POLICY BRIEF

May 2017
Number 38

Strengthening the Integration of Climate Risks in the Banking Sector

Key Messages

- Banks are facing serious climate risks which have not been incorporated into their risk management and financial accounting. Therefore, it is important to enable banks to assess the financial impacts on their assets and minimize the potential losses. Meanwhile, many climate-related disclosure standards have focused on climate information, such as GHG emissions and sustainability metrics, but not financial impacts posed by climate risks.
- In global discussions on accounting standards, the interrelationship between climate risks and banks' traditional risks should be identified. Traditional risk assessment should be strengthened by mainstreaming climate risks. This should be supported by the Task Force on Climate-related Financial Disclosures (TCFD), a G7 task force, in cooperation with the Basel Committee on Bank Supervision (BCBS) which oversees the international baking regulations under the Basel Accords.
- This policy brief recommends that the International Financial Reporting Standard (IFRS) for calculating banks' loan impairments, could be a basis for considering climate risks in financial accounting. This policy brief proposes that one way to incorporate climate risks into the IFRS is to use the Expected Credit Loss (ECL) model in IFRS 9 for banks' loan impairment to consider forward-looking information for integrating climate risks.
- At the national level, the treatment of forward-looking information in the accounting practices for credit losses differs from one country to another while this information could make a spot for incorporating climate risks. This policy brief recommends that national accounting standard-setting bodies should enhance climate risk awareness

...continued on next page


Yohei Chiba
Policy Researcher, IGES
y-chiba@iges.or.jp


Naoki Mori
Senior Coordinator, IGES
n-mori@iges.or.jp


Noriko Shimizu
Policy Researcher, IGES
shimizu@iges.or.jp

on banks' assets, introduce the ECL model for calculating banks' loan impairment, and mandate banks to consider this forward-looking information for incorporating climate risks.

- At the banks' operational level, awareness about potential financial impacts from climate risks on their loans is currently very limited. It is essential for banks to mainstream climate risks into their core business, strengthen internal and external collaboration with their accounting departments to obtain the relevant information, and improve company-wide human resources and technical capacities for climate risk assessments.
- This policy brief makes recommendations to the TCFD, national accounting standard-setting bodies and banks to take various actions to strengthen the integration of climate risks into banks' risk management and financial accounting. The findings can contribute to strengthening banks' safeguards against climate risks, making lending operations more resilient, and making the banking sector more financially sustainable.

I Objective

This policy brief aims to make recommendations to the Task Force on Climate-related Financial Disclosures (TCFD) which is a G7 task force, national accounting standard-setting bodies and banks to take various actions to strengthen the integration of climate risks into banks' risk management and financial accounting. Similar to other sectors, banks face major unexpected losses if they don't adequately assess climate risks. Thus, there is a growing need to enhance the understanding on how banks might be affected by climate risks, and also how banks can assess climate risks in their major assets of loans.

This policy brief is organized as follows. First, it outlines the connection between climate risks and the major traditional risks of banks in order to explain the potential financial implications from climate risks. Then, it proposes a methodology for using the accounting for impairment of financial assets to examine financial impacts from climate risks. Finally, it makes recommendations to strengthen financial disclosures for climate risks in the banking sector. This can contribute to strengthening banks' safeguards against climate risks, making lending operations more resilient, and making the banking sector more financially sustainable.

2 Background

2.1 Need for financial disclosure for climate risks

Financial disclosure for climate-related risks is an urgent challenge in all business sectors, including the financial sector. The Paris Agreement in 2015 has strengthened the global response to the threat of climate change by "pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels" (UNFCCC, 2015). However, potential financial risks posed by climate change to the financial sector, in particular, have been not adequately understood while the financial risks are more likely to be significant. Hence, there is an increasing need for companies to disclose their climate risks to shareholders, lenders, insurance underwriters, and other investors (Bloomberg, 2013). The financial disclosure for climate risks is especially important for banks since they would face more serious potential losses from climate risks, such as stranded assets (Box 1), unless they sufficiently consider climate risks into their risk management and assess financial impacts from climate risks on their assets.

Box 1. Stranded assets

- Stranded assets are referred as assets that 'have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities'(SSEE, 2014).
- Stranded assets can be caused by environment-related risk factors, such as environmental challenges (e.g. climate change), new government regulations (e.g. carbon pricing), evolving social norms (e.g. fossil fuel divestment campaign) and litigation (SSEE, 2014).
- Recent studies have estimated that one third of oil reserves, 50% of gas reserves and more than 80% of coal reserves could be stranded assets (LSE, 2016), and that 60 to 80% of coal, oil and gas reserves of public-listed companies could be unburnable (Carbon Tracker Initiative, 2013).
- Thus, financial institutions such as banks, hedge funds and pension funds which have invested in such companies would be exposed to potential losses of stranded assets on their lending and investing businesses.

2.2 Current state of relevant disclosures

Until now, various climate-related disclosure standards have been established, and these include: the Carbon Disclosure Project (CDP); the Climate Disclosure Standards Board (CDSB); the Global Reporting Initiative (GRI); the International Integrated Reporting Council (IIRC); and the Sustainability Accounting Standards Board (SASB). However, many of the standards have focused on climate-related information, such as GHG emissions and sustainability metrics, but not the financial implications posed by climate risks. The lack of disclosure for climate risks could put banks' profit at risk.

2.3 Overview of TCFD's Recommendations

The financial sector would suffer financial instability if assets are mispriced and capital is misallocated due to insufficient information about climate risks. To address this problem, the G20 Finance Ministers and Central Bank Governors requested the Financial Stability Board (FSB) to convene a task force including both government and private sector participants to review how the financial sector could consider the issues related to climate risk. The FSB is "an international body that monitors and makes recommendations about the global financial system" based in Basel, Switzerland (FSB, 2017). It was established in April 2009 as the successor to the Financial Stability Forum (FSF), which was founded in 1999 by the G7 Finance Ministers and Central Bank Governors. In the review process, the FSB identified the key issue that investors, lenders and insurance underwriters which in general rely on information disclosures from their investees, do not have adequate information on investees' exposures to climate risks.

Therefore, the FSB set up the industry-led Task Force on Climate-related Financial Disclosures (TCFD) in December 2015 to design a set of recommendations for voluntary, consistent climate-related financial disclosures for promoting more informed investing, lending, and insurance underwriting decisions. The 32 TCFD members come from various organizations, including large banks, insurance companies, asset managers, pension funds and accounting firms.

The recommendations issued by the TCFD in December 2016 included four thematic areas of: 1) governance; 2) strategy; 3) risk management; and 4) and metrics and targets. The TCFD has asked both financial and non-financial organizations to implement its recommendations. However, the TCFD has recognized that its recommendations are still insufficient, and there are important challenges to be further addressed. These include: a lack of understanding and measurement on how climate risks can be translated into potential financial impacts; the need of more industry-specific guidance of climate-related scenarios; and the consideration of financial accounting in assessing the impairment of assets (TCFD, 2016). The TCFD's recommendations were reviewed by the FSB in February 2017 after its public consultation, and the final recommendations will be published in June and presented to the G20 Leaders' Summit in July 2017 (FSB, 2017b).

3 Traditional risks and climate risks in the banking sector

3.1 What are traditional risks in the banking sector?

Banks and other financial institutions assume various traditional sector-specific risks: credit risk, financial risk, strategic risk, operational risk and legal risk (IFC, 2010). In particular, the major risks that financial institutions are currently addressing are credit risk, market risk and operational risk. The three risks have been regulated by the Basel Accords.

The Basel Accords are international banking regulations (Basel I, II and III) issued by the Basel Committee on Bank Supervision (BCBS) under the Bank for International Settlements (BIS) based in Basel, the world's oldest international financial organization, which has 60 member central banks from around the world. The BCBS consists of 45 members from central banks, supervisory groups and international organizations has strengthened the regulation, supervision and practices of banks through the development and implementation of the Basel Accords over time.

Basel I (or the Basel Capital Accord) in 1988 outlined common minimum capital standards to banking industries to address credit risk, the main risk incurred by banks, and covers the definition of capital and the structure of risk weights. The Amendment to the Capital Accord to incorporate market risks (or the Market Risk Amendment) was issued by the BCBS in 1996 to incorporate capital requirements for market risk arising from banks' exposures to foreign exchange, traded debt securities, equities, commodities and options. Basel II (or the New Capital Framework) in 2004 was designed to improve regulatory capital requirements to reflect operational risk and address more detailed credit risk. Responding to the financial crisis of 2008 in which the global banking system would be weakened by too much leverage and inadequate liquidity buffers, Basel III in 2010 introduced new capital and liquidity standards to strengthen the regulation, supervision and risk management of the banking sector.

Table 1 shows the definitions of credit risk, market risk and operational risk under the Basel Accords, and Fig. 1 demonstrates the evolution of risk awareness in the Accords over time.

Table 1. Major risks of financial institutions

Classification	Description	Source
Credit risk	The risk of counterparty failure Counterparty credit risk means that the counterparty to a transaction could default before the final settlement of the transaction's cash flows.	BCBS (1988) BCBS (2006)
Market risk	The risk of losses in on-and-off balance sheet positions arising from movements in market prices: i.e., the risks pertaining to interest rate related instruments and equities in the trading book; and foreign exchange risk and commodities risk throughout the bank.	BCBS (2005)
Operational risk	The risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk.	BCBS (2006)

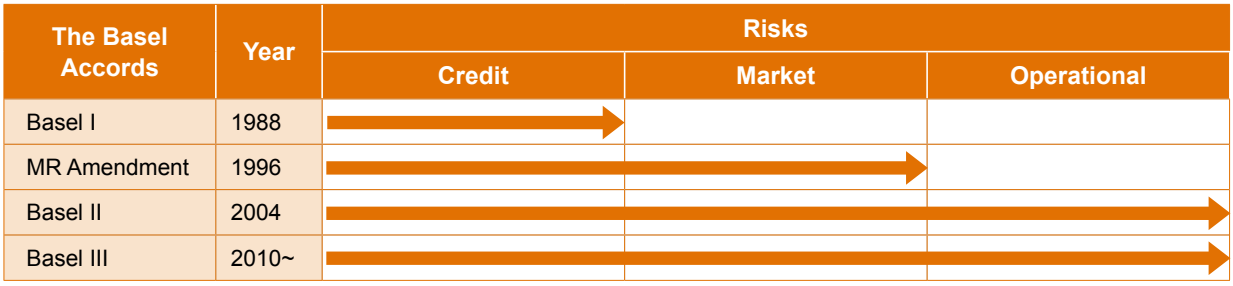

Fig. 1 The evolution of risk awareness in the Basel Accords (Source: Authors)

3.2 What are climate risks in the banking sector?

TCFD (2016b) has recognized two broad categories of climate risks as useful information for decisions by investors, lenders and insurance underwriters: 1) transition risks, and 2) physical risks.

Transition risks are related to transition to a lower-carbon economy toward the 1.5° and 2° Celsius scenarios in the context of climate change mitigation (i.e., reduction in GHG emissions). There are five main kinds of transition risks: 1) policy risk (policy actions for promoting climate change efforts); 2) litigation or legal risk (failure of companies to mitigate climate change impacts, failure to adapt to climate change, and insufficiency of the financial disclosure); 3) technology risk (technological failure of improvements or innovations to support low-carbon transitions); 4) market risk (shifts in supply and demand for certain commodities, products, and services as climate risks); and 5) reputation risk (changes of customer perceptions to favor lower-carbon goods and services) (Fig. 2).

Physical risks are more relevant to increasing damages caused by climate events by changing their frequency, intensity and duration as a consequence of global warming, in the context of climate change adaptation (i.e., the necessity for enhanced resilience to climate events) (Seneviratne et al., 2012). These risks are divided into acute risks (i.e., damages caused by extreme weather events, such as cyclones, hurricanes and floods); and chronic risks (i.e., damages caused by slow onset events, such as sea level rise, increasing temperatures, ocean acidification and salinization) (Fig. 2).

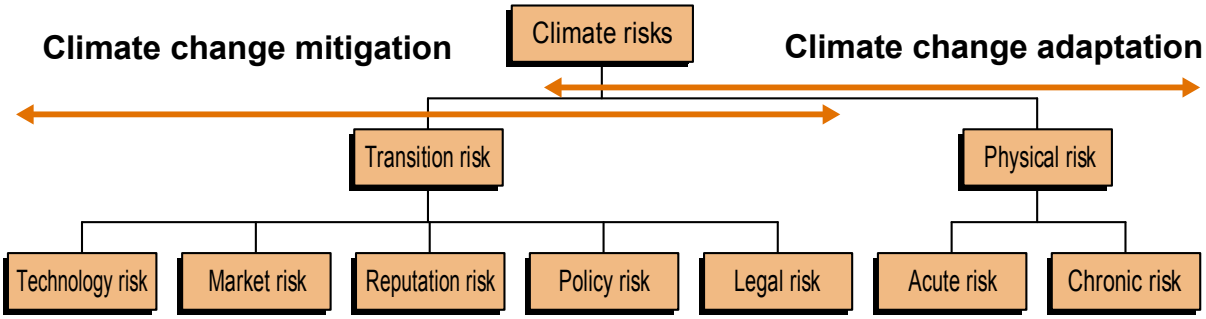

Fig. 2 Mapping of climate risks (Source: Prepared by Authors from TCFD, 2016b)

3.3 How banks can be affected by climate risks

The Supplemental Guidance for the Financial Sector by the TCFD has recognized that banks are exposed to climate risks through "their lending and other financial intermediary activities as well as through their own operations" and "may assume exposure to material climate-related risks through their borrowers, customers, or counterparties" (TCFD, 2016a). In other words, banks are not very likely to suffer direct climate risks, but their traditional risks (such as credit and market risks) may be increased by the climate-related risks of their lending and other business customers. Climate risks would aggravate the existing risks that banks' loan and investment portfolios need to record as allowances in their financial statements, such as natural disasters, changes in government policies (e.g., taxation) and litigation. If such risks, which are increased by climate risks, could not be hedged, then banks would have to record an increase in their credit risks.

Regarding the relationship between banks' credit or market risks and climate risks, a traditional core operation for banks is financial lending, and the business style differs from many non-financial companies (such as those in the energy, real-estate and agriculture sectors) whose business relating to goods and services are directly exposed to climate risks.

For example, fossil fuel producers can directly suffer climate-related transition risks because their assets of coal, oil or gas may be impaired or converted to liabilities (stranded assets) if regulations of GHG emissions are strengthened. Furthermore,

agricultural or food companies could directly suffer climate-related physical risks that may reduce their revenues if increasing severity of cyclones and floods causes reduced output and sales. International companies with global supply chains may suffer direct physical impacts, such as shutdowns, supply chain interruptions, and workforce health and safety issues due to increasing climatic disasters. Concerns about these transition and physical risks can undermine the credibility and stock prices of companies. Moreover, banks' operational risks and climate risks are linked. Climate risks may increasingly hinder banking operations by degrading internal processes and systems, endangering the health and safely of employees, and harming banks' reputations.

Therefore, banks which provide loans to or trade the securities of companies with direct exposure to climate risks could be indirectly affected by climate risks via their credit and equity holdings, while their operational risk could be worsened by climate risks. In sum, climate risks can increase in banks' traditional risks, such as credit risk, market risk and operational risk, some of which may have direct financial implications.

Fig. 3 explains the linkage between banks' traditional risks and climate risks, and how banks' balance sheets can be affected by such risks. The additional credit risk due to climate risks would increase the amount of banks' uncollectible loans. As a result, banks would need to recognize the increased value of uncollectable loans and reduce the asset value of loans on the balance sheet. Moreover, the increased climate risks would in turn increase market risks, which would reduce the market value of companies' securities owned by banks. As a consequence, banks would need to recognize the reduced market-value of additional losses on the asset value of securities on the balance sheet. On the other hand, the increased operational risk due to increased climate risks would have wide-ranging accounting impacts on and off the balance sheet.

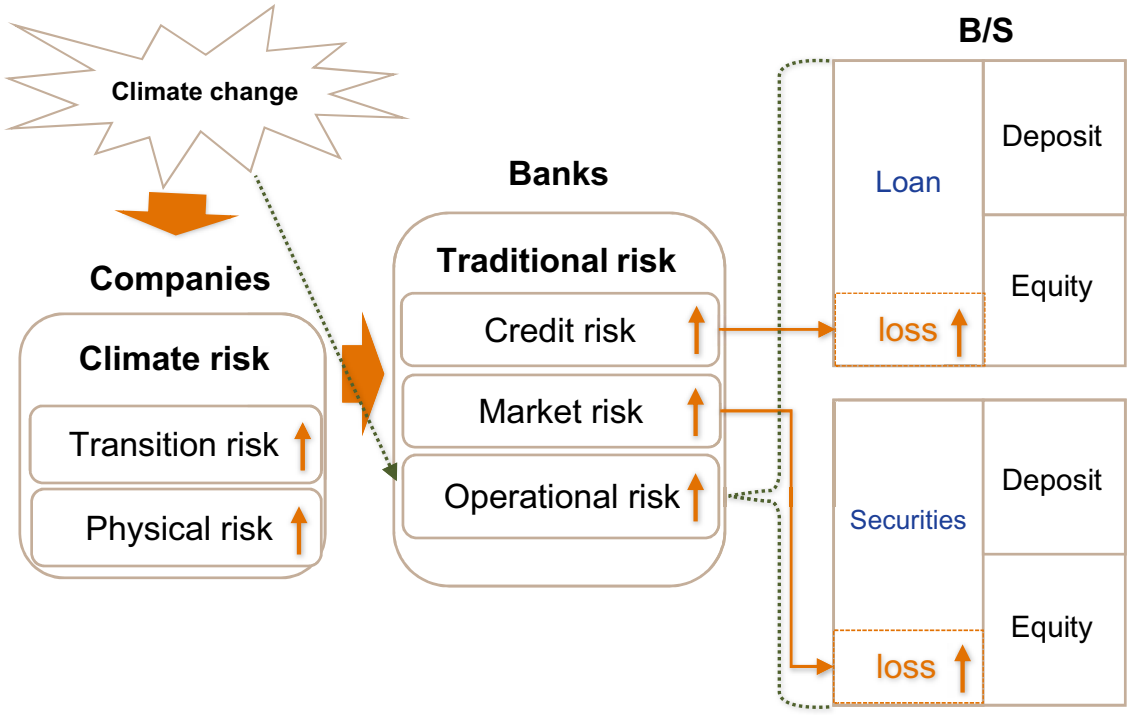

Fig. 3 Potential financial impacts from climate risks on banks' balance sheets (Source: Authors)

4 Consideration of climate risks in financial accounting

4.1 How climate risks of banks' major assets can be assessed

To assess the financial implications from climate risks on the banking sector, it is necessary to examine the potential financial impacts from climate risks on banks' major assets of loans, by using traditional financial accounting methods. In the past, climate risks were never considered in valuing banks' major assets and on financial statements (JBA, 2017). However, there are international and national methodologies for calculating the asset value of banks' loans posed by credit risk, through allowances for doubtful accounts. This policy brief argues that these methodologies can be used as a basis for considering climate risks in banks' financial accounting, and it may not be necessary to develop a completely new methodology for climate risks.

This policy brief suggests that the allowance for doubtful accounts can be a basic method for incorporating climate risks. This allowance is recognized as the estimated uncollectible amount when claims such as accounts receivable and loans which are uncollectible due to unexpected matters such as a client company's bankruptcy. In practice, in the case of financial accounting for impairment, the allowance is generally booked as a deduction from claims (subject to asset account) on the balance sheet, while bad debts expense is booked as a loss on the income statement.

The next section compares the three main accounting methods for impairment of financial assets (i.e., loans): the global International Financial Reporting Standard (IFRS), and the national standards of the United States and Japan. The three standards are also compared in terms of how they treat forward-looking information, which could be an important method for incorporating climate risks (Table 2).

4.2 Global level

The most dominant accounting standard at the global level is the International Financial Reporting Standard (IFRS). The IFRS is a globally-accepted accounting standard used especially by global companies which operate businesses in several countries. The IFRS is managed by the International Accounting Standards Board (IASB) based in London. The IASB is an independent standard-setting body which currently has 12 accounting experts representing various geographic regions (IFRS, 2017a).

The IFRS introduced a method of accounting for the impairment of financial assets including loans, called the IFRS 9 *Financial Instruments*. IFRS 9 will replace IAS 39 *Financial Instruments: Recognition and Measurement* when it becomes effective in 2018. IFRS 9 uses the Expected Credit Loss (ECL) model that assumes more timely recognition of credit losses; in other words, lifetime expected credit losses are recognized when the credit quality of loans is worse than anticipated when the loans were first originated (IFRS, 2013; IFRS, 2017). The ECL model responds to the lessons from the financial crisis of 2008 in which the recognition of credit losses on loans was delayed.

The key characteristic of the ECL model is that it is necessary to incorporate 'the forward-looking information' to evaluate credit losses (IFRS, 2015). This forward-looking information may be a feasible method for integrating climate risks. This information is currently considered to be "that is reasonably available and macroeconomic factors" and "is essential to the assessment and measurement of expected credit losses" (BCBS, 2015). While the concrete details have not been specified, the forward-looking information can be related to future macro-economic scenarios, such as an increase in delinquency of loan payments due to expected higher unemployment rates; and a financial deficit due to expected lower competitiveness caused by the appreciation of the yen (KPMG, 2016a).

Similarly, climate risks can be future impacts resulting from climate change. The contexts of the 'forward-looking' between the financial and non-financial sectors may not be same at this moment.

However, if information on climate risks is important information needed for key decisions, and if this information would affect credibility of borrower companies, then climate risks must be included as forward-looking information for assessing credit losses. In order to conduct this analysis, technical knowledge and expertise relating to climate risks, such as climate-related impact assessments and scenario analyses, will be required, not only for risk assessment but also for financial accounting.

The information about traditional credit risks used for credit risk management but not financial accounting in banks would be essential, since this information can be a basis for the ECLs and also forward-looking information. The introduction of the ECL model of financial accounting, for the purpose of considering credit risk, has been backed by strong demand from the BCBS, which published its *Guidance on credit risk and accounting for expected credit losses* in December 2015 (BCBS, 2015). Credit risk management is a core operation in banking. However, the information used for credit risk management has not necessarily been used in financial accounting for credit losses.

In addition, it is essential to adjust the existing methodologies for calculating credit risks in order to apply to the ECLs. There are existing Advanced Internal Rating Based Approaches (AIRBs) on calculation for credit risk assets under the existing Basel regulatory capital framework; such as Probability of Default (PD); Loss Given Default (LGD); and Exposure At Default (EAD) (KPMG, 2015). These are risk parameters which can be used as fundamentals of calculation for ECLs, although these should be significantly adjusted. For example, the accounting for the ECL model is based on 'point in time' probabilities of default in past, current and future economic conditions while PD assumes the probability of default in cycle-neutral economic conditions (KPMG, 2016; PWC, 2014).

While the IFRS will start applying the IFRS 9, which needs to incorporate the forward-looking information in 2018, the existing IAS 39 does not intend to consider this information. The IAS 39 is applying the Incurred Loss (IL) model which assumes backward-looking (i.e., historical credit information) under which the recognition of allowance for doubtful accounts is delayed until a default has already occurred on loans (IFRS, 2013). This will have a significant impact on banks, since the timing of booking the allowance on loans may be delayed, and the amount of this allowance may be changed.

4.3 The United States

The United States uses an accounting rule for impairment of financial assets similar to the IFRS 9 under the Generally Accepted Accounting Principles of the United States (US GAAP). The US GAAP is not only a major national accounting standard, but it is also one of the leading global standards. This was established by the Financial Accounting Standards Board (FASB), which is designated by the Securities and Exchange Commission (SEC) as the body responsible for setting accounting standards for public companies (FASB, 2017). The FASB is composed of 7 members with diverse backgrounds, such as accounting, finance, business, accounting education, and research.

While the US GAAP and IFRS 9 have similar basic concepts of the accounting for impairment of financial assets, there is a significant difference on whether or not the consideration of the forward-looking information is mandatory. The FASB published Accounting Standards Update (ASU) No. 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* in June 2016, which will become effective in 2019 (FASB, 2016). The ASU No. 2016-13 applies the Current Expected Credit Loss (CECL) model which considers expected credit losses in the same way as the ECL model. The key difference between these two models is that the consideration of the forward-looking information under the CECL model is voluntary, while in the ECL model it is mandatory (KPMG, 2016b). Thus, under the US GAAP, it may be difficult to integrate climate risks in the accounting unless the consideration of the forward-looking information becomes mandatory.

4.4 Japan

Another example of national accounting rules for impairment of financial assets is the Generally Accepted Accounting Principles in Japan (JGAAP). The JGAAP was established by the Accounting Standards Board of Japan (ASBJ), which includes 14 experts who come from various backgrounds, including accounting, business, and academia.

The JGAAP currently does not apply the ECL model in calculating the allowance for loans, and it has not recognized the forward-looking information that could be used for including climate risks. The Japanese Accounting Standards for Financial Instruments (ASFI) Article 28 issued by the ASBJ, and the Practical Guidelines on Accounting Standards for Financial Instruments Article 113 issued by the Japanese Institute of Certified Public Accountants (JICPA) stipulate the calculation methods for allowances for doubtful accounts (EY, 2010). The existing methods depend on the category of loans and include: 1) the method using the historical rates of doubtful debts for 'normal loans'; 2-1) the method based on the irrecoverable balance remaining after reducing it by the amount expected to be collected from collateral items or 2-2) based on estimation of the amount of doubtful debts as the difference between the present value of future cash flows and book value for 'loans with risk of default'; and 3) the method based on the irrecoverable amount remaining after deduction of amounts expected to be collected through realization of collateral for 'bankrupt, delinquent, and doubtful loans' (EY, 2016).

Table 2 summarizes how the forward-looking information that could be an important method for incorporating climate risks has been considered in impairment accounting for loans among the global level, the United States and Japan. At the global level, the IFRS 9 requires consideration of this information, while the existing IAS 39 does not require it. At the national level, neither the US, nor Japan requires this information to be considered.

Table 2. Comparison of the consideration of forward-looking information in impairment accounting for loans in major accounting standards

	Accounting standards	Effective year	Calculation method	Forward-looking information
Global	IFRS 9 (replacement of existing IAS 39)	2018	The ECL model	○
	IAS 39	2001	The IL model	×
USA	ASU No. 2016	2019	The CECL model	△
Japan	ASFI Article 28	1999	Historical default rates, DCF method, etc.	×

Key: ○: Mandatory to consider; △: Not mandatory to consider; ×: No consideration

Source: Authors

5 The way forward

As explained above, some progress has been made in addressing the traditional banking risks in terms of its risk management and financial accounting. However, climate risks have not been well considered by banking and financial accounting regulatory bodies. While the TCFD has issued its recommendations on financial disclosure for climate risks, it has not clearly addressed bank-specific climate risks. Banks may understand the basic concepts of climate risks, but they have not well understood financial impacts on their assets from climate risks, and they do not have reasonable systems in place. Here are several recommendations to strengthen financial disclosures for climate risks in the banking sector. These recommendations are addressed to the TCFD, national accounting standard-setting bodies, and banks.

5.1 Recommendations to the TCFD:

1. ***Suggest the BCBS to develop standards or guidance for mainstreaming climate risks into the traditional risk management for banks.*** As the first step, the TCFD should warn the BCBS that banks' major traditional risks (including credit risk, market risk and operational risk) can be increased by climate risks, such as transition risks and physical risk. The banks' traditional risks have been separately regulated by the Basel Accords under the BCBS, and climate risks have not been considered in their risk management. Thus, the TCFD should recommend to the BCBS to develop standards or guidance for mainstreaming climate risk into banks' traditional risk management, so that banks would treat climate risks as one of the key factors which could increase their traditional risks, and encourage banks to strengthen their safeguards against climate risks.

2. ***Propose the IASB to devise accounting standards or guidelines integrating climate risks into financial accounting for loan impairment.*** Next, the TCFD should recommend to the IASB to develop accounting standards or guidelines for climate risks, requiring that climate risks should be integrated into the calculation for loan impairment under the IFRS. This policy brief recommends that one way to address climate risks would be to use the ECL model in the IFRS 9 which requires the evaluation of credit losses to be considered as forward-looking information. To be sure, the contexts of the 'forward-looking' for financial sector and non-financial sectors may not be same at this moment. Nevertheless, the forward-looking aspect in terms of credit losses can be related to future macro-economic scenarios, which can help to assess the climate risks from future impacts resulting from climate change. Therefore, the TCFD should recommend the IASB to regard climate risks as major forward-looking information, because climate risks can affect creditworthiness of borrower companies and can be key decision-useful information.

3. ***Recommend the TCFD to include bank-specific climate risks and the related financial accounting in its 'Supplemental Guidance for Banks'.*** The TCFD then should specify the bank-specific climate risks in relation to the major traditional risks and the financial accounting for loan impairment in the TCFD's 'Supplemental Guidance for Banks'. This guidance should be consistent with the Basel Accord and the IFRS and reported at the FSB meeting for its approval and the G20 Summit for its support. The existing TCFD's recommendations and supplemental guidance only outline common climate risks generally applied to all financial and non-financial sectors, such as energy, transportation, materials, buildings, agriculture, food, and forest products. However, the climate risk exposures of banks' lending operations differ significantly from those of other sectors.

5.2 Recommendations to national accounting standard-setting bodies

1. ***The United States.*** To strengthen the existing impairment accounting for banks' assets to consider climate risks, the FASB should work closely with the SASB which could have more climate-related information to enhance climate

risk awareness on loans. It also should work closely with the IASB to revise the accounting standards to reflect climate risks into the valuation of loans. In particular, the ASU No. 2016, on accounting for impairment of financial assets, which becomes effective in 2019, introduces the CECL model based on expected credit losses, the same as the ECL model under the IFRS 9. However, the CECL model does not necessarily take into account the forward-looking information in calculating the allowance for ECLs, so that it should be required to consider this information in the model to reflect climate risks, in accordance with the IFES 9. The FASB should also provide clearer guidance for banks to use accounting methods to take into account climate risks.

2. ***Japan.*** Recognition of climate risks is low in both business and government in Japan, including the banking sector. First, the national government, especially the Financial Services Agency, should strengthen awareness of climate risks and propose legislation to require financial disclosure of climate risks relating to banks' assets. In addition, the ASBJ should revise the JGAAP to recognize ECLs in accordance with the IFRS and US GAAP to facilitate the consideration of climate risks. The existing accounting methods for allowances for doubtful accounts on banks' loans, such as the ASFI Article 28 and the Practical Guidelines on Accounting Standards for Financial Instruments Article 113, are more likely to apply the information about historical credit risks, and they have not considered the ECLs, which could be a means to include climate risks as forward-looking information.

5.3 Recommendations to banks

1. ***Mainstream climate risks across business units.*** Banks have not been sufficiently aware of the potential financial impacts on their assets from climate risks. This is not just due to a lack of understanding, but also to the difficulty of the assessment. Risk management and accounting departments, as well as the chief financial officers, should be responsible for enhancing climate risk awareness and understanding the potential climate impacts on their portfolio mix and client's vulnerabilities. Capacity-building training programs will be needed to widely disseminate this knowledge. Banks' CSR departments may accumulate knowledge about climate risks which has not been necessarily shared within banks. Therefore, banks' management should strengthen knowledge-sharing among relevant departments in order to mainstream consideration of climate risks in core operations and across business units.

2. ***Strengthen collaboration on climate risks between accounting departments and other departments.*** If banks' accounting departments apply the ECL model to account for impairment accounting for loans and require the consideration of the forward-looking information which could include climate risks, they will need to obtain more credit risk information than before. Obtaining this information will require working closely with other internal departments and external partners. For instance, accounting departments do not necessarily have the information about credit risks which have been traditionally used for the purpose of credit risk management led by risk management departments. However, the ECL model would require this credit risk information as well as climate risk information to be used as forward-looking information; this information is typically held by CSR departments and external research institutes.

3. ***Improve human resources and technical capacities for climate risk assessments.*** In addition, banks' credit risk management departments should enhance their human resources, technical knowledge and expertise for climate risks, such as climate-related impact assessments and scenario analyses, in order to adjust the existing calculation models of credit risks and credit risk parameters, such as Probability of Default (PD); Loss Given Default (LGD); and Exposure At Default (EAD), to incorporate climate risks into the forward-looking information.

References

Basel Committee on Banking Supervision (BCBS) (1988). *International Convergence of Capital Measurement and Capital Standards.* Basel, Switzerland: Bank for International Settlements.

Basel Committee on Banking Supervision (BCBS) (2005). *Amendment to the Capital Accord to incorporate market risks.* Basel, Switzerland: Bank for International Settlements.

Basel Committee on Banking Supervision (BCBS) (2006). *International Convergence of Capital Measurement and Capital Standards: A Revised Framework Comprehensive Version.* Basel, Switzerland: Bank for International Settlements.

Basel Committee on Banking Supervision (BCBS) (2015). *Guidance on credit risk and accounting for expected credit losses.* Basel, Switzerland.

Bloomberg (2013). Investors Demand Climate-Risk Disclosure in 2013 Proxies - Bloomberg. Retrieved February 12, 2017, from https://www.bloomberg.com/news/2013-02-25/investors-demand-climate-risk-disclosure-in-2013-proxies.html

Carbon Tracker Initiative. (2013). *Unburnable Carbon 2013: Wasted capital and stranded assets.* London, United Kingdom.

Ernst & Young (EY) (2010). Derivative transactions, loan valuation (allowance for doubtful accounts) and others. Retrieved February 26, 2017, from https://www.shinnihon.or.jp/corporate-accounting/commentary/financial-instruments/2010-11-10-02.html

Ernst & Young (EY) (2016). *JGAAP-IFRS Standards.* Tokyo.

FASB (2016). *Financial Instruments — Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments. Financial Accounting Series* (Vol. 437). Norwalk, CT.

FASB (2017). About the FASB. Retrieved March 17, 2017, from http://www.fasb.org/cs/ContentServer?c=Page&pagename=FASB%2FPage%2FSectionPage&cid=1176154526495

Financial Stability Board (FSB) (2017a). About the FSB - Financial Stability Board. Retrieved March 17, 2017, from http://www.fsb.org/about/

Financial Stability Board (FSB) (2017b). *FSB assesses implementation progress and effects of reforms.* Basel, Switzerland.

IFRS (2013). *Snapshot: Financial Instruments: Expected Credit Losses.* London, United Kingdom.

IFRS (2015). *Staff Paper: Incorporation of forward-looking scenarios.*

IFRS (2017a). IFRS - Members of the IASB. Retrieved March 17, 2017, from http://www.ifrs.org/About-us/IASB/Members/Pages/Members-of-the-IASB.aspx

IFRS (2017b). IFRS 9 Financial Instruments (replacement of IAS 39). Retrieved February 24, 2017, from http://www.ifrs.org/Current-Projects/IASB-Projects/Financial-Instruments-A-Replacement-of-IAS-39-Financial-Instruments-Recognitio/Pages/Financial-Instruments-Replacement-of-IAS-39.aspx

International Finance Corporation (IFC) (2010). *Climate Risk and Financial Institutions: Challenges and Opportunities.* Washington, D.C.

Japanese Bankers Association (JBA) (2017). *Comments on the "Recommendations of the Task Force on Climate-related Financial Disclosure", issued by the Task Force on Climate-related Financial Disclosure ("TCFD").* Tokyo.

KPMG (2015). *IFRS Topic News Letter: Banking.* Tokyo.

KPMG (2016a). Guidance on Accounting for Expected Credit Loss in Banking. *KPMG Insight, 17* (March), 1–8.

KPMG (2016b). New Impairment Accounting on Financial Assets under USGAAP. *KPMG Insight, 20* (September), 1–7.

LSE (2016). What are stranded assets? | Grantham Research Institute on climate change and the environment. Retrieved April 9, 2017, from http://www.lse.ac.uk/GranthamInstitute/faqs/what-are-stranded-assets/

PWC (2014). *IFRS 9 – Expected credit losses.* New York.

Seneviratne, S. I., Nicholls, N., Easterling, D., Goodess, C. M., Kanae, S., Kossin, J., Zhang, X. (2012). *Changes in climate extremes and their impacts on the natural physical environment. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC).* Cambridge, UK, and New York, NY, USA: Cambridge University Press.

Smith School of Enterprise and the Environment, University of Oxford (SSEE) (2014). *Stranded Assets and Scenarios: Discussion Paper.*

Task Force on Climate-related Financial Disclosures (TCFD) (2016a). *Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures.*

Task Force on Climate-related Financial Disclosures (TCFD) (2016b). *Recommendations of the Task Force on Climate-related Financial Disclosures.*

UNFCCC (2015). *Adoption of the Paris Agreement.* Bonn: UNFCCC, United Nations.

Institute for Global Environmental Strategies

2108-11, Kamiyamaguchi, Hayama, Kanagawa, 240-0115, Japan
Tel : +81-46-855-3700 Fax : +81-46-855-3709 E-mail: iges@iges.or.jp http://www.iges.or.jp/