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OCC - Principles for Climate-Related Financial Risk Management for Large Banks

February 2022

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REGULATORY STRATEGY

Background and Context

Although formalized policies on climate risk have been limited in the US to date, regulatory focus has been accelerating, and additional guidelines and policies are expected to emerge. For the scope of this analysis, we have considered recent issuances from the Office of the Comptroller of the Currency (OCC), New York Department of Financial Services (NYDFS), Basel Committee on Banking Supervision (BCBS), and Task Force on Climate-Related Financial Disclosures (TCFD).* The OCC's and BCBS' principles are preliminary and open for public comment until February 14, 2022, and February 16, 2022, respectively. Below is a selected list of recent developments.

Oct 2020

NYDFS issued an Industry letter outlining the agency's expectations for new-regulated financial institutions integrating climate-related financial risks into their governance frameworks, risk management processes, and business strategies

Oct 2020

TCFD Guidance on Risk Management Integration and Disclosure – aimed at companies interested in integrating climate-related risks into their existing risk management processes and disclosing information on their risk management processes

2021

Jan 2021

Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis

Executive Order on Tackling the Climate Crisis at Home and Abroad

Feb 2021

NYDFS issued an industry letter describing instances where certain banks may receive credit in connection with financing projects that address climate change

Mar 2021

NYDFS proposed guidance for public comment – Guidance for New York domestic insurers on managing the financial risks from climate change

Apr 2021

BCBS published reports on climate-related risk drivers and their transmission channels and climate-related financial risks - Measurement Methodologies

May 2021

Executive Order on Climate-Related Financial Risk

Oct 2021

TCFD released *Status report*, *Guidance on Metrics, Targets, and Transition Plans* and *Annex*

Nov 2021

OCC Acting Comptroller Michael Hsu's speech, in which he poses questions that large bank boards of directors should ask to promote and accelerate improvements in climate risk management practices at their banks

BCBS published a consultation paper on principles for the effective management and supervision of climate-related financial risks

Nov 2021

NYDFS issued final guidance for New York domestic insurers on managing the financial risks from climate change,
detailing NYDFS' expect
ations related
to insurers'
management
of the financial risks fro
m climate change

Dec 2021

OCC published draft principles to support the identification and management of climate-related financial risks by banks with more than $100 billion in total consolidated assets

2022

**TCFD is an organization setup by the Financial Stability Board (FSB) to provide uniform climate reporting standards.*

Executive Summary

Purpose	On December 17, 2021, the OCC issued a much-anticipated draft principles that provide a high-level framework guidance for the safe and sound management of exposures to climate-related financial risks.[1]
Scope of Application	The OCC notes that, "all banks, regardless of size, may have material exposures to climate-related risks," but that its draft principles are targeted at the largest banks, those with over $100 billion in total consolidated assets.

The OCC's climate principles assert that climate-related risk is an increasingly important risk to banks and sets the expectation that banks should be able to effectively manage this risk type. The lack of (or inadequate) risk management in this space has the potential to lead to unsafe and unsound banking practices on a firm-specific level and to financial stability concerns on a broader scale. Of importance to the OCC is the possibility that any negative impact to the banking system will have an unbalanced affect throughout various subsections of the population.

Among the principles, the OCC said that bank boards and senior managers should allocate appropriate resources to climate issues and assign climate-related financial risk responsibilities throughout the organization. Banks should also establish processes to identify, measure, and monitor material climate-related risks using exposure analysis, heat maps, climate risk dashboards, and scenario analysis. The principles further called on banks to consider how climate risks intersect with more well-established risk categories, including credit, liquidity, operational, and litigation risks.

[1] OCC, Risk Management: Principles for Climate-Related Financial Risk Management for Large Banks; Request for Feedback | OCC (treas.gov)

Key takeaways from the OCC's December 2021 issuance

- **Climate-related risk has the potential to impact banks regardless of size.** If they have not done so already, large banks should begin taking the necessary steps to assess climate-related risk and establish enterprise-wide risk management practices. The OCC expects to tailor future principles to address risk management at smaller banks.
- **Large banks should be mindful of both physical and transition risks** when considering the potential for adverse impact due to climate-related developments. These risk types should be captured in resultant risk management frameworks.
  - **Physical risks** are defined in the principles as, "…the harm to people and property arising from acute, climate-related events, such as hurricanes, wildfires, floods, and heatwaves, and chronic shifts in climate, including higher average temperatures, changes in precipitation patterns, sea level rise, and ocean acidification."
  - **Transition risks** are defined in the principles as, "…stresses to certain banks or sectors arising from the shifts in policy, consumer and business sentiment, or technologies associated with the changes necessary to limit climate change."
- **Large banks are expected to assign dedicated resources** to the implementation of the climate risk management framework and the execution of climate-related requirements. The onus is on banks to determine how and where to deploy resources.
- **The OCC will follow these principles with more detailed guidance.** Thus, banks have an important opportunity until February 14, 2022, to provide comment that could potentially help influence the shape of future guidance.
- **In comparison, the OCC's draft principles provide less detail than a similarly focused draft framework set forth by the BCBS**. However, the principles are subject to change based on industry feedback and the final draft may be more detailed or prescriptive.

OCC Principles for Climate-related Financial Risk

Governance	Policy, Procedure & Limits	Strategic Planning	Risk Management	Data, Risk Measurement & Reporting	Scenario Analysis
• A bank's board and management should demonstrate an appropriate understanding of climate-related financial risk exposures and their impact on risk appetite. • Risk governance framework should include: ✓ Review of information necessary to oversee the bank ✓ Allocation of appropriate resources ✓ Assignment of climate-related financial risk responsibilities throughout the organization ✓ Clear communication to staff regarding climate-related impacts to the bank's risk profile	• Incorporate climate-related risks into the bank's policies, procedures, and limits. • Policies, procedures, and limits should be modified when necessary to reflect the distinctive characteristics of climate-related risks and changes to the bank's activities.	• Consider climate-related financial risk exposures when setting, ✓ Overall business strategy ✓ Risk appetite ✓ Financial, capital, and operational plans. • Consider climate-related financial risk impact on, ✓ Stakeholders' expectations ✓ Bank's reputation ✓ Low- to moderate-income and other disadvantaged households and communities, including physical harm.	• Oversee the development and implementation of processes to identify, measure, monitor, and control climate-related financial risk exposures within bank's existing risk management framework. • Incorporate climate-related risks into bank's internal control frameworks, including internal audit.	• Incorporate climate-related financial risk information into bank's internal reporting, monitoring, and escalation processes to facilitate timely and sound decision-making across the bank. • Ensuring effective risk data aggregation and reporting capabilities.	• Climate-related scenario analysis should, ✓ Comprise of a forward-looking assessment of the potential climate risk impact on a bank. ✓ Commensurate to the bank's size, complexity, business activity, and risk profile.

Management of Risk Areas

Credit Risk	• Monitor climate-related credit risks through sectoral, geographic, and single-name concentration analyses.
Liquidity Risk	• Determine whether climate-related financial risks could affect liquidity buffers.
Other Financial Risk	• Monitor climate price risk, interest rate risk and other model inputs for greater volatility or less predictability due to climate-related financial risks .
Operational Risk	• Consider how climate-related financial risk exposures may adversely impact a bank's operations, control environment, and operational resilience.
Legal and Compliance Risk	• Consider how climate-related financial risks and risk mitigation measures affect the legal and regulatory landscape. • Consider possible changes to legal requirements for, or underwriting considerations related to, flood or disaster-related insurance.
Other Nonfinancial Risk	• Consider the extent to which the bank's activities may increase the risk of negative financial impact from reputational damage, liability, or litigation, and implement adequate measures to account for these risks.

OCC Request for feedback on the December 2021 issuance

The OCC seeks feedback on the issues noted below:

Applicability

1. Are there additional categories of banks (i.e., based on asset size, location, business model) to which these principles should apply?

Tailoring

2. How could future guidance assist a bank in developing its climate-related financial risk management practices commensurate to its size, complexity, risk profile, and scope of operations?

General

3. What challenges do banks face in incorporating these principles into their risk management systems? How should the OCC further engage with banks to understand those challenges?

Current Risk Management Practices

4. What specific tools or strategies have banks used to successfully incorporate climate-related financial risks into their risk management frameworks?
5. How do banks determine when climate-related financial risks are material and warrant greater than routine attention by the board and management?
6. What time horizon do banks consider relevant when identifying and assessing the materiality of climate-related financial risks?
7. What, if any, specific products, practices, and strategies—for example, insurance or derivatives contracts or other capital market instruments—do banks use to hedge, transfer, or mitigate climate-related financial risks?

OCC Request for feedback on the December 2021 issuance

The OCC seeks feedback on the issues noted below:

Current Risk Management Practices (continued)

8. What, if any, climate-related financial products or services–for example, "green bonds," derivatives, dedicated investment funds, or other instruments that take climate-related considerations into account–do banks offer to clients and customers?[4] What risks, if any, do these products or services pose?
9. How do banks currently consider the impacts of climate-related financial risk mitigation strategies and financial products on households and communities, specifically LMI and other disadvantaged communities?

Data, Disclosures, and Reporting

10. What, if any, specific climate-related data, metrics, tools, and models from borrowers and other counterparties do banks need to identify, measure, monitor, and control their own climate-related financial risks? How do banks currently obtain this information? What gaps and other concerns are there with respect to these data, metrics, tools, or models?
11. How could existing regulatory reporting requirements be augmented to better capture banks' exposure to climate-related financial risks?

Scenario Analysis

12. Scenario analysis is an important component of climate risk management that requires assumptions about plausible future states of the world. How do banks use climate scenario models, analysis, or tools and what challenges do they face?
13. What factors are most salient for the OCC to consider when designing and executing scenario analysis exercises?

Comparison of issuances across key themes

Summary

+ to +++ indicates magnitude of focus

Recent climate risk issuances generally follow the below mentioned key themes:

Themes	Sub Themes	Magnitude of Focus				Comments
		OCC	BCBS	NYDFS	TCFD	
Governance	**Awareness and Knowledge –** Demonstration of an understanding of climate issues	+++	+++	++	+	• OCC and BCBS highlight the importance of understanding of climate issues to tackle ensuing risks. • TCFD emphasizes that 'investors and other stakeholders' understand how climate issues affect businesses, and the knowledge level of the board and management has not been emphasized.
	Roles and Responsibilities – Assignment of climate risk-related roles and responsibilities and management's oversight	++	+++	+	+++	• BCBS and TCFD emphasize that the board and management should be proactive in delegating roles and responsibilities and ensure proper monitoring.
	Impact Assessment – Impact of climate-related risk drivers	+++	++	+	++	• From a governance perspective, OCC stresses the most on the importance of gauging the potential impacts of climate risks in order to address them.
Policy, Procedure, and Limits	**Scope of policy, procedure and limits –** Organization-wide implementation vs implementation in specific business units	+	+++	+++	*No mention*	• While the scope of implementation has been highlighted by BCBS and NYDFS, it finds no mention in the issuances from OCC and TCFD.
Strategic Planning	**Time horizons –** The degree of emphasis on the various time horizons to be considered in strategic planning	++	+	+++	+++	• NYDFS guidance for insurers details the time horizon in terms of the number of years, and TCFD guidance describes time horizons in terms of certain considerations.
Risk Management	**Risk management framework –** Regulators have prescribed certain considerations that should be incorporated into risk management framework of organizations	++	++	+++	+++	• Considerations to be incorporated into risk management frameworks have been emphasized at an almost equal degree by all sources.
Data, Risk Measurement, and Reporting	**Risk data reporting –** Method and Timeliness of representing climate-related risks data	++	++	+	++	• Focus by regulators on the manner, frequency and timely dissemination of climate-related risk data to relevant stakeholders.
	Measurement of climate-related risk – Availability of relevant data to determine climate risk accurately	+++	++	+++	+	• Regulators have focused on measuring climate-related risks accurately through relevant data aggregation and analysis.
Scenario Analysis	**Objectives/Considerations in Scenario Analysis Framework –** Regulators have mentioned certain objectives that should be included in Scenario Analysis Framework	+++	+++	+++	+++	• The degree of focus on scenario analysis framework considerations is consistent across all sources.
Management of Risk Areas	**Risk management framework –** Regulators have prescribed certain measures/guidelines that should be incorporated into risk management framework of organizations.	++	++	+++	+++	• Regulators have emphasized on the framework for Management of Risk Areas with similar magnitude of focus.

Comparison of principles across different jurisdictions – Governance

Below table shows **differences** across issuances from different jurisdictions:

Sub Themes	OCC	BCBS	NYDFS	TCFD
Awareness and Knowledge – The board and management must demonstrate an understanding of climate issues	+++	+++	++	+
Roles and Responsibilities – Assignment of climate risk-related roles and responsibilities and management's oversight	++	+++	+	+++
Impact Assessment – Impact of climate-related risk drivers	+++	++	+	++

Themes	OCC	BCBS	NYDFS	TCFD
Governance	**Responsibilities of the board** ✓ Possess an adequate understanding and knowledge to assess the potential impact of climate-related risks on the bank and to address and oversee these risks. ✓ Actively oversee the bank's risk-taking activities and hold management accountable for adhering to the risk governance framework. **Responsibilities of management** ✓ Execute the bank's overall strategic plan, which includes effectively managing all risks—including climate-related financial risks—and their effects on the bank's financial condition. ✓ Regularly report to the board on the level and nature of risks to the bank, including climate-related financial risks.	**Responsibilities of the board and management** ✓ Develop an understanding of climate risks and incorporate them into business strategies, risk management frameworks, and assessment of potential impact of climate-related risk drivers. ✓ Assign climate-related responsibilities to members and committees. ✓ Implement appropriate policies, procedures, and controls.	**Responsibilities of the board and management** ✓ It is imperative that all regulated organizations integrate the financial risks from climate change into their governance frameworks, risk management processes, and business strategies. ✓ For domestic insurers, it is critical to establish board governance and an organizational structure that supports the effective management of climate risks. ✓ Climate risks need to be integrated into the governance structure at the group or insurer entity level of domestic insurers. ✓ Overseeing the management's progress towards meeting climate commitments is the domestic insurer Board's responsibility.	**Responsibilities of the board** Organizations should consider that the board's oversight of climate-related issues have: ✓ processes and frequency by which the board and/or board committees are informed about climate-related issues; ✓ procedures or policies in place to consider climate-related issues when reviewing and guiding strategy, major plans of action, risk management policies, annual budgets; ✓ method to monitor and oversee progress against goals and targets for addressing climate-related issue. **Responsibilities of management** Management's roles related to assessment and management of climate-related issues should include: ✓ responsibilities to organization management-level positions or committees; ✓ a description of the associated organizational structure(s); ✓ processes by which management is informed about climate-related issues; and ✓ a method to monitor climate-related issues.

Key differences across sources

Note: BCBS and NYDFS guidelines on governance are general in nature and do not correspond to any specific group like management, board, etc.

Comparison of principles across different jurisdictions – Policy, Procedure, and Limits

Below table shows **differences** across issuances from different jurisdictions:

Sub Themes	OCC	BCBS	NYDFS	TCFD
Scope of policy, procedure, and limits – Organization-wide implementation vs implementation in specific business units	+	+++	+++	*No mention*

Themes	OCC	BCBS	NYDFS	TCFD
Policy, Procedure, and Limits	**Responsibilities of the board and management** ✓ Policies, procedures, and limits should be modified when necessary to reflect the distinctive characteristics of climate-related risks and changes to the bank's activities. **Responsibilities of management** ✓ Incorporate climate-related risks into policies, procedures, and limits to provide detailed guidance on the bank's approach to these risks in line with the strategy and risk appetite set by the board.	**Responsibilities of the board and management** ✓ Adopt appropriate policies, procedures and controls to be implemented across the entire organization to ensure effective management of climate-related financial risks. ✓ Management of material climate-related financial risks should be embedded in policies, processes and controls across all relevant functions and business units, including, for example, in client onboarding and transaction assessment. ✓ Clearly articulate the credit policies and processes to address material climate-related credit risks. ✓ Consider setting limits on or applying appropriate alternative risk mitigation techniques to their exposures to companies, economic sectors, geographical regions, or segments of products and services that do not align with their business strategy or risk appetite.	**Responsibilities of the board and management** [There were no updates regarding Policy, Procedure and Limits in the guidance released in February. The following pointers are taken from the guidance issued in November for insurers] ✓ NYDFS expects insurers to have a written risk policy adopted by its board, describing how the insurer monitors and manages material climate risks in line with its risk appetite statement, including risk tolerance levels and limits for financial risks, and consider factors beyond market conditions, regulatory changes, and technological advancements. ✓ NYDFS also expects insurers to ensure that their organizational structure clearly defines and articulates roles, responsibilities and accountabilities, and is reinforced by a risk culture that supports accountability in risk-based decision-making in setting climate risk limits and overseeing their implementation. ✓ If an insurer's policies, procedures, or processes differ meaningfully from those of the group, the insurer should document and provide a justification for those differences in its risk management reports.	**Responsibilities of the board** In describing the board's oversight of climate-related issues, organizations should consider including a discussion of the following: ✓ processes and frequency by which the board and/or board committees (e.g., audit, risk, or other committees) are informed about climate-related issues; ✓ whether the board and/or board committees consider climate-related issues when reviewing and guiding strategy, major plans of action, risk management policies, annual budgets, and business plans; ✓ how the board monitors and oversees progress against goals and targets for addressing climate-related issues. **Responsibilities of the board and management** ✓ Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material. ✓ Provide the key metrics used to measure and manage climate-related risks and opportunities. ✓ Where climate-related issues are material, consider describing whether and how related performance metrics are incorporated into remuneration policies.

Key differences across sources

Note: All BCBS and NYDFS guidelines, and certain OCC and TCFD guidelines on policy, procedure, and limits, are general in nature and do not correspond to any specific group like management, board, etc.

Comparison of principles across different jurisdictions – Strategic Planning

Below table shows **differences** across issuances from different jurisdictions:

Sub Themes	OCC	BCBS	NYDFS	TCFD
Time horizons – The degree of emphasis on the various time horizons to be considered in strategic planning.	++	+	+++	+++

Themes	OCC	BCBS	NYDFS	TCFD
Strategic Planning	**Responsibilities of the board and management** ✓ Consider material climate-related financial risk exposures when setting the bank's overall business strategy, risk appetite, and financial, capital, and operational plans over various time horizons. ✓ Consider climate-related financial risk impacts on stakeholders' expectations, the bank's reputation, and LMI and other disadvantaged households and communities, including physical harm or access to bank products and services. ✓ Any climate-related strategies, including any relevant corporate social responsibility objectives, should align with and support the bank's broader strategy, risk appetite, and risk management framework. ✓ Ensure that any public statements about their banks' climate-related strategies and commitments are consistent with their internal strategies and risk appetite statements.	**Responsibilities of the board** ✓ Responsibilities for managing climate-related financial risks should be clearly assigned to board members and committees to ensure material climate-related financial risks are appropriately considered as part of the bank's business strategy and risk management framework. **Responsibilities of the board and management** ✓ Consider material climate-related financial risks that could manifest over various time horizons and incorporate these risks into their overall business strategies and risk management frameworks. ✓ Consider material physical and transition risk drivers when developing and implementing their business strategies.	**Responsibilities of the board and management** ✓ All regulated organizations are expected to start integrating the financial risks from climate change into their governance frameworks, risk management processes, and business strategies. ✓ All regulated non-depositories are expected to conduct a risk assessment of the physical and transition risks of climate change, and start developing strategic plans, including an outline of such risks, the impact on their balance sheets, and steps to be taken to mitigate such risks. ✓ NYDFS expects each insurer to take a proportionate approach to managing climate risks that reflects its exposure to climate risks and the nature, scale, and complexity of its business. ✓ The time horizon for considering how climate risks affect business strategy should go beyond the standard three to five years to a medium-term (five to ten years) and ultimately long-term (more than ten years) view. ✓ Insurers should also conduct scenario analysis to inform their strategic planning.	**Responsibilities of the board and management** Organizations should provide: ✓ a description of what they consider to be the relevant short, medium, and long-term time horizons, considering the useful life of the organization's assets or infrastructure and the fact that climate-related issues often manifest themselves over the medium and longer terms; ✓ a description of the specific climate-related issues potentially arising in each time horizon (short, medium, and long term) that could have a material financial impact on the organization; and ✓ a description of the process(es) used to determine which risks and opportunities could have a material financial impact on the organization. Discuss how identified climate-related issues have affected their businesses, strategy, and financial planning. Describe how climate-related issues serve as an input to their strategy and financial planning, the time period(s) used, and how these risks and opportunities are prioritized. Describe the impact of climate-related issues on their financial performance and financial position. Consider disclosing metrics that support their scenario analysis and strategic planning process and that are used to monitor the organization's business environment from a strategic and risk management perspective.

Key differences across sources

Note: All OCC, NYDFS and TCFD guidelines, and certain guidelines of BCBS on strategic planning, are general in nature and do not correspond to any specific group like management, board, etc.

Comparison of principles across different jurisdictions – Risk Management

Below table shows **differences** across issuances from different jurisdictions:

Sub Themes	OCC	BCBS	NYDFS	TCFD
Risk management framework – Regulators have prescribed certain considerations that should be incorporated into risk management framework of organizations.	++	++	+++	+++

Themes	OCC	BCBS	NYDFS	TCFD
Risk Management	**Responsibilities of the board and management** ✓ Input from stakeholders across the organization with relevant expertise (e.g., business units, independent risk management, and legal) should be included in risk identification process. ✓ Incorporate climate-related risks into organization's internal control frameworks, including internal audit. ✓ Develop processes to measure and monitor material climate-related financial risks and to inform management about the materiality of those risks. **Responsibilities of management** ✓ Oversee the development and implementation of processes to identify, measure, monitor, and control climate-related financial risk exposures within the bank's existing risk management framework.	**Responsibilities of the board and management** ✓ All climate-related financial risks that could materially impair banks' financial condition should be identified, monitored and managed. ✓ Risk appetite and frameworks for risk management should consider all material climate-related financial risks. ✓ Carry out a comprehensive assessment of climate-related financial risks regularly and set clear definitions and thresholds for materiality. ✓ Due to evolving nature of climate-related risks, banks should monitor upcoming developments to identify and manage risks that may not yet be apparent. ✓ Banks should incorporate climate-related financial risks in their internal control frameworks.	**Responsibilities of the enterprise risk management (ERM) function** Managing risks, including climate risks, is an ongoing ERM activity, operating at many levels within the organization. Insurers and other entities that are required to have ERM functions should: ✓ tackle climate risks through their existing ERM functions, in line with their board-approved risk appetites; ✓ identify, assess, monitor, manage, and report their exposure towards these risks in a method that is aligned with the nature of risks and their businesses; ✓ document in their written ERM and board risk reports the material climate risks considered, along with their transmission channels and impact on existing risk factors; ✓ manage and monitor these risks using time horizons that are aligned to the type of insurer, its activities, and the business decisions. Insurers should have a process in place that identifies and prioritizes all reasonably foreseeable and relevant material risks, including climate risks. Insurers should consider climate risks in setting their risk appetite, tolerances, and limits.	**Responsibilities of the board and management** Organizations should: ✓ determine the relative significance of climate-related risk in relation to other risks. ✓ describe how they make decisions to mitigate, transfer, accept and control the climate – related risks. ✓ describe how the processes for risk identification, assessment, and management are integrated into their overall risk management. ✓ consider disclosing the processes for assessing the potential size/scope of an identified climate risk and the definition of risk terminology used.

Key differences across sources

Note: All BCBS, NYDFS and TCFD guidelines, and certain guidelines of OCC on risk management, are general in nature and do not correspond to any specific group like management, board, etc.

Comparison of principles across different jurisdictions – Risk Measurement and Reporting

Below table shows **differences** across issuances from different jurisdictions:

Sub Themes	OCC	BCBS	NYDFS	TCFD
Risk data reporting – Method and Timeliness of representing climate-related risks data	++	++	+	++
Measurement of climate-related risk – Availability of relevant data to determine climate risk accurately	+++	++	+++	+

Themes	OCC	BCBS	NYDFS	TCFD
Data, Risk Measurement, and Reporting	**Responsibilities of management** ✓ Deploy effective risk data aggregation and reporting capabilities to capture and report material and emerging climate-related financial risk exposures, segmented or stratified by physical and transition risks, based upon the complexity and types of exposures. ✓ Monitor developments in climate risk measurement and modelling and incorporate them into their climate risk management as warranted. ✓ Incorporate climate-related financial risk information into the bank's internal reporting, monitoring, and escalation processes.	**Responsibilities of management** ✓ Ensure that the bank's internal reporting systems are capable of monitoring material climate-related financial risks and producing timely information to ensure effective board and senior management decision-making. ✓ Actively engage clients and counterparties to collecting additional data to develop a better understanding of their transition strategies and risk profiles. ✓ Ensure that the reporting is timely and regular. ✓ Consider an appropriate interval for updating internal risk reports, considering the evolving nature of climate-related financial risks.	**Responsibilities of the board and management** ✓ NYDFS recommends insurers to deploy prudent risk management and look at the full range of potential future outcomes and consider forward-looking data for climate-related risks. ✓ Insurers relying on vendor models or third-party managers are encouraged to engage with their vendors and third-party managers to understand their assumptions and limitations. ✓ Insurers can proactively reduce uncertainty and data gaps by collecting data from their customers and collaborating with peers, academics, and regulators about climate risks. ✓ Insurers are expected to report to their boards with information about their exposure towards material climate risks, mitigating actions, and the time frame within which the insurers propose to take these actions.	**Responsibilities of the board and management** ✓ Consider including metrics on climate-related risks associated with water, energy, land use, and waste management where relevant and applicable. ✓ TCFD recommends organizations to provide the key metrics used to measure and manage climate-related risks and opportunities which are consistent with the cross-industry, climate-related metric categories.

Note: NYDFS and TCFD guidelines on data, risk measurement and reporting are general in nature and does not correspond to any specific group like management, board, etc.

Comparison of principles across different jurisdictions – Scenario Analysis

Below table shows **differences** across issuances from different jurisdictions:

Sub Themes	OCC	BCBS	NYDFS	TCFD
Objectives/Considerations in Scenario Analysis Framework – Regulators have mentioned certain objectives that should be included in Scenario Analysis Framework	+++	+++	+++	+++

Themes	OCC	BCBS	NYDFS	TCFD
Scenario Analysis	**Responsibilities of the board and management** The scenario analysis ✓ should be subjected to oversight, validation, and quality control standards that would be aligned to risk of the banks. ✓ should be communicated clearly and regularly to all relevant stakeholders within the bank. **Responsibilities of management** Develop and implement climate-related scenario analysis frameworks, which are commensurate to the bank's size, complexity, business, and risk profile. The frameworks should include clearly defined objectives which could include: ✓ exploring the impacts of climate-related risks on the bank's strategy and business model; ✓ identifying and measuring vulnerability to relevant climate-related risk factors including physical and transition risks; and ✓ estimating climate-related exposures and potential losses across a range of plausible scenarios.	**Responsibilities of the board and management** Utilize scenario analysis to assess the resilience of their business models and strategies towards plausible climate-related scenarios. Ensure scenario analysis objective aligns to bank's (1) overall climate risk management objectives; (2) Size, business model and complexity. Scenario analysis should employ a range of time horizons, from short to long-term, in order to target different risk management objectives. The scenario analysis objectives should include: i. exploring the impacts of climate change and the transition to a low-carbon economy on the bank's strategy and the resiliency of its business model; ii. identifying relevant climate-related risk factors; iii. measuring vulnerability to climate-related risks and estimating exposures and potential losses; iv. diagnosing data and methodological limitations in climate risk management; and v. informing the adequacy of the bank's risk management framework.	**Responsibilities of the board and management** In case climate risks are material, climate change scenario analysis should be embedded in insurers' corporate governance structures, risk management practices, and Own Risk and Solvency Assessments (ORSAs). Insurers should consider: i. the impact of climate risks on their assets and liabilities; ii. the impact of physical and transition risks; iii. the evolution of climate risks under various scenarios, such as multiple carbon emissions and temperature pathways, etc.; iv. the fact that climate risks may not be fully reflected in historical data; and v. the way climate risks may materialize in the short, medium, and long term. **Responsibilities of the ERM function** Insurers' ERM functions must provide identification and measurement of risk for a sufficiently wide range of outcomes, by using techniques aligned to nature, scale, and complexity of the insurer's risks.	**Responsibilities of the board and management** ✓ Discuss the climate-related scenarios and the associated time horizons. ✓ Familiarize oneself with relevant climate risk scenarios developed by the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC). ✓ Integrate scenario analysis into strategic planning and assign oversight to relevant board committees/sub-committees. ✓ Assess materiality of climate-related risks by determining current as well as anticipated organizational exposures to climate-related risks and opportunities. ✓ Organizations should identify what scenarios (and narratives) are appropriate, given the exposures and use the results to identify applicable decisions to manage the identified risks and opportunities.

Key differences across sources

Note: All BCBS and TCFD guidelines, and certain guidelines of OCC and NYDFS on scenario analysis, are general in nature and do not correspond to any specific group like management, board, etc.

Comparison of principles across different jurisdictions – Management of Risk Areas (1 of 2)

Below table shows **differences** across issuances from different jurisdictions:

Sub Themes	OCC	BCBS	NYDFS	TCFD
Risk management framework – Regulators have prescribed certain measures/guidelines that should be incorporated into risk management framework of organizations.	++	++	+++	+++

Themes	OCC	BCBS	NYDFS	TCFD
Management of Risk Areas	**Responsibilities of the board and management** ✓ For effective credit risk management, consider climate-related financial risks as part of the underwriting and ongoing monitoring of portfolios. ✓ Monitor climate-related credit risks through sectoral, geographic, and single-name concentration analyses, including credit risk concentrations stemming from physical and transition risks. ✓ Assess whether climate-related financial risks could affect liquidity buffers and, if so, incorporate those risks into their liquidity risk management and liquidity buffers. ✓ Monitor interest rate risk and other model inputs for greater volatility or less predictability due to climate-related financial risks. ✓ Monitor how climate-related financial risks affect the bank's exposure to risk related to changing prices.	**Responsibilities of the board and management** ✓ Banks should understand the impact of climate-related risk drivers on their credit, operational, liquidity risk profiles and market risk positions and ensure that credit, operational, liquidity and market risk management systems and processes consider material climate-related financial risks. ✓ Banks should have clearly articulated credit policies and processes to address material climate-related credit risks and incorporate consideration of material climate-related financial risks into the entire credit life cycle. ✓ Given the specific characteristics of market risk, analysis of a sudden shock scenario could help in understanding and assessing the relevance of climate-related financial risks to a bank's trading book. ✓ Consider risk mitigation measures in credit, market, liquidity and operational risk profiles, such as establishing internal limits for climate-related financial risks.	**Responsibilities of the board and management** ✓ NYDFS expects all regulated organizations should to include an enterprise-wide risk assessment to evaluate climate change and its impacts on risk factors, such as credit risk, market risk, liquidity risk, operational risk, reputational risk, and strategy risk. ✓ All regulated non-depositories are expected to conduct a risk assessment of the physical and transition risks of climate change, and start developing strategic plans, including an outline of such risks, the impact on their balance sheets, and steps to be taken to mitigate such risks. ✓ Insurers should consider how climate-related events could have an adverse impact on their assets and business continuity, leading to increased operational costs and reputational or liability risks. ✓ Insurers should consider the negative publicity that may be triggered by insurers' underwriting or investing in sectors perceived as contributing to climate change. ✓ Insurers should consider the impact of climate change on their underwriting activities and pricing models.	**Responsibilities of the board and management** ✓ Consider characterizing climate-related risks in the context of traditional banking industry risk categories such as credit risk, market risk, liquidity risk, and operational risk. ✓ Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.

Key differences across sources

Note: All OCC, BCBS, TCFD guidelines, and certain guidelines of NYDFS on Management of Risk Areas, are general in nature and do not correspond to any specific group like management, board, etc.

Comparison of principles across different jurisdictions – Management of Risk Areas (2 of 2)

Below table shows **differences** across issuances from different jurisdictions:

Sub Themes	OCC	BCBS	NYDFS	TCFD
Risk management framework – Regulators have prescribed certain measures/guidelines that should be incorporated into risk management framework of organizations.	++	++	+++	+++

Themes	OCC	BCBS	NYDFS	TCFD
Management of Risk Areas	**Responsibilities of the board and management** ✓ Consider how climate-related financial risk exposures may adversely impact a bank's operations, control environment, operational resilience, business continuity, evolving legal and regulatory landscape. ✓ Consider possible fair lending concerns and possible changes to legal requirements for, or underwriting considerations related to, flood or disaster-related insurance. ✓ Consider the extent to which the bank's activities may increase the risk of negative financial impact from reputational damage, liability, or litigation, and implement adequate measures to account for these risks where material.	**Responsibilities of the board and management** ✓ Scenario analyses should consider physical and transition risks as drivers of credit, market, operational and liquidity risks over a range of relevant time horizons. ✓ Assess the impact of climate-related risk drivers on other risks, such as strategic, reputational, regulatory compliance, and liability risk, and take such risks—where material—into account as part of the risk management and strategy setting processes.	**Responsibilities of the board and management** ✓ Insurers should consider whether climate risks could impact the correlation between investments and underwriting, or among investments. ✓ Insurers should monitor evolving climate-related regulatory requirements and consider the impact of litigation on the companies, regions, and countries in which they invest. ✓ Insurers should consider the challenges posed by physical or transition-related climate events, trends, and scenarios, which could adversely affect insurers' competitive position and financial condition. **Responsibilities of the ERM function** ✓ Analyze how physical and transition risks could materialize for the insurer's branded risk factors, including credit risk, legal risk, liquidity risk, market risk, operational risk, pricing and underwriting risk, reputational risk, and strategic risk.	**Responsibilities of the board and management** ✓ Provide the key metrics used to measure and manage climate-related risks and opportunities.

Key differences across sources

Note: All OCC, BCBS, TCFD guidelines, and certain guidelines of NYDFS on Management of Risk Areas, are general in nature and do not correspond to any specific group like management, board, etc.

References

References	
Regulator	**Issuances Link**
OCC	Principles for Climate-Related Financial Risk Management
BCBS	Principles for the effective management and supervision of climate-related financial risk
NYDFS	Industry Letter: CRA Consideration for Activities that Contribute to Climate Mitigation and Adaptation (Feb 2021) Climate Change and Financial Risks affecting New York State Regulated Financial Institutions (Oct 2020) Guidance for New York Domestic Insurers on Managing the Financial Risks from Climate Change (Nov 2021)
TCFD	Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures

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