in FY2030 (compared to FY13) In addition, a statement indicates strenuous efforts in its challenge to meet the lofty goal of 50% reduction. *NDC re-submitted in Oct 2021	2050
Canada	40-45% reduction in 2030 (compared to 2005) *NDC re-submitted in July 2021	2050
China	Make the peak CO2 emissions before 2030 CO2 emissions per GDP of at least 65% reduction (compared to 2005) *NDC re-submitted in October 2021	2060 (CO2 emission net zero)
EU	At least 55% reduction by 2030 (compared to 1990) *NDC re-submitted in December 2020	2050
India	Emissions per GDP of 33% to 35% reduction (compared to 2005) *NDC submitted in October 2016	2070
UK	At least 68% reduction by 2030 (compared to 1990) *NDC re-submitted in December 2020	2050
US	50-52% reduction by 2030 (compared to 2005) *NDC submitted in April 2021	2050

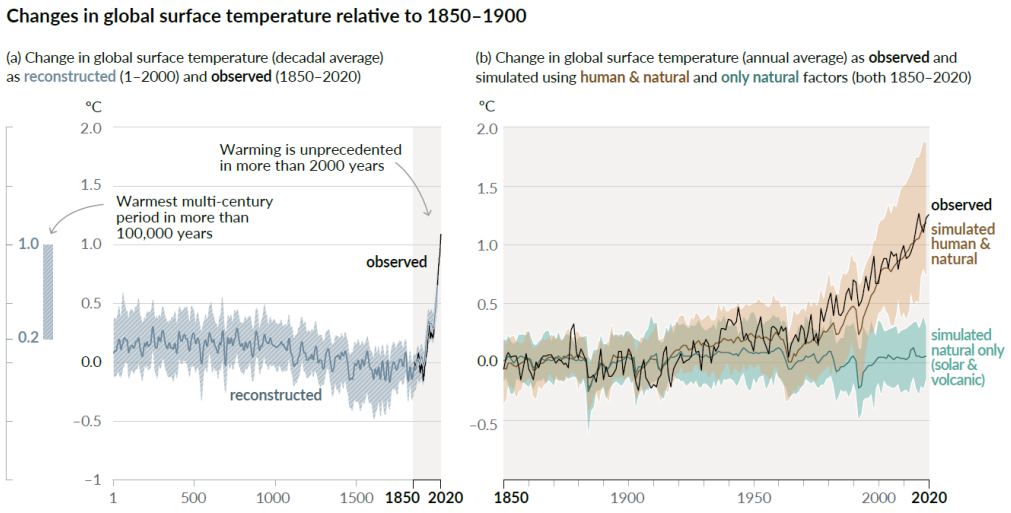
[4] National GHG emission reduction targets submitted to the United Nations by each country participating in the Paris Agreement (NDC: Nationally Determined Contributions)

BOX 1: Climate change and GHG emissions

While there are various discussions and studies on the basic mechanisms and impacts of climate change, the IPCC reports are widely referred to as reports that summarize papers and observational data from various countries and include measures against climate change.

For example, the IPCC Sixth Assessment Report of the Working Group I, published in 2021, discusses the magnitude and drivers of climate change with observed temperatures over the past 170 years and the restored values for earlier years (Figure a. below). It states that the temperatures in the last decade (2011-2020) are higher than those in the warmest centuries in the past 100,000 years, around 6500 years ago. The report also presents two different estimates of global average temperatures over the past 170 years, one that takes into account both anthropogenic and natural factors and the other that takes into account only natural factors (Figure b below), indicating that the former is close to observed values. Based on these analyses, the report argues that "It is unequivocal that human influence has warmed the atmosphere, ocean and land."

History of global temperature changes and causes of recent warming



Source: IPCC 6th Assessment Report, Working Group I Report Summary for Policy Makers

While it is not easy to clarify the relationship between individual natural disasters and global warming, the report states many changes in the climate system including hot extremes and increases in the frequency and intensity of extreme rainfalls become larger in direct relation to increasing global warming.

When looking into scenario by scenario, under the worst-case scenario where global warming progresses most rapidly, the global average temperature in 2100 is expected to increase by around 4.4°C compared to the Industrial Revolution period, resulting in significant impacts such as the loss of Arctic sea ice subsequent ocean acidification, plankton extinction, and other phenomena. On the other hand, under a scenario where warming is controlled to the maximum extent possible under aggressive countermeasures, the increase can be limited to around 1.4°C. Furthermore, the IPCC 6th Assessment Report by Working Group III published in April 2022 estimates that, based on national NDCs published prior to COP26, a temperature is likely to increase by more than 1.5°C this century. However, if global GHG emissions peak out by 2025, temperature rise during this century can be kept below 1.5°C.

Similar estimates have been made by other international organizations, but their assumptions and estimation methods vary. For example, according to estimates by the International Energy Agency (IEA), temperature rise by the end of the century could be limited to 1.8°C if each country's GHG emission reduction targets, including NDCs, announced as of COP26, are achieved.

(Changes in economy, industry, and society)

Against this backdrop, the world's economy, industry, and society are facing major changes. These include technological innovations to mitigate climate change, changes in national policies and regulations, and changing values among consumers and investors, and these trends are expected to accelerate in the future. For example, as consumers are increasingly concerned about climate change issues, the products and services they prefer may shift to those that place more emphasis on the degree of environmental impact of production processes as well as raw materials, reusability at the time of disposal, and so on. The need for infrastructure development and technology development that is resilient to the severity of natural disasters may also increase. (See BOX 2: ESG and SDGs.)

The structural transformation of the global economy, industry, and society in the context of decarbonization presents both opportunities and risks for companies. Companies with superior decarbonization and environmental technologies can quickly identify changes in consumer demand and other factors and leverage their technological strengths to increase competitiveness, which can lead to growth opportunities, such as the development of new markets and business partners. On the other hand, as the

expectations and perspective of corporate efforts to proactively address climate change increase worldwide, there is a risk that delays in addressing the issue by companies could affect their international reputation and competitiveness.

These business opportunities and risks associated with climate change are not limited to global companies facing increasing scrutiny from investors and other relevant players, companies close to end consumers, or companies directly subject to related regulations. As investors and other relevant parties increasingly evaluate the reduction of corporate GHG emissions in each supply chain, a wide range of companies in supply chains, including small and medium-sized domestic enterprises, may be indirectly forced to transform as domestic and foreign companies reorganize their supply chains, update the technologies and equipment they use, and review their production systems, to address climate change. In this case, whether those companies are able to successfully transform themselves could have a significant impact on the competitiveness not only of the company concerned but also of the entire supply chain and the industry of the entire region.

(Impact on financial markets and financial institutions)

Looking ahead these structural changes in the global economy, industry, and society, the capital markets' participants have also started to steer themselves toward supporting corporate efforts to address climate change (i.e., corporate actions to achieve their own decarbonization and to build businesses that contribute to the decarbonization of other companies, and so forth).[5] More specifically, as finance to realize a sustainable society ("sustainable finance") becomes more prevalent, an approach is becoming more widespread globally that considers, for example, when making investment and financing decisions, a company's efforts to address social issues such as climate change as an important factor that influences the sustainability of the company's business. In particular, the importance of "transition finance," which appropriately captures and financially supports the orderly transition of hard-to-abate companies and sectors that have difficulty in decarbonizing overnight, is becoming increasingly recognized. (See BOX 3: Transition Finance.)

[5] According to estimates by the IEA, in order to achieve carbon neutrality in 2050, annual global investment in clean energy will need to increase from the current level of about $1 trillion per year to about $4 trillion by 2030. In addition, according to estimates by the National Institute for Environmental Studies, the average annual amount of additional investment required in Japan between 2041 and 2050 is estimated to be about 10-11 trillion yen.

Given this trend, domestic and foreign financial institutions and institutional investors are taking an interest in and becoming more involved in efforts to address climate change at the clients[6] in which they invest and finance. In addition, an increasing number of asset managers are focusing on the social impact of their investees' efforts to address climate change in order to meet the expectations of end investors. The interest from stakeholders and the international society in financial institutions' climate change responses is also increasing, so financial institutions have been expected to make efforts including supporting their clients to address climate change.

Under these circumstances, it is key for Japanese financial institutions to proactively support their clients' efforts to address climate change, including transitions of the clients. This ultimately leads them to establish a business foundation that is resilient to the changes and to ensure business sustainability as well as to contribute to achieving carbon neutrality.

Opportunities for clients turn out to be opportunities for financial institutions. For example, when clients develop new markets and business partners to address climate change, the financial institutions themselves can also gain profits by expanding business with these clients.

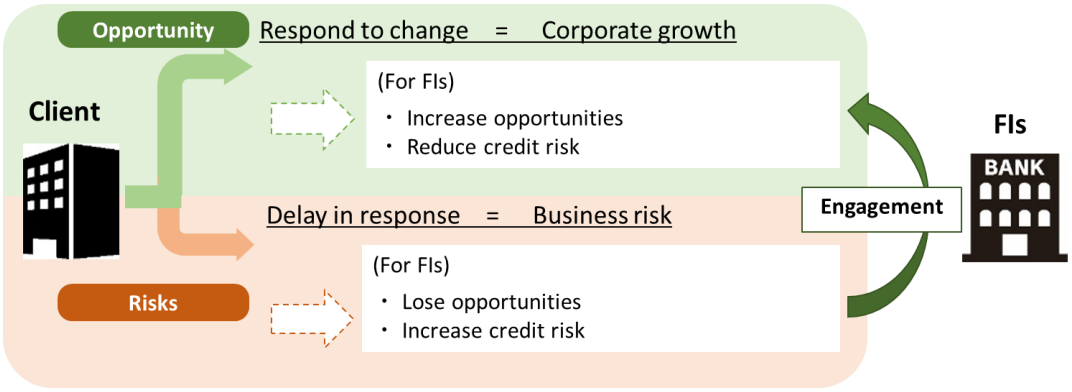
On the other hand, risks for clients will also be risks for financial institutions. If a client's business value is damaged or otherwise affected by changes in regulations, technology and market conditions in connection with the transition to carbon neutrality (i.e. transition risk), or by the impact of severe natural disasters or changes in temperature and precipitation on their business (i.e. physical risk), the financial institution's business will also be affected through investments, loans, and transactions with the clients.[7]

This relationship means that the efforts of financial institutions for encouraging clients to seize business opportunities and reduce their climate-related risks (both transition and physical risks) by supporting them in addressing climate change can lead the financial institutions themselves to gain business opportunities and reducing climate-related risks.

[6] In this guidance, "clients" includes the companies invested in by insurance companies. Where necessary, the term "clients" should be read as a group of clients, such as a sector or region. The same applies hereinafter.

[7] In addition, as discussed below, there is a risk of damage to the infrastructure of financial institutions due to severe natural disasters or changes in temperature and precipitation.

Figure 2: Relationship between client firms and financial institutions' opportunities and risks



Banks can support clients in addressing climate-related opportunities and risks through constructive dialogue ("engagement") as part of bank's continuous support for the clients' mainstream business, thereby strengthening the clients' business base and the regions' economic foundation, which in turn will lead to profit opportunities and business stability for the banks themselves. On the other hand, if climate-related transition and physical risks faced by clients materialize, banks may need to recognize a risk in their business through damages to the clients' business value. Given the possibility that structural changes of the economy, industry, and society in achieving carbon neutrality may affect the business of a wide range of the banks' clients, including small and medium-sized enterprises (SMEs), it is significantly important how banks can encourage these clients to address climate change and whether banks' clients can build a business base resilient to climate change, in order to ensure the sustainability of banks' business models.

For life insurance companies, which are also significant institutional investors that invest in a wide range of companies from a medium to long-term perspective to back ultra-long term liabilities (policy reserves), meeting new funding demands to achieve carbon neutrality will contribute to their profitability, business stability, etc. On the other hand, if investee companies fail to respond to shifts in business environment that stem from climate change, it may lead to a decline in investment efficiency due to an erosion of investees' corporate value, which can be a destabilizing factor for business operations.[8]

[8] Non-life insurance companies have a similar problem, as they invest in a broad range of companies as institutional investors.

For non-life insurance companies, underwriting the risk of clients, which is associated with climate change and their responses to climate-related risk, will contribute to mitigating the economic losses of their clients as well as providing themselves with business opportunities. On the other hand, the severity of natural disasters caused by climate change could lead to increases in insurance claims payments. Therefore, non-life insurance companies are expected to encourage clients to enhance their resilience against natural disasters by providing a consulting function for disaster risk reduction and disaster mitigation, which will in turn help stabilize their own insurance business.

BOX 2: ESG and SDGs

There is a wide range of financial initiatives that take into account not only climate change but also other environmental and social issues such as human rights. In recent years, new issues such as biodiversity have been taken up one after another, and such issues are generally interrelated and are often addressed together.

ESG, which is becoming popular today as a concept encompassing such initiatives, is derived from the acronyms E: Environment, S: Social, and G: Governance. It is believed that this concept has been expanded since the launch of the Principles for Responsible Investment (PRI) (see BOX 20: International initiatives addressing climate change), an institutional investor-led initiative on ESG investment, in 2006.

Subsequently, similar initiatives were formulated by the insurance industry in 2012 and the banking industry in 2019: Principles for Sustainable Insurance (PSI) and Principles for Responsible Banking (PRB), respectively.

Initiatives related to social responsibility at individual companies have long been recognized and addressed as Socially Responsible Investment (SRI) and Corporate Social Responsibility (CSR). In recent years, however, there has been a growing movement to regard these initiatives as management initiatives necessary to address changes in the business environment and to ensure business continuity in the future.

Financial institutions and investors in many countries including Japan have also

positioned ESG as part of their management philosophy and investment and financing policies. The number of signatories to the PRI has steadily increased since its establishment. In Japan, the Government Pension Investment Fund (GPIF) and many private companies have signed the PRI.

In addition, the United Nations has launched the Sustainable Development Goals (SDGs), which are widely recognized as goals covering comprehensive issues such as poverty (Goal 1), gender equality (Goal 5), clean energy (Goal 7), and climate change (Goal 13). The SDGs encompass a variety of issues related to the environment, society, and governance, and have much in common with ESG. In particular, given that many of these sustainability issues are closely linked to economic activities, including financial and capital markets, it is believed that finance plays a significant role in achieving the SDGs.

BOX 3: Transition finance

Amid growing interest in businesses that contribute to solving social issues, the issuance of ESG-related financial instruments, such as ESG bonds, has been increasing. In conjunction with this trend, discussions are ongoing regarding criteria to determine the eligibility of these financial instruments from an ESG perspective.

International private-sector organizations such as the International Capital Market Association (ICMA) and the Climate Bonds Initiative (CBI) have published and revised guidelines on so-called Green Bonds. These guidelines illustrate the scope and concepts of projects which fall under the use of proceeds of Green Bonds. The European Commission has also developed the so-called EU Taxonomy, a detailed listing and classification of "environmentally sustainable economic activities" with quantitative technical screening criteria.

The Association of Southeast Asian Nations (ASEAN) has published the ASEAN Taxonomy, which is designed to be implemented in each country of the region in accordance with the different stages of progress in decarbonizing industries. Taxonomies expanded to transition activities are also being explored such as in Singapore and Malaysia.

Existing guidance on ESG eligibility varies in the level of detail of the criteria and other factors, but much of it was developed to capture business activities and projects at a given point in time and determine whether they qualify as "green" or not. Recently,

however, it has become important to properly understand and support the transition efforts of companies and sectors, rather than just focusing on the binary classification of "green" or not. The Japanese government has advocated this concept internationally.

The concept of transition finance was widely recognized at the G20 Finance Ministers and Central Bank Governors' Meeting and the G20 Leaders' Summit held in October 2021. Based on the G20 Sustainable Finance Roadmap approved there, the G20 Sustainable Finance Working Group (SFWG) is to develop high-level frameworks for transition finance by 2023.

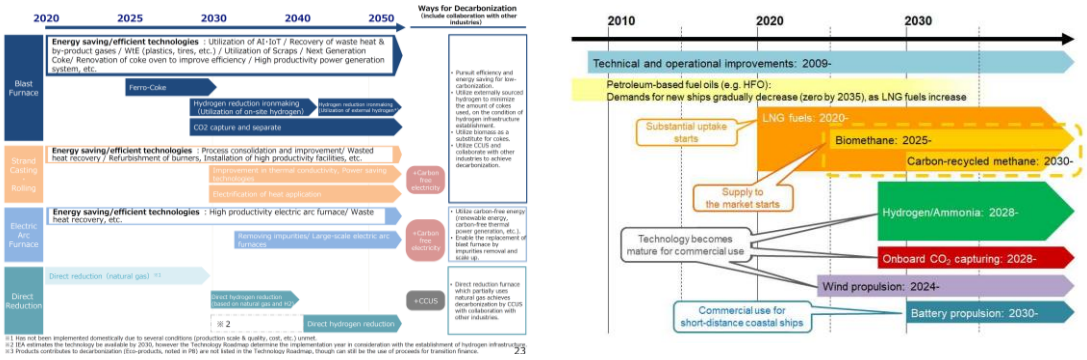
In the domestic field, Japanese Ministries and Agencies, namely the Ministry of Economy, Trade and Industry (METI), the Ministry of the Environment (MOE), and the FSA together formulated the "Basic Guidelines on Climate Transition Finance" in May 2021. The guidelines aim to appropriately capture efforts to reduce GHG emissions in accordance with long-term strategies and set out basic requirements for credible transition finance which comprehensively determines the business strategies for transition toward decarbonization.

In order to provide specific transition pathways, METI has developed Sector-specific Roadmaps for the GHG-intensive sectors (steel, chemicals, cement, pulp and paper, electricity, gas, and oil) so that companies in those sectors and financial institutions can refer to them as companies pursue decarbonization efforts and financial institutions evaluate those efforts, respectively.

The Roadmaps present a chronological list of decarbonization technologies for achieving carbon neutrality by 2050, with explanations of policy support, emission reduction effects, and industry characteristics, as well as the summary of the emission prospects after introducing those technologies.

In the shipping industry, based on the GHG emissions reduction strategy published by the International Maritime Organization (IMO) in 2018, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), in cooperation with the maritime industry and research institutes in the shipping, shipbuilding, and maritime industries, established a "Roadmap to Zero Emissions from International Shipping" in March 2020 as a benchmark for related companies to refer to when promoting decarbonization efforts.

Examples in the iron and steel sector Examples in the international shipping sector



Excerpts from METI's "Technology Roadmap for Transition Finance in the Iron and Steel Sector" and MLIT's "Roadmap to Zero Emissions from International Shipping"

Examples of transition finance using these Roadmaps and international scenarios have been accumulating. For example, in July 2021, a transition bond was formed utilizing the "Roadmap to Zero Emission from International Shipping." The bond was issued based on the issuer company's transition plan that is consistent with the said Roadmap and the environmental targets set by the IMO, as well as the Basic Guidelines mentioned above, and the proceeds are to be used for the development of offshore wind power generation, ships utilizing ammonia and hydrogen fuel, and other projects.

In another example of a transition loan using a Roadmap in the chemical sector, a company seeking finance is supposed to present a transition strategy toward its goal of reducing its own GHG emissions by 50% by 2030 and achieving carbon neutrality for itself by 2050, based on which the procured funds are supposed to be used for a project to construct an LNG-fired power generation facility.

(International discussions on financial institutions' responses to climate change)

There has been active international discussion on the efforts of financial institutions to address climate change: in December 2015, the Financial Stability Board (FSB), at the request of the G20, established the Task Force on Climate-related Financial Disclosures (TCFD), led by private business practitioners. In June 2017, the TCFD released its final report titled the "Recommendations of the Task Force on Climate-related Financial Disclosures" (TCFD Recommendations), which encourages voluntary disclosure by corporations and provides a framework for the first time on how climate-

related opportunities and risks should be managed. (See BOX 4: TCFD Recommendations.)

In December 2017, the Network for Greening the Financial System (NGFS) was established by central banks and financial supervisors willing to discuss financial supervisory practices to address climate-related risks. The NGFS released a comprehensive report in April 2019 and a guide for supervisors in May 2020, summarizing the impact of climate change on the financial system and making recommendations to financial supervisors and central banks on measures to address climate-related risks and on key elements of supervisory approaches. In November 2021, the NGFS published the NGFS Glasgow Declaration, which sets out the NGFS's achievements and future efforts in order to express its willingness to contribute to the global actions against climate change in accordance with the objectives of the Paris Agreement on the occasion of COP26.[9]

Furthermore, the Basel Committee on Banking Supervision (BCBS) has been studying and reviewing actions to address climate-related financial risks from the perspectives of regulation, supervision, and disclosure, and published a document titled "Principles for the Effective Management and Supervision of Climate-Related Financial Risks" in June 2022. The International Association of Insurance Supervisors (IAIS), in collaboration with the Sustainable Insurance Forum established at the initiative of the United Nations Environment Programme, also published an "Application Paper on the Supervision of Climate-related Risks in the Insurance Sector" in May 2021. In addition, a number of authorities have published their supervisory approaches related to the management of climate-related risks (Figure 3).

[9] At the same time as the announcement of the NGFS Glasgow Declaration, each NGFS member voluntarily announced its policy on sustainable finance.

Figure 3: Key European and U.S. authorities' publications on managing climate-related risks

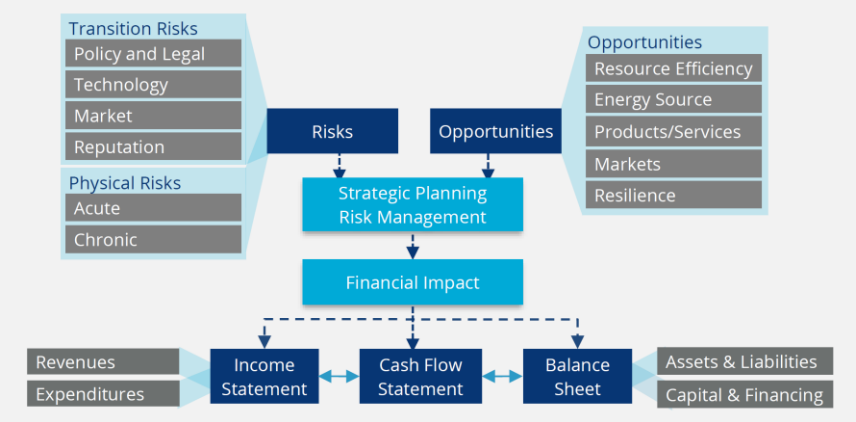
Country or Region/ Authority	Publications
UK/ **BOE: Bank of England** **PRA: Prudential Regulation Authority**	April 2019 Supervisory Statement –Enhancing banks' and insurers' approaches to managing the financial risks from climate change
Germany/ **BaFin: Bundesanstalt für Finanzdienstleistungsaufsicht**	January 2020 Guidance Notice on Dealing with Sustainability Risks
France/ **Banque de France** **ACPR: Autorité de Contrôle Prudential et de Resolution**	May 2020 Governance and management of climate-related risks by French banking institutions: some good practices
EU/ **ECB: European Central Bank**	November 2020 Guide on climate-related and environmental risks
US/ **OCC: Office of the Comptroller of the Currency** **FDIC: Federal Deposit Insurance Corporation**	December 2021 Draft Principles for Climate-Related Financial Risk Management for Large Banks March 2022 Draft Statement of Principles for Climate-Related Financial Risk Management for Large Financial Institutions

* Other countries, including Australia, the Philippines, Malaysia, and Singapore, have also published their supervisory approaches on climate-related risk management.

BOX 4: TCFD Recommendations

The TCFD Recommendations call for each company to identify climate change-related "risks" and "opportunities," assess their financial impact, and disclose governance and the practices to manage and report them.

Financial implications of climate -related risks and opportunities



Source: Recommendations of the Task Force on Climate-related Financial Disclosures

TCFD Disclosure Framework

Source: Recommendations of the Task Force on Climate-related Financial Disclosures

In Japan, the TCFD Consortium was established in May 2019 as a forum for understanding and discussing TCFD disclosure, with the FSA, METI, and the MOE participating as observers. From the perspective of promoting effective corporate disclosure and appropriate investment and financing decisions by financial institutions based on the disclosure, the Consortium is co-hosting the TCFD Summit, which invites speakers and participants from abroad. It has also developed guidance on the specific content of the TCFD Recommendations and disclosures that should be made by each industry, as well as key points for investors when interpreting disclosed information. The MOE has supported banks in conducting financial impact analysis based on climate change scenarios, and published the findings in the "Practical Guide for Scenario

Analysis in Line With the TCFD Recommendations (For the Banking Sector)."

The standard-setter for the International Financial Reporting Standards (IFRS), the IFRS Foundation, has established a new standard-setting board, the International Sustainability Standards Board (ISSB), to develop a comprehensive global baseline of sustainability disclosures, which contribute to improving their interoperability and comparability globally. In March 2020, the ISSB launched consultation on its first two proposed standards ("ISSB Standards"). Such progress of the ISSB's work was welcomed by G7 Leaders in June 2022. The "FSB Roadmap for Addressing Climate-Related Financial Risks" illustrates that discussions on climate-related disclosures from now on will be carried out based on the ISSB Standards.

In Japan, the Financial Accounting Standards Foundation established a Sustainability Standards Board of Japan (SSBJ) in July 2022 in order to contribute to the development of international sustainability disclosure standards and to discuss specific disclosure elements in domestic sustainability standards. Companies listed on the Prime Market of the Tokyo Stock Exchange are required to enhance the quality and quantity of their disclosure based on the TCFD framework or an equivalent international framework in accordance with the Corporate Governance Code. The Working Group on Corporate Disclosure of the Financial System Council at the FSA has discussed enhancing sustainability disclosure and published its report in June 2022. A new section for disclosure of sustainability information will be created in the Statutory Annual Securities Reports, as the report describes.

III. Viewpoints of Dialogue on Financial Institutions' Responses to Climate Change

Given the abovementioned wide-ranging impacts of climate change on global economy, industry, and society, as well as on financial and capital markets, financial institutions need to take strategic actions in a forward-looking manner to deal with the opportunities and risks that climate change may bring to their clients and their own business.

In doing so, it is important for financial institutions to have the perspective that how climate change is responded to will have a significant impact on future business growth and sustainability of the clients. It is also important to engage with their clients and support the clients' responses to climate change, including through provision of consulting services in collaboration with industry, government, academia, and other financial institutions as well as provision of funding for growth (hereinafter including risk underwriting services through non-life insurance).

From this perspective, this section presents the FSA's viewpoints on supervisory dialogues regarding financial institutions' climate-related risk management and client engagement to support the clients' response to climate-related opportunities and risks.

1. Strategies and governance related to climate change

Effects related to climate change would materialize in a long-time horizon, and high uncertainty remains around how they would materialize and how significant their impacts are. Climate change may impact on financial institutions' overall operations through various channels. For example, it may relate to the corporate sales division regarding the impacts on clients, the market investment division regarding the impacts on market portfolios, and other various divisions, including the corporate strategy division, risk management division, legal division, and the IR / PR division responsible for communicating with external parties such as investors.

For this reason, it is important for financial institutions to recognize climate change as an issue for the board of directors and management, develop company-wide strategies from a medium to long-term perspective, and establish appropriate internal control frameworks in line with the strategies. This will enable each department to continuously and consistently implement actions and communicate the actions to the public.

From this perspective, the FSA expects the board of directors and the management of financial institutions to ensure the following when developing the strategies and internal control framework to address climate change.[10]

(Strategy)

i. The board of directors and management fully understand the profit opportunities for both financial institutions and clients in building resilient business foundations against climate change as well as the risks that climate change poses to their own and clients' businesses.

ii. Based on the recognition in (i) above, the board of directors and management develop strategies, as part of the financial institutions' overall management strategies, to increase the resilience of their businesses against climate change and contribute to achieving carbon neutrality by supporting their clients' responses to climate change (hereinafter "strategies for responding to climate change"). Under the supervision of the board of directors, management develops and implements a business plan, which includes specific targets, evaluation indicators and achievement deadlines, based on the strategies for responding to climate change.

iii. The board of directors and management appropriately explain the progress in implementing the strategies for responding to climate change under their responsibility to the financial institution's stakeholders including customers, shareholders, creditors, and relevant authorities, through disclosure and reporting.

(Governance)

iv. The board of directors assigns responsibilities to management members and committees regarding financial institutions' response to climate change. Under the supervision of the board of directors, management clearly assigns powers and responsibilities within the organization and ensures that appropriate control functions and policies with respect to risk management and client support for responding to climate change. In addition, the board of directors develops an internal control framework for reporting

[10] This section does not intend to advocate any particular corporate governance structure and should be interpreted in a flexible manner, taking into account the roles of the board of directors and management in each institution's governance structure.

opportunities and risks related to climate change to timely inform decision-making by the concerned management members and committees.

v. Under the supervision of the board of directors, management appropriately allocates necessary management resources to implement the strategies for responding to climate change, including securing and developing human resources, educating employees, and developing IT systems. In addition, management implements initiatives to collect, aggregate, and analyze available high-quality data and information to understand the opportunities and risks related to climate change.

2. Recognition and assessment of opportunities and risks related to climate change

When developing and implementing the strategies for responding to climate change, it is important for financial institutions to adequately collect and analyze information on various changes related to climate change, as exemplified below.[11]

a. Physical changes (e.g., sea level rise, increase in infectious diseases, and intensification of natural disasters)

b. Technological changes (e.g., introduction of new technologies related to energy sources with low GHG emission, improvements in resource efficiency, and technological innovations to respond and adapt to (a) above)

c. Changes in policies and regulations (e.g., introductions of or changes in international standards, regulations and policies including taxes and duties related to climate change)

d. Market changes (e.g., expansion of new markets and contraction of existing markets due to changes in preferences of consumers, business partners, and investors as well as changes in (b) and (c) above)

e. Changes in products and services (e.g., development of low GHG emission products in response to (b) through (d) above)

f. Changes in stakeholders' expectations towards financial institutions

[11] For example, in addition to energy demand forecasts from the IEA and data on temperature and precipitation forecasts from the IPCC and NGFS (see BOX 5: Scenarios for temperature rise and emissions), A-PLAT in Japan also provides physical risk-related data such as forecasts of temperature rise and precipitation changes.

Next, it is essential for financial institutions to understand various channels through which these changes affect the financial institutions themselves, such as (1) transmission through clients, (2) transmission through changes in the macro economy and financial markets, (3) transmission to financial institutions' operations, and (4) transmission to financial institutions' reputations.

However, uncertainty remains in the timing and likelihood of such changes and their transmission to occur as well as in the significance of their impacts on financial institutions' financial and business operations.

Therefore, it is important for financial institutions to assess at least qualitatively the significance of climate change-related opportunities and risks to their business, taking into account their business characteristics, by following the steps exemplified in (i) to (iv) below (Figures 4 and 5). This assessment needs to be reviewed continuously, taking into account financial institutions' and clients' progress in their efforts to respond to climate change.[12]

i. For each transmission channel described in (1) to (4) above, identify the clients (sectors, regions, individual companies, etc.) and operations of the financial institution that will be particularly affected by climate change. (See also "IV. 1. Assessing the Impact on Clients" for how to assess the impact on clients.)

ii. Consider financial institutions' business characteristics, such as the share of investment, loan and revenue attributed to the affected clients (sectors, regions, individual companies, etc.), the progress and outlook of the clients' efforts in response to climate change, and the importance of the affected operations for financial institutions.

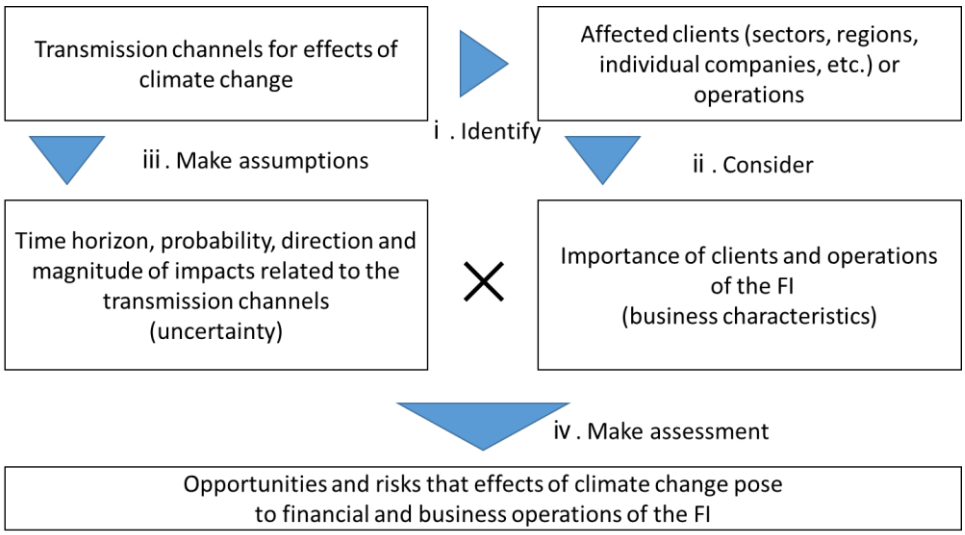
iii. For each transmission channel, make certain assumptions regarding the time horizons (short-term, medium-to long-term, etc.) and the likelihood (high, low, etc.) of opportunities and risks to materialize.

iv. In light of (i) through (iii) above, assess the opportunities and risks that climate change poses to financial and business operations of the financial

[12] As part of its Own Risk and Solvency Assessment (ORSA), insurers may consider assessing the opportunities and risks related to climate change, as well as the adequacy of their strategies, risk management and capital position in light of these.

institution over both the short-term and the medium to long-term.[13]

Figure 4: Examples of assessment procedures for climate-related opportunities and risks



[13] In cases where quantitative assessment is difficult, one option is to assess opportunities and risks based on the qualitative and discrete scores that can be assigned to the importance of clients and financial institutions' operations, the time horizon and likelihood of opportunities and risks to be materialized.

Figure 5: Examples of transmission channels to financial institutions and methods for identifying their impacts.[14]

Transmission channels to financial institutions	Identification of impacts
(1) Transmission through clients ・ Improvement in earnings power of clients through the development of low GHG emission products, entry into new markets, and improved efficiency through the use of new technologies may bring reduction in credit costs, improvement in investment value, and opportunities for new investments and loans, insurance underwriting, and services. ・ Clients' failure to adequately respond to climate change (including changes in regulation, reputation, and consumer preferences) may increase credit costs, decrease investment value, and cause loss of future financing opportunities from the clients.	Identify affected clients (sectors, regions, entities, etc.)
・ Damage to clients' assets and business suspension caused by severe natural disasters may decrease collateral and investment value, increase credit costs, and cause loss of future financing opportunities and deterioration in underwriting profits, etc. ・	Identify affected clients (especially those who hold fixed assets and operations in high-risk areas)
(2) Transmission through changes in macroeconomic and financial markets ・ Natural disasters, changes in weather conditions, or rapid changes in relevant policies and regulations may increase credit risk and market risk on a macro level through slowing economic growth or falling prices of financial instruments.	Identify the impact on financial institutions' financials (for example, by using scenario analysis described below).
(3) Transmission to financial institutions' operations ・ Damage to own assets (branches, data centers, etc.) caused by severe natural disasters may cause suspension of operations and impairment of asset value.	Identify the assets located in areas with high disaster risk.

[14] This table is not an exhaustive list of transmission channels for effects of climate change. There are various other transmission channels such as social and geopolitical changes.

(4) Transmission to the reputation of financial institutions ・ Inability of financial institutions to keep pace with the increasing expectations of stakeholders with regard to the financial institutions' responses to climate change may cause reputational damage, loss of trading opportunities, and increased funding costs.	Identify changes in the preferences and interests of stakeholders, including business partners and investors, and transactions that may be affected by such changes.

Scenario analysis is considered to be an effective tool to quantitatively assess climate-related opportunities and risks. Scenario analysis involves quantitative assessment through simulations of the timing and size of the impacts on financial institutions' financial condition under several scenarios with regard to future temperature increases and policy responses by governments, based on reasonable assumptions on the transmission channels.

It is desirable for financial institutions to eventually utilize scenario analysis to identify transmission channels, clarify and quantify risk as well as risk reduction effects and profit opportunities of supporting their clients' responses to climate change, and further develop their strategies for responding to climate change, while also communicating such results to investors and other stakeholders.

On the other hand, specific methodologies for scenario analysis are still evolving and gaps remain in data availability for the analysis. Under these circumstances, it is important at least for systemically important banks and internationally active non-life insurance groups with significant physical risk impact through insurance underwriting to conduct scenario analysis on a trial basis and continuously improve and develop methods (including analytical tools, data) as they have a significant financial system presence and are facing high expectations from stakeholders internationally. For other financial institutions, it is desirable to gradually adopt the methods of scenario analysis that are considered to be useful for measuring their opportunities and risks and are suited for their size and characteristics, taking into account development in international discussions and progress in industry practices of scenario analysis, including among systemically important banks and internationally active non-life insurance groups.

BOX 5: Scenarios for temperature rise and emissions

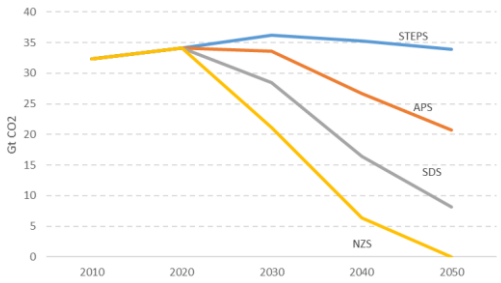
Future projections of global temperatures and emissions, country-specific GDP and emissions, and industry-specific production and emissions are important premises not only for risk analysis by financial institutions but also for target setting by governments, international organizations, industries, and companies.

For this reason, international organizations estimate emissions, air temperatures, levels of economic activity, etc. based on scientific evidence, including interrelationships, while making certain assumptions and case-by-case analyses, and publish them as future scenarios for climate change and economic activity.

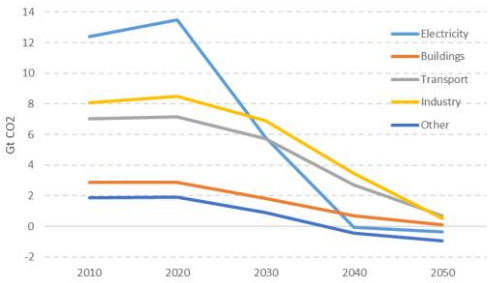
For example, the IEA has published scenario data in its World Energy Outlook, the IPCC in its assessment reports. The NGFS also has published scenario data for use in scenario analysis by financial institutions and authorities.

These scenario data include multiple scenarios. For example, the IEA has published the Stated Policy Scenario (STEPS) in which current climate policies are maintained; the Announced Pledges Scenario (APS) in which the announced targets of each jurisdiction are achieved; Sustainable Development Scenario (SDS), in which the 2°C goal of the Paris Agreement is achieved; and the Net Zero Emission by 2050 Scenario (NZE), which is consistent with the realization of Net Zero to achieve the 1.5°C target.

Global emissions under the IEA scenario



Sectoral Emissions under Net Zero by 2050 Scenario (NZE)



Source: IEA World Energy Outlook 2021 data set; compiled by the Financial Services Agency.

3. Addressing opportunities and risks related to climate change

Based on the assessment of the opportunities and risks identified in section 2 above, it is important for financial institutions to actively engage in facilitating

growth and sustainability of their clients' businesses through supporting clients' responses to climate change. These efforts could lead to new revenue opportunities for financial institutions and reduce climate-related risks arising from their clients' businesses over the medium to long-term, and eventually contribute to achieving carbon neutrality.

(1) Support for clients' responses to climate change

(See also "IV. Approaches to support clients in responding to climate change" for specific approaches)

In supporting clients' responses to climate change, it is important for financial institutions to understand and analyze from various perspectives the opportunities and risks that climate change brings to the clients, including through dialogues with clients, and to foster a common understanding with clients regarding their current situation.

Based on this common understanding, it is important for financial institutions to explore with clients a steady path toward business growth and sustainability enhancement of the clients and to provide necessary support for the clients to follow the path.

It is essential for banks to develop company-wide policies for supporting their clients' responses to climate change and, as part of their continuous support to the clients' mainstream business, support clients' responses to climate change through initiatives such as providing funding for growth and consulting services in collaboration with industry, government, academia, and other financial institutions, from the perspective that doing so would contribute to their own business sustainability. In doing so, it is also necessary to pay attention to banks' potential superior position to companies.[15,16]

Life insurance companies, based on their investment policies as institutional investors, are expected to actively respond to financing demand to achieve carbon neutrality and to support the efforts of investee companies through stewardship activities. Non-life insurance companies are expected to support the

[15] For example, it is possible to develop a policy in advance regarding the identification of customers who are highly necessary or important for support, the procedures for providing support to such customers, and cooperation between related departments.

[16] In cases where financial institutions provide support to clients through investments and loans as part of their core business support, FIs' emissions related to investments and loans may temporarily increase in line with an increase in investments and loans.

efforts of their clients to increase their resilience against the possibility of severe natural disasters in the future caused by climate change.

While it is important for financial institutions to actively support their clients' efforts to respond to climate change, specific measures should be implemented based on their own independent management decisions, taking into account various factors including the size and characteristics of financial institutions, the status and outlook of various effects of climate change, and the industry type and business structure of their clients as well as clients' business strategies and policies.

Impacts related to climate change may vary depending on the characteristics of each industry and region and there could be various pathways toward decarbonization of individual companies and society as a whole. Therefore, it should be noted that uniformly applying measures and standards to reduce GHG emissions across companies and industries cannot be appropriate.

(2) Addressing financial institutions' risks

Risks related to financial institutions generally fall into categories such as credit risk, market risk, liquidity risk and operational risk. Climate-related risks are not considered as a new risk category but as "risk drivers" that increase or decrease risks in each risk category through the various abovementioned channels.[17,18]

Therefore, climate-related risks that may materialize in the short-term are to be identified and managed within the existing risk management framework. Financial institutions should consider the need to improve their existing risk management framework taking into account development in international discussions and progress in risk management methods and practices in the field of climate change.

On the other hand, with regard to climate-related risks that may materialize over the medium to long-term, it is important for financial institutions to assess how the climate-related risks will affect each risk category over the medium to long-term and to address them accordingly, taking into account their own business characteristics. In addressing climate-related risks transmitted through

[17] For insurers, underwriting risk is included.
[18] See the BCBS "Climate-related risk drivers and their transmission channels."

clients, financial institutions should focus on reducing their own climate-related risks over the medium to long-term by actively supporting their clients' responses to climate change as described in (1) above.

In addition, given the impact on the stability of the financial system, it is important for systemically important banks to evaluate the impact of climate-related risks and ensure their medium to long-term financial soundness so that they can maintain and perform their financial intermediation function when facing the materialization of the risks, while also continuously working to improve their assessment methods including scenario analysis.[19] Other financial institutions may carry out assessment suited for their size and characteristics taking into account the progress in industry's risk management practices including in systemically important banks.

With regard to physical risks of climate change to their own assets, it is desirable for financial institutions to consider advancing decentralization and redundancy of important business locations and operations to reinforcing business continuity based on impact assessment. It is also important for financial institutions to make necessary revisions to their existing disaster-related business continuity plans, taking into account the risks of severe natural disasters caused by climate change.

With regard to reputational risks caused by the failure to implement appropriate responses to climate change, it is important for financial institutions to demonstrate a commitment to the strategies for responding to climate change through disclosure and other communication channels to stakeholders as described below. At the same time, financial institutions need to have internal control frameworks in place for climate-related compliance risks and constantly collect information on domestic and international regulations/laws related to climate change.

4. Communication with Stakeholders

As the world confronts the common challenge of achieving carbon neutrality, current and future stakeholders of financial institutions have greater interests in how the financial institutions can make their businesses more resilient against climate

[19] For internationally active non-life groups also, it is desirable to conduct scenario analysis as part of ORSA and assess their financial impact so that their compensation functions are maintained and exercised even when risks materialize.

change and ensure their own business sustainability while contributing to carbon neutrality.

It is important for financial institutions to actively share information including their strategies for responding to climate change so that domestic and overseas stakeholders can gain an accurate understanding of the strategies and policies of the financial institutions. Financial institutions are expected to constantly review their businesses, through constructive dialogue with stakeholders, to improve their corporate value in the context of the changing the external environment related to climate change.

From this perspective, it is important for financial institutions to provide information that is useful and accurate for stakeholders, such as the strategies for responding to climate change, policies and progress in support clients' responses to climate change, and framework and operations of climate-related risk management, while also referring to domestic and overseas disclosure frameworks related to climate change.[20]

[20] This should include data limitations in identifying and measuring risks, if relevant.

IV. Approaches to support clients in responding to climate change

As noted above, it is important for financial institutions to actively support their clients' efforts to address climate change, from the perspective of securing their own sustainable management and contributing to the realization of carbon neutrality by developing resilient business. On the other hand, as for approaches to address climate change, there are no established approaches, but various considerations and trial and error are ongoing in companies and industries.

Under these circumstances, actual support should be implemented based on the needs of clients and the independent management decisions of each financial institution. This section, however, provides examples and perspectives that can serve as a guide for financial institutions to support clients in their efforts to address climate change. (The following 1. and 2. will focus mainly on support provided by banks to clients that extend loans, while the perspective of support for clients unique to insurance companies will be described in 3.)

1. Assessing the impact on clients

When considering support for clients, it is important to first understand the opportunities and risks that climate change-related changes bring to clients through dialogue with them. In doing so, it is essential to collect information related to clients, such as market and regional economic conditions, geographical environment, characteristics of industry and technology, and the financial and earnings situation, including investment capacity, and to carefully understand the actual situation while continuously improving relevant knowledge.[21,22]

(Recognition of Opportunities and Risks)

In order to understand the structural changes in the economy, industry, and society related to climate change on clients' businesses, it is important to deepen the understanding of both the opportunities that lead to business growth and the

[21] Financial institutions have been making various efforts to evaluate their clients' businesses, making extensive use of general management analysis techniques regarding management issues, strengths and weaknesses as well as growth potential and maturity of the market. The same methods and knowledge can be applied to business analysis of companies and society under decarbonization in order to identify management issues, strengths and weaknesses as well as future growth potential.

[22] For example, the roadmap for each sector shown in BOX 3 details the positioning of decarbonization technologies and the characteristics of Japanese industry. In addition, the MOE published the "Practical Guide to ESG Regional Finance" in 2019 as a guide to ESG efforts by regional financial institutions. It has been continuously revised. Examples of client support for responding climate change included in the guide will also serve as a reference.

risks that cause financial impacts.

Opportunities that lead to business growth include the development of markets and customers through the new technologies, products, and services that contribute to emission reduction and cost reductions, and increases in the value of fixed assets through the efficiency of energy use and the reduction of GHG emissions. There are also examples of products and resources that had been deemed to have little market value being re-evaluated in response to changes in consumer preferences and the market environment and finding new markets. (See BOX 6: "Opportunities" on climate change.)

On the other hand, risks include a decrease in demand for existing products and services and early write-offs of existing production facilities due to increased attention on environmental impact, damage to production facilities caused by severe natural disasters and rising sea levels, and increased operating costs from enhanced disaster prevention measures.

As the opportunities and risks associated with individual clients vary according to their business, it is effective to take multiple perspectives, for example the following technological, industrial, and environmental change perspectives, in order to understand these risks.

BOX 6: "Opportunities" on climate change

Opportunities related to climate change include the provision of new products and services, development of markets and demand, and improvement of resource efficiency. In fact, there are initiatives such as the provision of environmentally friendly products that reflect changes in consumer preferences related to climate change.

For example, in the field of apparel, there is a movement to research and commercialize various materials such as recycled fibers, biomass-derived synthetic fibers, plant-derived regenerated cellulose fibers, and organic cotton.

A bio-venture company is developing structural protein materials that use plant-derived saccharides as a main raw material and are produced by a microbial fermentation (brewing) process, and is promoting their practical application as next-generation materials because they are capable of providing various features depending on their use. For such research, the company raised funds by obtaining evaluations from financial institutions on its tangible assets, such as domestic R&D facilities and overseas plants,

as well as on its intangible assets, such as intellectual property related to the technologies mentioned above, while utilizing research bases established by local financial institutions and universities.

There are also initiatives to recycle fibers derived from fossil fuels. For example, an environmental venture company is working with major department stores, retail stores, and outdoor manufacturers to expand collection and recycling sales of clothing by recycling collected used clothing into recycled polyester raw materials, developing a technology to make final products from these raw materials, and consequently circulating clothing into clothing.

In addition to the apparel sector, initiatives such as market development that captures changes in consumer values related to climate change are likely to expand further in the future, and are becoming an important perspective for understanding the growth potential of businesses.

(Technical perspective)

As the world moves toward achieving carbon neutrality, decarbonization technologies can improve the growth potential and sustainability of businesses. Currently, various technologies are being developed and utilized, such as improving the efficiency of energy use in production and logistics processes, introducing renewable energy such as solar and wind power and new energy sources such as hydrogen, and Carbon dioxide Capture, Utilization and Storage (CCUS). There are also initiatives to improve the efficiency of resources used through improving the efficiency of production and services and developing new business models such as the sharing economy, utilizing AI, big data, and IoT.

It is important for financial institutions to understand the technologies owned by the companies they support, and to examine with them whether they contribute to the efficient use of energy and the reduction of GHG emissions, and to what extent they can be implemented as products. At each stage of technology development, implementation, and dissemination, it is often necessary to combine expert knowledge and cross-sectoral knowledge. Therefore, it is also important to utilize external experts, cooperate with other companies, economic organizations, and local governments, and to hire and train personnel with expert knowledge.

In this regard, some financial institutions are considering new technological

innovations and business model reforms together with their clients, while hiring experts on science and technology, industrial trends, and environmental impacts to improve their knowledge, while others are using affiliated research and consulting companies to promote understanding and responses to new technologies, rather than hiring experts themselves.

Furthermore, from the perspective that it is companies themselves that have the greatest knowledge of their technologies, there are some financial institutions that engage in development support through dialogue that makes use of their existing relationships to discuss with them the characteristics of their technologies and their applicability to other businesses, also considering collaboration with other companies. (See BOX 7: Initiatives to promote human resources with technical skills.)

BOX 7: Initiatives to promote human resources with technical skills

Understanding of new technologies is often one of the keys to the transformation of businesses and operations related to decarbonization. As research and technological development are advancing in a wide range of industries, and individual companies are also moving to apply their own technologies to other fields, it is expected that the knowledge and understanding of initiatives for innovation will become even more important in the future.

Large-sized financial institutions and institutional investors are increasingly attracting human resources with expertise in science and technology, not limited to the financial sector, when making ESG investments and financing as well as engagement with clients.

A large bank has set up a dedicated technology team by, for example, inviting specialists with practical experience in technologies in various fields such as the environment, energy, and chemicals from manufacturing industries and research institutions as mid-career hiring.

By utilizing their expertise, the bank is working to identify products and services that could lead to significant decarbonization if put into practical use, such as low-cost hydrogen production and utilization, and plastic recycling, and is promoting initiatives to support collaboration between cutting-edge companies and to make financial support, such as investments, toward the social implementation of such innovative technologies.

(Industrial Perspective)

It is also important to take a high-level view of the entire industry as to what kind of changes will be required for clients amid changes in the industry structure and supply chain toward carbon neutrality.

Changes in the business models of core companies in the supply chain may affect a wide range of firms in the supply chain. For example, in the manufacturing and assembly industries such as cars and electronics, upstream firms (subcontractors) that provide raw materials and components in the supply chain may be significantly affected by changes in the products, business models, and strategies of downstream firms (primary contractors) that are close to the final consumer.

In addition, major companies in each industry are currently considering efforts to reduce GHG emissions throughout the supply chain considering all scopes defined as follows: GHG emissions of companies themselves (so-called Scope 1), emissions required for the composition of energy procured from other companies (so-called Scope 2), and emissions from suppliers and sales partners of companies and emissions at the final consumption stage of products (so-called Scope 3).[23](See BOX 8: CO2 emission reduction by SMEs.)

This is due to the spread of business practices that require companies in the supply chain to decarbonize, as well as the growing view of investors to evaluate companies' emission reductions on a supply-chain basis. For example, companies that set targets certified as Science Based Targets (SBT) require their suppliers to set quantitative targets in order to achieve their Scope3 emission reduction targets. In addition, the TCFD revised its guidance in October 2021, which recommends that industries and companies with significant Scope3 emissions disclose their Scope3 emissions.[24]

It is important for financial institutions to deepen their understanding of strategic changes at their primary contractors, procurement and production processes that are bottlenecks in reducing emissions throughout the supply chain, whether or not

[23] For further details, see the GHG Protocol, which has been developed by international organizations and is used as a standard for accounting and reporting of greenhouse gases.

[24] GHG emissions reduction targets set by companies for the next 5 to 15 years, which are scientifically consistent with the Paris Agreement goals. Scope1, 2, and 3 emissions targets are often required. As of June 15, 2022, 1,448 companies around the world (including 208 Japanese companies) have acquired SBTi (SBT initiative) certification, run by United Nations Global Compact and other organizations.

alternative raw materials and technologies can be introduced, and mitigation measures such as shifting procurement energy sources, then to share with their clients the impacts of changes in the entire supply chain and how to respond to them, and to consider the content of support, while utilizing their networks of clients and promoting cooperation among financial institutions.[25] (See BOX 9: Initiatives for dialogue with clients on the impacts of climate change and BOX 10: Efforts to understand the impacts of climate change through scenario analysis.)

When considering such support for clients, financial institutions can start with the assessment (visualization) of GHG emissions from clients themselves.[26] For major companies that are required to take action to reduce their overall supply chain emissions, financial institutions can also estimate their overall industry and supply chain GHG emissions, taking into account the availability of information and the cost of calculation, and utilize this to share awareness and dialogue with the companies concerned.[27] (See BOX 11: Consulting services through measurement of GHG emissions.)

BOX 8: CO2 emission reduction by SMEs

While there are various possible approaches to decarbonization by SMEs, the first step could be to identify (visualize) their own CO2 emissions, the scope for reduction, and engage in discussions with interested business partners.

CO2 emissions associated with energy use (excluding those directly arising from production) can be calculated relatively easily by, for example, multiplying the "energy consumption" of gas, kerosene, gasoline, etc., which can be confirmed from the itemized billing statements, by the "CO2 emission factor," which indicates CO2 emissions per unit of energy. There are also simple tools such as the "CO2 check sheet" of the Japan

[25] Investors' interest in greenhouse gas emissions and efforts to reduce them is increasing not only in the manufacturing sector but also in the service sector. Financial institutions can consider the content of their support according to the actual situation, taking into account the direction of emissions reduction of the industry as a whole and the efforts of other companies in the industry as necessary.

[26] Financial institutions can refer to the Mandatory GHG Accounting and Reporting System based on the Act on Promotion of Global Warming Countermeasures for the assessment of greenhouse gas emission from clients. The System requires entities that emit considerably large amounts of GHG to calculate and report their GHG emissions to the government, and the government compiles and publicizes the reported data. The MOE and METI are currently considering acceleration of data publication by electronic reporting, improvement of data utilization, and enhancement of voluntary reporting based on the TCFD recommendations.

[27] For example, financial institutions can roughly estimate greenhouse gas emissions of the overall supply chain and its bottleneck from emission of major representative clients, and supplement the emission estimation based on actual data with secondary data such as statistical data.

Chamber of Commerce and Industry that allow users to calculate CO2 emissions by inputting monthly electricity and gas consumption, etc.

Measures to reduce CO2 emissions include energy conservation and efficiency improvement by reducing the amount of energy use through various means, and replacement of major facilities with ones that emit less CO2.

To improve energy conservation and efficiency, companies can introduce high-efficiency equipment, operation and pressure control functions such as timers and sensors, as well as improve thermal insulation and shielding. In addition, various operational improvements can be made, such as reducing air-conditioning and operating time, cleaning and preventing leakage of pipes, and reducing energy loss by reviewing production processes.

In addition, gas boilers, electric heating furnaces, hybrid vehicles, electric vehicles (EVs), fuel cell vehicles, heat-recycling heat pumps, hydrogen burners, etc. are under development as facilities that emit less CO2.

With regard to the costs associated with such energy conservation and efficiency improvement as well as the introduction of equipment with low CO2 emissions, the government and others have established various subsidy programs depending on the type of business and the purpose of use of funds, and it can be considered to make the best use of these programs as necessary.

BOX 9: Initiatives for dialogue with clients on the impacts of climate change

Given that many of its customers are manufacturers related to cars, a regional financial institution conducted interviews with approximately 2,500 clients whose annual sales were above a certain amount in order to understand the current situation regarding decarbonization.

Interviews were planned by several departments of the head office and conducted at each branch office. The survey was used in conjunction with interviews to ask about current initiatives, policies for future business development, and challenges. The results showed that only about 30% of all clients are taking some kind of initiatives toward decarbonization, and that there are not necessarily many clients that are aware of the impact of the shift to EVs on their own company at present.

The financial institution sees the interviews as a good opportunity not only for the

head office to gain a general understanding of clients' responses, but also for branch staff to understand the impact of the sector on the local economy. They therefore provide educational tools on decarbonization and dialogue tools that can be used when engaging in dialogue with clients.

In particular, in dialogues with relatively small clients that are not familiar with the impacts of climate change and decarbonization, the topic of decarbonization alone is not enough to attract sufficient interest and often does not lead to specific initiatives. Therefore, in dialogues with clients, the SDGs were taken as a broader theme, and decarbonization was positioned as an element in comprehensively understanding and evaluating the initiatives of clients. As a result, the interest of clients and their employees in the SDGs increased, and decarbonization was clearly positioned as one of the business issues, and led to the promotion of countermeasures. Accordingly, the above-mentioned educational and dialogue tools target not only decarbonization but also SDGs.

While these dialogues and interviews have improved the awareness and capabilities of each staff member regarding support for decarbonization, the depth of the interviews varied depending on the abilities and knowledge of the staff member. The financial institution has rediscovered that it is not easy to listen to the opinions of a wide range of clients and is working to further improve the quality of its staff.

In addition to developing products and collaborating with external organizations in order to resolve the decarbonization issues of clients identified through interviews, the financial institution is also promoting support for clients in measuring GHG emissions through collaboration with companies with measurement know-how, believing that it is important to "visualize" risks by measuring GHG emissions.

BOX 10: Efforts to understand the impacts of climate change through scenario analysis

A regional financial institution conducted a scenario analysis to understand climate change-related impacts, including transition risks, given that automotive manufacturers accounted for a large proportion of its clients. The analysis was overseen by the corporate business planning department at the headquarters. Four departments, including risk management, formed a task force and collaborated with think tanks within the group and external companies.

Under a severe scenario in which all cars become EVs, the number of parts decreases,

and competition intensifies at the same time, an analysis of the impact on the sales and profit margins of clients shows that more than 90% of component manufacturers will be severely affected. The head of the sales department of the financial institution conducts interviews with the management of several primary subcontractors that manufacture internal combustion engines about their awareness of, issues with, and status of responses to the shift to EVs. In this process, the financial institution shares an outlook for the automobile industry in the future and problem consciousness regarding necessary responses, and consider measures.

This scenario analysis helped to foster a common understanding within the institution including management, by enabling internal discussions based on the results of the analysis, as awareness of addressing climate change varied among staff members.

BOX 11: Consulting services through measurement of GHG emissions

A regional financial institution has informed its clients of the importance of decarbonization and is engaged in dialogue with them to support their efforts toward decarbonization in the supply chain. In response to an increasing number of clients in industries such as transportation equipment-related manufacturing, metal processing, and casting that are highly affected by decarbonization, the financial institution has started providing consulting services through measurement of GHG emission. In cooperation with companies that support the emission measurements, the institution supports its clients in (i) understanding their GHG emissions, (ii) setting reduction targets, and (iii) implementing carbon management to disclose efforts and implement measures to reduce emissions.

In providing the above-mentioned support, a team in charge of corporate clients (composed of six members), which has acquired know-how for emission measurements, holds dialogues with clients, together with representatives from sales offices and other group companies. Through these dialogues, the team obtains and organizes clients' information on raw materials and power consumption, and calculates clients' current emissions (Scope1 and 2).

The provision of such consulting services not only creates added value for clients but also enhances the support know-how of the financial institution.

The financial institution continues to support specific efforts to reduce emissions through emission measurements and target setting, and promotes collaboration with a

wide range of external organizations, including electric utilities and renewable energy businesses.

(Perspective on changes in the natural environment)

In addition to the abovementioned changes in technology and industrial structure, it is also important to look at changes in the natural environment, such as increases in air and water temperatures and disasters.

Intensification of natural disasters may damage assets or force companies to suspend operations. In addition, the suspension of companies' operations may affect their entire supply chain. In addition to intensified natural disasters, increases in air and water temperatures may also affect growth patterns of crop and livestock and fisheries. For example, changes in local fish stocks may have various impacts on sales markets as well as on the replacement of products and equipment related to fishery processing.

In order to grasp these impacts, financial institutions can collect information on the meteorological conditions and geographical environment of each region, and identify the vulnerable regions and projects and the extent of their impacts.

In addition, technology to improve resilience against intensified natural disasters and to adapt to rising air and water temperatures will also be important. Therefore, in the context of changes in the natural environment, as stated in the technical perspective above, it will be useful to understand the technologies possessed by the clients and how they can be developed and put into practical use.

2. Development of appropriate support measures for clients

In order to build business foundations resilient to change, it is important for financial institutions to actively support their clients' efforts to address climate change, based on their policies for climate-related support. While there are various ways to support clients' efforts to address climate change, including consulting and the provision of funding for growth, appropriate support measures may differ depending on the circumstances faced by individual clients. Therefore, financial institutions are required to develop a common understanding with their clients on management issues through dialogue, taking into account the circumstances and prospects of various changes related to climate change, and to consider a steady path toward business growth and improvement of sustainability and the approach

for support.

(1) **Provision of consulting and solutions to resolve climate-related issues at clients**

Financial institutions are expected to provide solutions for business improvement, including support for the formulation of business plans, so that clients can reduce risks in existing businesses arising from climate change and create business opportunities by building new businesses that contribute to the decarbonization of other companies.

In providing such support, financial institutions' existing approaches to support clients, such as matching between companies, can be applied. For example, some financial institutions have introduced clients with technologies and services that contribute to the efficient use of energy in manufacturing processes to companies in other industries to achieve energy conservation and other benefits, while others have linked suppliers and customers of new products and services related to decarbonization. (See Box 12: Efforts to understand the impacts on local communities and companies and solution provisions.)

(2) **Provision of funding for growth based on assessments of clients' responses to climate change**

Financial institutions are expected to supply funding for growth to clients, taking into account their risks and opportunities related to climate change. It is important to provide funds to corporate clients, taking into account that their efforts to decarbonize their own businesses and to develop businesses that contribute to decarbonizing other companies can contribute to creating new earnings opportunities and reducing risks related to climate change. For example, in lending, when assessing the business potential and future cash flows of clients, there are cases in which financial institutions evaluate clients' intangible assets such as environmental technology and patents.

Financial institutions have responded to client needs through various financing methods. With regard to climate change, various financing methods are being used, for example, use of proceeds bonds and loans (so-called green bonds, green loans, transition bonds, and transition loans), bonds and loans with interest rates that change according to the performance of ESG-related KPIs (so-called sustainability-linked bonds, sustainability-linked loans), and impact finance that aims to create impacts such as effects of environmental improvement for

customers. These methods have the advantage of clarifying the commitment of financial institutions and companies by clarifying the object and purpose of financing. On the other hand, with regard to funds provided through such methods, it is necessary to pay sufficient attention to whether the use of proceeds is truly for businesses that contribute to decarbonization and whether the KPI setting and evaluation process are appropriate.[28] (See BOX 13: Initiatives related to sustainable finance in lending.)

From the perspective of creating and attracting new industries for decarbonization in the region, financial institutions may choose to provide funding for growth that will lead to the development of new technologies and industries in response to climate change through funds. For example, from the perspective of developing environment-related businesses, providing equity finance at the initial stage of a project or at the development phase could be an option.

[28] As financial institutions and companies in Japan and around the world are increasingly raising awareness of climate change, doubts may arise about the use of the funds or the appropriateness of KPIs, which may trigger criticism from investors and others as a so-called green wash.

(3) Area-wide support for Companies and Strengthening Cooperation among Relevant Parties

Core companies in the supply chain often need to promote and support responses to climate change across the entire companies in their supply chain in order to advance their own responses to climate change. Some regions broadly have industries and companies related to each other, which share common challenges related to climate change.

In order for financial institutions to provide support such as (1) and (2) above to companies belonging to the same or related industry/supply chain or in the same region, it would be effective to consider common issues from a high-level perspective and provide area-wide support to the entire group of companies. For example, financial institutions may be involved in providing area-wide support in situations where inter-company collaboration becomes effective, such as changing the industrial structure of the entire region, reviewing business processes across the supply chain to improve energy efficiency, or conducting joint procurement of low-emission energy to enjoy economies of scale. (See BOX 14: Initiatives on area-wide supports and enforcement of cooperation among stakeholders.)

In order for financial institutions to provide such support, it is effective to utilize the networks of local corporate clients. In addition to climate change, there have been reference cases of establishing an internet platform where local companies gather to support sharing of local issues and collaboration between companies, as well as initiatives where multiple local companies jointly purchase and operate facilities with the involvement of local financial institutions. (See BOX 15: Initiatives in renewable energy business.)

It is also conceivable that the know-how accumulated by financial institutions through area-wide support for industry/supply chains and regions could be shared with other industries/supply chains with similar structures, or with other regions where similar industries are concentrated.

It is important for financial institutions to cooperate with local governments, chambers of commerce, and universities, as well as with external companies that have knowledge. It is also expected that other financial institutions that deal with companies belonging to the same or related industries and supply chains, and those located in the same region, will cooperate. (See BOX 16: Initiatives by

regional financial institutions on biomass power generation projects in collaboration with local governments.)

BOX 12: Efforts to understand the impacts on local communities and companies and solution provisions

A regional financial institution, which is based in an industrial area, became aware that its clients were not necessarily aware of the macro-level impact of decarbonization trends on the local economy and the impact of resulting supply chain restructuring on their clients. Based on this understanding, a division specialized in the business support of the clients took the lead in analyzing and considering support measures.

First, the regional industrial structure was analyzed at a macro level with the cooperation of local governments and experts. Specifically, from the viewpoint of impacts of decarbonization on the regional economy, the target industries were narrowed down to the automobile, steel, and chemical industries. The factors that led to the concentration of these industries were summarized, and the potential impacts of climate change on regional strengths and industrial concentration factors were also identified. In addition, multiple scenarios were assumed based on external factors such as policies, markets, technologies, and trends of large companies on decarbonization to identify how the regional economy would be affected in the medium to long term.

Next, based on the results of macro-level analysis, the financial institution tried to understand the impact on clients by breaking down issues by sector and by individual company. For example, it was found that companies affected by the shift to EVs face higher risks, while companies engaged in maintenance and repair of production facilities such as plants face greater opportunities.

Based on this, the financial institution identified needs by presenting to clients documents that analyzed the impact for each industry and support measures. Then, considering solutions to provide opportunities to regions and clients, the financial institution evaluated each solution to derive priorities and organized them into action plans.

Based on these action plans, the financial institution promotes dialogue with clients, and aims to provide solutions such as financial support and human resource matching to them, while reinforcing scenario analysis based on information and needs obtained through dialogue. It also intends to strengthen cooperation with other financial

institutions and local governments in the areas to ensure the effectiveness of the action plans.

BOX 13: Initiatives related to sustainable finance in lending

A regional financial institution is considering how it can integrate sustainable finance into lending business, with the aim of encouraging local businesses to take SDGs initiatives while providing accompanying support.

In addition to products such as sustainability-linked loans and green loans, the financial institution has prepared a loan scheme to provide accompanying support to SMEs that have not yet undertaken specific initiatives, with the aim of encouraging them to engage in SDGs and decarbonization. In this scheme, clients set targets by reference to international principles and guidelines while making use of reviews by external organizations. After financing, the financial institution annually monitors the achievement status of indicators related to the targets, and proposes solutions if the targets are not achieved, or further initiatives if the targets have been achieved.

In addition, for SMEs, the financial institution introduced preferential interest rates based on ESG evaluation, limited to capital investment that contributes to decarbonization, and a portion of the profits is donated to environmental conservation activities. Specifically, from the perspective of environment (E), preferential interest rates are provided based on a five-stage evaluation of items such as the status of setting GHG reduction targets. Through offering such products, the financial institution hopes to make the status and issues of ESG initiatives of clients visible and start dialogue on initiatives related to climate change in the medium to long term.

In the past, initiatives related to environmental issues were preceded by corporate philosophy, and had not yet penetrated into actual business initiatives. However, the financial institution believes that by designing and providing financing products such as those described above, it can raise the awareness of its staff in this area. Going forward, the financial institution will consider how to evaluate decarbonization efforts in the analysis of non-financial information on not only specific financing products but also overall credit evaluation.

BOX 14: Initiatives on area-wide supports and enforcement of cooperation among stakeholders

When companies review their businesses for decarbonization, there are many cases where not only individual business operator's efforts but also local and area-wide measures are required.

From this perspective, it is important for financial institutions to gain an overview of the entire supply chain and regional inter-industry relationships, and to work with local governments and economic organizations, as well as with a wide range of related parties, such as major companies that are responsible for final manufacturing, core businesses that are central to regional production, and SMEs that are responsible for component delivery.

In doing so, it is expected that the different financial institutions will cover large enterprises, regional core enterprises, and SMEs, depending on their size and characteristics. It would be useful to actively exchange information and opinions among related financial institutions on an ongoing basis and, when necessary, cooperate with government-affiliated institutions with industry expertise to consider strategic responses.

In industrial clusters overseas, for example, there is a framework in which local governments play a central role and large-sized businesses that play a central role in an industry and various companies and experts involved in manufacturing and development participate in discussions on decarbonization efforts such as the possibility of utilizing alternative energy and the ideal distribution and maintenance network.

In Japan, there is a case where a regional financial institution cooperates with a regional core manufacturer that has many suppliers in the local area to support and consider methods for calculating energy consumption and reducing emissions based on SBT (see Note 24).

In addition to the supply chain, there are also cases in which resources and energy, including raw materials and water, are circulated throughout the entire region to improve both economic and environmental conditions. A city in Denmark is promoting the use of recycling-oriented resources as a whole city, including the use of water resources from lakes. At present, efforts are being made, for example, to use surplus heat from power plants for local housing and agriculture, and to share and reuse by-products produced in the manufacturing process between local companies. Through these efforts, the city estimates that it has reduced costs by around 24 million euros annually and CO2

emissions by around 0.6 million tons.

In Japan, major banks are introducing their expertise in managing the supply-demand balance of renewable energies, as well as their know-how in analyzing the resulting social impacts, to develop local power sources and to support start-up businesses for local energy production and consumption projects promoted by local governments.

While regional targets vary, the "Regional Decarbonization Roadmap" formulated by the Council for National and Local Decarbonization of the Cabinet Office, Government of Japan, calls for the creation of at least 100 priority decarbonized locations by 2030 and the nationwide implementation of priority measures. In the future, intensive cross-sectoral initiatives are expected to advance in each region, such as agriculture, housing, transportation, and tourism, and active involvement and support by financial institutions are expected in these areas.

BOX 15: Initiatives in renewable energy business

A regional financial institution, aware of the problem that renewable energy power generation projects were conducted by companies outside the prefecture and that profits were flowing out from its region, started a project to construct renewable energy power plants with the aim of creating industrial clusters through the participation of local companies in the projects. The financial institution established the local power generation company in cooperation with think tanks, venture capital, local companies, and power generation companies from other prefectures, and is constructing and operating power plants. Several renewable energy power plants have already been constructed, and for each project or power generation facility, it has been jointly promoting projects with local companies, major trading companies, and major electric power companies.

At the time of the establishment of the power generation company, employees of the financial institution were seconded as founding members to finance the development, provide loans and arrange project finance for each power plant construction project. At first, they were not familiar with the arrangement of project finance, and sometimes bewildered by the complicated procedures that required a huge amount of contract documents. As they implemented multiple projects, they accumulated know-how on project finance within the financial institution and expanded the range of projects they could handle.

By using the electricity generated by the project itself, the proportion of renewable energy usage increased, leading to decarbonization of the financial institution itself. In addition, project finance for large-scale renewable energy power generation has become a new revenue opportunity. The financial institution is continuing the initiatives to overcome issues such as involving local companies in the procurement of necessary parts and the maintenance of existing facilities to increase the ripple effect on the local economy.

BOX 16: Initiatives by regional financial institutions on biomass power generation projects in collaboration with local governments

A regional financial institution has established a consulting company specializing in regional revitalization to work on a renewable energy (biomass power generation) project using local resources, utilizing subsidies from the government.

While the biomass power generation business is led by a power generation company, the consulting company is responsible for coordinating with local stakeholders. In addition, the consulting company is coordinating workshops with local governments, local commerce and industry associations, forest cooperatives, NPOs, etc. in order to make the by-product of this power generation business a source of profit for local businesses.

Through the power generation business, the financial institution was able to develop networks with the central and local governments as well as local stakeholders, which could potentially lead to new business opportunities. In addition, the financial institution has widely communicated this project to a broad range of stakeholders, including employees, local students, and relevant parties as an initiative contributing to the local society.

3. Initiatives related to insurance companies

The role of insurance companies is also important for companies and industries to promote decarbonization and increase their resilience to severe natural disasters.

Some life insurance companies are taking into account ESG factors in their investment decisions and setting GHG emission reduction targets for their investment portfolios. Based on these investment policies, life insurance companies

are expected to actively respond to new funding needs for achieving carbon neutrality. In addition to these investment activities, life insurance companies are also expected to provide information related to climate change to their investee companies, while encouraging them to take actions against climate change and to enhance climate-related information disclosure. These initiatives are expected to lead to improved evaluation of investees, thereby contributing to reduced risks in their investment portfolios and improved investment efficiency for life insurance companies.[29] (See BOX 17: Collaborative engagement by institutional investors.)

There is uncertainty (risk) as to how climate change-related effects could impact the future business environment and whether the impact could lead to economic losses for companies. In such circumstances, it is the role of non-life insurance companies to underwrite the risks from customers in a sustainable manner by providing insurance products. Specific initiatives taken by non-life insurance companies based on this role include the provision of non-life insurance products that support the further use of renewable energy and promote companies' efforts toward decarbonization. There are also cases where non-life insurance companies utilize their knowledge acquired through insurance underwriting to provide consulting services, such as developing flood loss prediction systems using AI. Non-life insurance companies are expected to support their clients' actions against climate change by providing such products/services and exercising their consulting functions. (See BOX 18: Initiatives to promote offshore wind power generation and BOX 19: Initiatives to provide adaptation finance through cooperation between financial institutions.)

[29] A similar effect can be expected for non-life insurance companies.

BOX 17: Collaborative engagement by institutional investors

With regard to institutional investors' engagement in the context of climate change, there is a growing trend worldwide to promote collaborative engagement, where investors with common goals discuss issues and actions with companies as a group, in order to effectively encourage changes in corporate behavior.

Climate Action 100 + (CA100 +), which was launched in 2017, selects 166 companies (as of July 2022) from around the world with particularly high GHG emissions to promote joint engagement. Specifically, CA100+ formulates a decarbonization pathway that specifies the actions with high priority for each sector, taking into account various factors including technological trends related to decarbonization. It then evaluates each company's corporate governance and target settings for reducing GHG emissions, providing useful information for investors to utilize in joint engagement.

In Japan, member companies of the Life Insurance Association of Japan (LIAJ) have been implementing joint engagement initiatives since 2018. In the joint engagement conducted in fiscal year 2021, 11 participating life insurance companies communicated their concern to 170 listed companies under the themes of "enhancing shareholder return," "enhancing disclosure of ESG information," and "enhancing disclosure of information on climate change," and also encouraged companies to (1) analyze and disclose risks and opportunities associated with climate change, and (2) formulate and disclose roadmaps for reducing GHG emissions.

BOX 18: Initiatives to promote offshore wind power generation

In Japan, offshore wind power generation is expected to expand as one of the important sources of power to achieve a carbon neutral society. However, as offshore wind power plants are exposed to various risks such as serious accidents and severe natural disasters, it is essential to arrange insurance that comprehensively covers the risks surrounding the business in order to further promote the implementation of offshore wind power plants.

Under these circumstances, non-life insurance companies, mainly major companies tend to provide insurance products for offshore wind power generation projects. These products comprehensively cover risks from construction to operation, including liabilities and lost profits caused by accidents and natural disasters, chartering fees for

repairing facilities and removal costs, etc. Also, one major non-life insurance company provides additional services such as risk assessment, loss prevention services and accident handling on top of the insurance policy, developing an all-in-one package that supports offshore wind power projects.

In addition, there is a non-life insurance company that provides comprehensive insurance covering the entire value chain, including not only power generators but also turbine manufacturers, project contractors, and those involved in facility construction.

Another non-life insurance company collaborates with a subsidiary engaging in risk management to evaluate profits and losses by business phase using a risk assessment model specialized in offshore wind power generation. The results of this risk assessment are used not only for insurance arrangements but also for other services that meet the various needs of business operators, such as the arrangement of project finance.
The model used in this risk assessment was developed in collaboration with this subsidiary and a certain university.

For new insurance products such as insurance for offshore wind power generation, it is essential to utilize various datasets and the latest research results to develop risk models. These cases of industry-academia collaboration are expected to increase in the future.

BOX 19: Initiatives to provide adaptation finance through cooperation between financial institutions

In dealing with climate change, taking actions to adapt to the ongoing or potentially occurring impacts of climate change is just as important as combating global warming and mitigating the impacts of climate change through initiatives such as decarbonization.

Adaptation finance is a type of financing that provides financial services to facilitate companies' adaptation to climate change. In the field of adaptation financing, some financial institutions have formed alliances across services to leverage their respective strengths, as seen in the collaboration between non-life insurance companies and banks.

In one example, a non-life insurance company utilizes the knowledge they acquired through the underwriting of property insurance and evaluates a company's disaster prevention measures, BCP development status and the financial impact in the event of a disaster, in order to provide necessary steps for BCP development. Meanwhile, banks provide loans for capital investment, etc. for disaster prevention measures recognized by

the company through this plan.

There are also cases where non-life insurance companies and regional financial institutions collaborate to provide weather derivative products to local businesses. With weather derivative products, the payment amount is automatically calculated according to pre-determined conditions based on the difference between a pre-set index generated from past weather data and an index generated from actual weather events. This enables farmers and business operators to quickly respond to losses such as decreases in production and demand due to abnormal or unseasonable weather. By collaborating with regional financial institutions, which understand the demands of local businesses, the insurance company is able to customize and provide the product to meet the demands of each business operator.

As more and more products and services that meet the various needs of companies are provided through adaptation finance, companies become more resilient to the impacts of climate change and the demand for new capital is expected to become stronger. The spread of such initiatives could also enhance the adaptability of the entire society to the challenges of climate change.

V. How to proceed in the future

1. Understanding the actual situation and identifying issues in line with the sizes and characteristics of financial institutions

How and to what extent climate change will impact financial institutions may vary depending on various factors including the business type and size of financial institutions and characteristics of clients and regions they operate in, and consequently each financial institution is at a different stage in implementing their initiatives at this time.

Also, new issues will likely be identified as financial institutions develop their practices and methods for responding to climate change. Internationally, there are ongoing discussions on various topics, including disclosure and auditing, private capital mobilization, enhancement of capital market mechanisms, and climate-related risk management. Although high-level consensus is being built for each topic, further work still needs to be done.

Therefore, when engaging in dialogue with financial institutions, the FSA will not mechanically and uniformly apply the viewpoints in Section III or use them as a checklist. The FSA will make efforts to understand how each financial institution is trying to address climate change, taking into account their sizes and characteristics, and identify challenges for financial institutions to advance their efforts, while also keeping an eye on development of international discussions. Then, the FSA will encourage financial institutions to strengthen their efforts by providing information and sharing know-how on risk management and client engagement, as described below.[30]

2. Support for financial institutions' initiatives to support clients

The FSA, in cooperation with relevant Ministries and Agencies, will provide financial institutions with various information, including information on international trends that are rapidly progressing, and share know-how on engagement. In this way, the FSA will support financial institutions' efforts to support clients in order to resolve their issues.[31]

[30] Given the differences in current practices, such as risk management, among financial institutions, there are different priorities for developing risk management.

[31] For example, in fiscal 2021, the FSA commissioned a survey of widely used international data and scenarios, and published a report titled "Survey on Scenario Analysis of Climate Change-Related Risks."

In addition, the FSA will support financial institutions in understanding the emissions of investee and borrower companies, which are becoming increasingly important in setting targets for decarbonization. This will be done through collaborative projects with the MOE, which support corporate clients in calculating and analyzing their GHG emissions.

Support for decarbonization in sectors with high emissions is also important from the perspective of decarbonization of financial institutions' investment and loan portfolios. In close cooperation with METI and the MOE, the FSA will continue discussions on how to engage with financial institutions through the use of roadmaps for sectors with high emissions. The FSA will also consider the promotion of innovation finance based on the initiatives of the relevant ministries and agencies.

3. Exercise on scenario analysis

There is a growing international trend for national authorities to conduct scenario analysis of climate-related risks using common scenarios across financial institutions. Given this situation, the FSA carries out scenario analysis exercises in Japan using common scenarios in cooperation with the Bank of Japan.

However, at present, specific methodologies of scenario analysis are underdeveloped and gaps remain in data availability for the analysis. Consequently, there exist wide variations in scenarios and risk estimation methods used in existing cases both domestically and internationally. Therefore, in FY 2021, the FSA launched a pilot exercise targeting the three mega-banks and the three major non-life insurance groups to identify issues in data availability, effectiveness of analytical models and methods, and practical use of scenario analysis.

The FSA will publish the issues identified in the exercise and provide useful information for financial institutions that do not participate in the exercise to undertake scenario analysis and improve their own methods and analyses. The FSA will also review the methodology and framework of the exercise and consider expanding the coverage of financial institutions of the exercise, taking into account progress in international practices in scenario analysis using common scenarios.

4. Contribution to international discussions

In relation to climate change, there are ongoing international discussions on various topics, including bridging the data gap, disclosure and auditing, private

capital mobilization, enhancement of capital market mechanisms, and climate-related risk management. (See BOX 20: International initiatives addressing climate change.)

The FSA will contribute to the development of an international framework for financial institutions' actions to address climate change by participating in such international discussions and sharing information on the Japanese financial institutions' practices, etc. identified through dialogue with the financial institutions. For example, regarding scenario analysis, the FSA will contribute to the development of standard scenarios and the improvement of data availability within global initiatives by sharing issues identified in exercises with financial institutions.

The FSA also believes that it is important to create momentum for financial institutions so that they can voluntarily and proactively solve the issues they face. To this end, we are continuously sharing with financial institutions the perspectives required for financial institutions operating globally and encouraging their participation in international discussions.

In addition, the FSA will gain knowledge on sustainability issues other than climate change, including biodiversity, through participating in international forums for discussion of opportunities and risks, and in the Taskforce on Nature-related Financial Disclosures (TNFD) Forum.

BOX 20: International initiatives addressing climate change

There are initiatives within and outside Japan where private companies, organizations, and international institutions that agree with certain goals and objectives gather to jointly study and address climate change, which has been leading the discussion on the development of frameworks and standards for the objectives.

Such initiatives have been present in the financial sector since the early stages of the development of the initiatives. For example, the PRI, established in 2006, is signed by more than 4,000 institutional investors and other related parties around the world who support the active promotion of ESG investments. Signatories are required to commit to

incorporating ESG factors into their investment decisions and to report annually on the status of their efforts.

The SBTi, which was established in 2015 with the involvement of the United Nations and other relevant organizations, verifies and publishes science-based information on the amount and timing of reductions in GHG emissions required by each country, region, and industry sector to limit the global temperature increase to 2℃ or 1.5℃. It is used by companies to set their own emission reduction targets.

Furthermore, since around 2020, when developed countries began announcing their 2050 carbon neutrality targets, a coalition of private-sector organizations committed to achieving net-zero emissions by 2050 (see the table below) has been formed in various sectors, including banks, asset managers, asset owners, and insurance companies, and discussions are underway on how each sector should respond to these targets.

In addition, in April 2021, the Glasgow Financial Alliance for Net Zero (GFANZ) was established as an organization to coordinate these net-zero coalitions in preparation for COP26, which was held in Glasgow, UK in November of the same year. It aims to support countries and companies in their efforts to achieve net zero in cooperation with the financial sector with the goal of achieving net-zero worldwide.

In order to participate in the alliances for achieving net-zero emissions, financial institutions are required to commit to the net-zero emissions target by 2050, including their own emissions (Scope1 and 2) as well as those of their counterparties (Scope3), and to set interim targets for 2030 or earlier that are consistent with this goal. GFANZ believes that concrete actions by financial institutions participating in the Alliances are important, and is engaged in discussions on, for example, the net-zero transition plans by financial institutions and the pathway to achieve net-zero emissions for each industrial sector. In this context, GFANZ published five documents in June 2022.[32]

In Japan, there is also a movement to participate in these efforts, including aiming to develop an international framework that respects the process of decarbonization in each country, such as engagement with companies to support their decarbonization.

[32] The documents published are:
- "Recommendations and Guidance on Financial Institution Net-zero Transition Plans"
- "Guidance on Use of Sectoral Pathways for Financial Institutions"
- "Introductory Note on Expectations for Real-Economy Transition Plans"
- "2022 Concept Note on Portfolio Alignment Measurement"
- "The Managed Phaseout of High-Emitting Assets"

GFANZ and the Net Zero Alliances for each of the major financial sectors positioned underneath

As of June 2022 (Number of companies and amount of total assets are as of the end of January 2022)

Initiatives		No. of members	total assets	Participation from Japan
GFANZ		450 + companies	$ 130 trillion	Following financial institutions
Bank	NZBA: Net-Zero Banking Alliance	101 companies	$ 67 trillion (Assets)	MUFG, Nomura Holdings, SMFG, Mizuho FG, SMTH
Asset Managers	NZAM: Net Zero Asset Managers initiative	220 companies	$ 57 trillion (AUM)	Asset Management One, Nippon Life AM, Sumitomo Mitsui Trust AM, etc.
Asset owners	NZAOA: Net-Zero Asset Owner Alliance	69 companies	$ 10.4 trillion (AUM)	Dai-ichi Life, Nippon Life, Meiji Yasuda Life, Sumitomo Life, Sompo Holdings
Insurance	NZIA: Net-Zero Insurance Alliance	20 companies	$ 0.6 trillion (gross premium)	Tokio Marine Holdings, MS&AD Holdings, Sompo Holdings

Source: Financial Services Agency

Regarding the calculation of Scope3 emissions by financial institutions, in the course of a company's efforts for decarbonization, for example, the Scope3 emissions associated with loans to clients may temporarily increase even though loans are provided for capital investment to reduce total emissions. In relation to this, issues such as how to calculate the emissions based on the characteristics of each asset class, how to improve the emissions data availability of the financed companies, and how to evaluate the quality of the data, etc., have been pointed out.

With regard to the characteristics of each asset class, the Partnership for Carbon Accounting Financials (PCAF), established in 2015, currently has more than 200 financial institutions around the world participating in discussions to standardize calculation methods for each asset class, such as loans, equities, and bonds. The PCAF calculation method is used on many occasions for setting targets and disclosing information related to Scope3 emissions in financial institutions. In Japan, the PCAF Japan coalition was established in November 2021 as a regional branch.

5. Coordination with government-wide initiatives

In October 2020, Japan declared its goal of becoming carbon neutral by 2050. In April of the following year, Japan announced that it would reduce its GHG emissions by 46% from the 2013 levels by 2030, and in its global warming countermeasures plan adopted by the Cabinet in October of the same year, it made clear the breakdown of these targets, including reductions of 38% in the industrial sector, 66% in the household sector, and 35% in the transport sector.[33]

Furthermore, in order to promote decarbonization efforts in each region toward achieving carbon neutrality by 2050, the Council for National and Local Decarbonization was held from February 2020 to draw up roadmaps for achieving carbon neutrality in each region, and it plans to mobilize all of its policies in the next five years to (1) create at least 100 decarbonization leading areas by fiscal 2030, and (2) implement priority measures nationwide (self-consumption-type solar power, energy-saving housing, electric vehicles, etc.) to realize decarbonized and resilient local communities nationwide without waiting for 2050.

From the perspective of overcoming market failures and ensuring economic and social sustainability, climate change is an important issue for the government, and it is positioned as the biggest issue to be overcome in a "new form of capitalism." At the same time, as the engine that will generate growth in the new era, Japan will share the whole picture of transformation toward a carbon-neutral society and boldly advance investments.

In close coordination with other government-wide measures, the FSA will steadily promote dialogue with financial institutions and other initiatives to address climate change, taking into account the importance of the financial sector.

[33] In the "The 6th Strategic Energy Plan" adopted by the Cabinet on October 22, 2021, important themes include laying out a course for energy policies for achieving these reduction targets, and presenting initiatives to ensure stable supply and reduce energy costs, with safety as a major prerequisite, in order to overcome challenges in Japan's energy supply and demand structure while advancing climate change measures.