

CONSULTATION PAPER

P003-2020

June 2020

Proposed Guidelines on Environmental Risk Management (Banks)

MAS

Monetary Authority of Singapore

Contents

1	Preface	3
2	MAS' Supervisory Approach to Environmental Risk	4
3	Applicability of the Guidelines	6
4	Proposed Guidelines	6
5	Implementation Approach.....	10
	Annex A: List of Questions	11
	Annex B: Proposed Guidelines on Environmental Risk Management (Banks)	13

1 Preface

1.1 The Monetary Authority of Singapore (“MAS”) is proposing to introduce Guidelines on Environmental Risk Management (the “Guidelines”), to enhance financial institutions’ (“FIs”) resilience to and management of environmental risk. The Guidelines will set out sound practices in relation to FIs’ governance, risk management and disclosure of environmental risk. The Guidelines were co-created with FIs and industry associations from the banking, insurance and asset management sectors.

1.2 The Guidelines are tailored to each sector based on its business activities and risk management practices. This consultation paper pertains to the Guidelines for banks, merchant banks and finance companies.

1.3 MAS invites comments from FIs and other interested parties on the Guidelines.

Please note that all submissions received will be published and attributed to the respective respondents unless they expressly request MAS not to do so. As such, if respondents would like:

- (i) their whole submission or part of it (but not their identity), or**
- (ii) their identity along with their whole submission,**

to be kept confidential, please expressly state so in the submission to MAS. MAS will only publish non-anonymous submissions. In addition, MAS reserves the right not to publish any submission received where MAS considers it not in the public interest to do so, such as where the submission appears to be libellous or offensive.

1.4 Please submit your comments to the consultation paper by 7 Aug 2020 at the link below –

Banks, merchant banks and finance companies:

<https://eservices.mas.gov.sg/survey/se/0DE6A2EA5077CFF2>

2 MAS' Supervisory Approach to Environmental Risk

2.1 Environmental risk is increasingly recognised as a key global risk, with climate change at the forefront of these concerns. The Intergovernmental Panel on Climate Change ("IPCC") estimates that continued carbon emission, in line with historical rates, would likely lead to global warming of 1.5 °C between 2030 and 2052¹. This would increase the probability of pervasive and irreversible impact for people and ecosystems. Growing environmental pressures are also disrupting economic activities and human well-being. For example, there has been a significant rate of decline in biodiversity worldwide, alongside a significant alteration of three-quarters of the land and more than 60% of the marine environment, which are caused by human actions².

2.2 At the national level, tackling climate change is a key priority, as it poses an existential challenge for Singapore. Singapore is doing its part to support a low-carbon future, including through its enhanced 2030 Nationally Determined Contribution to the Paris Agreement and its Long-Term Low Emissions Development Strategy.

2.3 Environmental risk not only gives rise to reputational concerns, but also bears a financial impact on FIs and the assets they manage on behalf of their customers, through physical and transition risk channels. Physical risk arises from the impact of weather events and long-term or widespread environmental changes. This can impair the collateral value of bank loans and revenue generating assets of investee companies, and lead to significant insurance claims. Transition risk arises from the process of adjustment to an environmentally sustainable economy, including changes in public policies, disruptive technological developments, and shifts in consumer and investor preferences. For example, loans and investments in carbon-intensive sectors can be impaired, as the profitability of these businesses are impacted in the transition to a low-carbon economy. These losses can be compounded by other environmental risks including changes in land use, pollution and loss of biodiversity, which cause more severe impact on the financial system.

2.4 The financial sector should take concerted action to address the impact of environmental risk and support a smooth transition to an environmentally sustainable

¹ IPCC, *Global Warming of 1.5 degrees, Summary for Policymakers*, 2018.

² Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, *Global Assessment Report on Biodiversity and Ecosystem Services*, 2019.

economy. It is crucial for FIs to build resilience against the impact of environmental risk as part of their business and risk management strategies. FIs should implement robust environmental risk management policies and processes, and effectively monitor, manage and disclose their exposures to environmental risk. Additionally, FIs can act as a “force for good” in the transition towards an environmentally sustainable economy by channelling capital through their financing, underwriting and investment activities.

2.5 MAS works closely with other financial supervisors at international forums to strengthen the financial system’s resilience to environmental risk. For example, the Central Banks and Supervisors Network for Greening the Financial System (“NGFS”), and the Sustainable Insurance Forum (“SIF”) are developing best practices for supervisors and FIs to manage the impact of environmental risk. The International Organisation of Securities Commissions (“IOSCO”) has also established a Task Force on Sustainable Finance with a similar aim of addressing issues concerning sustainability-related disclosures and investor protection.

2.6 MAS is proposing to issue the Guidelines to enhance FIs’ environmental risk management practices. The Guidelines serve as a call to action for FIs to help drive the transition to an environmentally sustainable economy, by enhancing the integration of environmental risk considerations in FIs’ financing and investment decisions, and promoting new opportunities for green financing.

2.7 FIs’ approaches to manage and disclose environmental risk are expected to mature as the methodologies for assessing, monitoring and reporting this risk evolve. MAS will update these Guidelines as appropriate to reflect the evolving nature and maturity of risk management practices.

3 Applicability of the Guidelines

3.1 MAS proposes to apply the Guidelines to all banks, merchant banks and finance companies (collectively referred to as “banks”) as follows:

- (a) banks licensed under section 4(1) of the Banking Act (Cap. 19);
- (b) merchant banks approved under section 28(2) of the Monetary Authority of Singapore Act (Cap. 186); and
- (c) finance companies licensed under section 3(1) of the Finance Companies Act (Cap. 108).

3.2 MAS recognises that the scale, scope and business models of banks can be different. A bank should implement these Guidelines in a way that is commensurate with the size and nature of its activities as well as its risk profile.

3.3 MAS proposes to apply the Guidelines to banks’ extension of credit to corporate customers and underwriting for capital market transactions. A bank should also apply the Guidelines to other activities that expose it to material environmental risk. In particular, banks with material investment activities should refer to the relevant sections of the Guidelines on Environmental Risk Management for Asset Managers, for sound practices on the management of environmental risk with respect to investments.

Question 1. MAS seeks comments on the entities and business activities that are in the proposed scope of the Guidelines.

4 Proposed Guidelines

Governance and Strategy

4.1 The Guidelines set out MAS’ expectations on the Board and senior management to incorporate environmental considerations into the bank’s risk appetite, strategies and business plans, and to effectively oversee the bank’s environmental risk management. The proposed responsibilities of the Board include approving an environmental risk management framework and policies, and setting clear roles and responsibilities of the Board and senior management. MAS also proposes that the Board ensure that environmental risk, where material, is addressed in the bank’s risk appetite framework, so that environmental risk exposures beyond the bank’s risk appetite can be promptly recognised and addressed. The proposed responsibilities of senior management include

developing an environmental risk management framework and policies, regularly reviewing their effectiveness, and allocating adequate resources to manage environmental risk.

4.2 MAS further proposes that where environmental risk is deemed material to a bank, the bank should designate a senior management member or a committee to oversee environmental risk. This would promote clarity in accountability over environmental risk management, to ensure that such issues are reviewed at a sufficiently senior level.

Question 2. MAS seeks comments on the proposed responsibilities of the Board in overseeing environmental risk management, including its role in ensuring that environmental risk, where material, is addressed in the bank's risk appetite framework.

Question 3. MAS seeks comments on the proposed responsibilities of senior management in overseeing environmental risk management, including its role in developing an environmental risk management framework and policies, regularly reviewing their effectiveness, and allocating adequate resources to manage environmental risk.

Question 4. MAS seeks comments on the proposal for banks to designate a senior management member or a committee to oversee environmental risk, where such risk is material.

Risk Management

4.3 Banks in Singapore are currently at different stages in their implementation of environmental risk management practices, and some have made good progress in integrating environmental risk considerations into their financing practices. It is important for banks to develop a risk management framework, and put in place robust policies and processes to manage both the financial and reputational impact of environmental risk. In this regard, the bank should identify, assess, mitigate and monitor material environmental risk at both a customer and portfolio level.

4.4 At the customer level, MAS proposes for the bank to undertake an environmental risk assessment of each customer as part of its assessment process for credit facilities or

capital markets transactions, particularly for sectors with higher environmental risk. To inform its assessment, the bank should develop sector-specific policies, which articulate its expectations towards customers in sectors with higher environmental risk. For transactions with higher environmental risk, MAS proposes for the bank to undertake enhanced due diligence, and escalate to an internal committee or appointed individual for approval where applicable. Such processes are intended to bring about a greater level of scrutiny and accountability on such transactions, and ensure that the bank's exposures to environmental risk are well understood and managed. The bank should also engage each customer that poses higher risk, to improve its environmental risk profile, and support its transition towards sustainable business practices. For a customer that does not manage its environmental risk adequately, the Guidelines propose a range of mitigating options for banks, including reflecting the cost of the additional risk in the loan pricing, applying limits on the loan exposure, and re-assessing the customer relationship.

4.5 At the portfolio level, MAS proposes for the bank to develop tools and metrics to monitor and assess its exposures to environmental risk. Such tools would enhance the bank's capacity to measure the impact of environmental risk on its business, and take appropriate mitigating measures to manage significant risk in its portfolio. For example, these metrics may be used to assess the bank's portfolio exposures to geographical areas and sectors with higher environmental risk, measure the carbon intensity of customers in high-risk sectors, or consider the impact of environmental risk on its collateral valuations. MAS also proposes for the bank to develop capabilities in scenario analysis and stress testing to assess the impact of environmental risk on its risk profile and business strategies, and explore its resilience to financial losses. These scenarios should incorporate forward-looking information to complement historical data, as the latter might systemically underestimate potential risks, in view of the uncertainties and long-term horizon associated with changes in the environment.

Question 5. MAS seeks comments on the expectation for banks to engage each customer that poses higher environmental risk to improve its risk profile and support its transition towards sustainable business practices.

Question 6. MAS seeks feedback on the expectation for banks to develop tools and metrics to monitor and assess their exposures to environmental risk, and examples of the aforementioned tools and metrics that may be adopted.

Question 7. MAS seeks comments on whether there are specific aspects of environmental risk management policies and processes that would benefit from further supervisory guidance.

Disclosure

4.6 Meaningful disclosure of a bank's environmental risk information improves the ability of stakeholders to factor in environmental risk considerations in their financial decisions. This facilitates market discipline, and contributes to more efficient allocation of capital over time.

4.7 MAS proposes that a bank disclose, at least annually, its approach to managing environmental risk and the potential impact of material environmental risk on the bank. The latter includes quantitative metrics such as exposures to sectors with higher environmental risk. A bank's disclosure may be consolidated at the group or head office level.

4.8 MAS also proposes that banks take reference from international reporting frameworks, including the Financial Stability Board's Task Force on Climate-related Financial Disclosures ("TCFD"), to guide their environmental risk disclosures. The TCFD recommendations provide a useful framework for the disclosure of climate-related risks.

Question 8. MAS seeks comments on the proposed form and frequency of disclosure of environmental risk by a bank.

General

4.9 In addition to the areas highlighted above, MAS welcomes comments on other aspects of the Guidelines.

Question 9. MAS seeks comments on any aspects of the Guidelines that have not been covered in earlier questions.

5 Implementation Approach

5.1 MAS has included examples of sound practices in relation to banks' governance, risk management and disclosure of environmental risk in the Guidelines, to facilitate implementation. The examples are meant to be illustrative and are not exhaustive. MAS welcomes suggestions of other examples of environmental risk management practices currently implemented by banks which would meet the expectations in the Guidelines. The examples, if incorporated in the Guidelines, will not be attributed to any individual FI.

5.2 MAS is cognisant that the maturity of environmental risk management practices vary among banks. Some banks may face initial challenges in implementing the Guidelines, including in relation to the availability of data and expertise for environmental risk management. Hence, MAS proposes to provide a transition period of 12 months after the Guidelines are issued, for banks to assess and implement the Guidelines as appropriate.

Question 10. MAS requests for examples of sound risk management practices currently implemented by banks, which would meet the expectations in the Guidelines.

Question 11. MAS seeks comments on the proposed implementation approach, including the proposed transition period of 12 months.

Annex A

LIST OF QUESTIONS

- Question 1.** MAS seeks comments on the entities and business activities that are in the proposed scope of the Guidelines.6
- Question 2.** MAS seeks comments on the proposed responsibilities of the Board in overseeing environmental risk management, including its role in ensuring that environmental risk, where material, is addressed in the bank’s risk appetite framework. 7
- Question 3.** MAS seeks comments on the proposed responsibilities of senior management in overseeing environmental risk management, including its role in developing an environmental risk management framework and policies, regularly reviewing their effectiveness, and allocating adequate resources to manage environmental risk.7
- Question 4.** MAS seeks comments on the proposal for banks to designate a senior management member or a committee to oversee environmental risk, where such risk is material.....7
- Question 5.** MAS seeks comments on the expectation for banks to engage each customer that poses higher environmental risk to improve its risk profile and support its transition towards sustainable business practices.8
- Question 6.** MAS seeks feedback on the expectation for banks to develop tools and metrics to monitor and assess their exposures to environmental risk, and examples of the aforementioned tools and metrics that may be adopted.8
- Question 7.** MAS seeks comments on whether there are specific aspects of environmental risk management policies and processes that would benefit from further supervisory guidance.9
- Question 8.** MAS seeks comments on the proposed form and frequency of disclosure of environmental risk by a bank.....9
- Question 9.** MAS seeks comments on any aspects of the Guidelines that have not been covered in earlier questions.9
- Question 10.** MAS requests for examples of sound risk management practices currently implemented by banks, which would meet the expectations in the Guidelines.10

Question 11. MAS seeks comments on the proposed implementation approach, including the proposed transition period of 12 months. 10

Annex B

**PROPOSED GUIDELINES ON
ENVIRONMENTAL RISK MANAGEMENT (BANKS)**

1 INTRODUCTION

1.1 These Guidelines aim to enhance the banking sector’s resilience to and management of environmental risk through setting out sound risk management practices. The Guidelines apply to all banks, merchant banks and finance companies in Singapore (collectively referred to as “banks”). The Guidelines are applicable to banks extending credit to corporate customers, underwriting capital market transactions, and other activities that expose banks to material environmental risk¹.

1.2 MAS recognises that the scale, scope and business models of banks can be different. MAS expects a bank’s approach to managing and disclosing environmental risk to mature as the methodologies for assessing, monitoring and reporting such risk evolve. A bank should implement these Guidelines in a way that is commensurate with the size and nature of its activities as well as its risk profile.

1.3 MAS will update these Guidelines as appropriate to reflect the evolving nature and maturity of risk management practices. The examples of environmental risk management practices featured in these Guidelines are meant to be illustrative, and neither prescriptive nor exhaustive.

2 SCOPE

2.1 Environmental risk arises from the potential adverse impact of changes in the environment on economic activities and human well-being². Environmental issues that

¹ Banks with material investment activities should refer to the relevant sections of the Guidelines on Environmental Risk Management (Asset Managers), for sound practices on the management of environmental risk with respect to investments.

² Based on the concept of natural capital, nature comprises of a stock of resources (e.g. water, forest, air), which provides ecosystem services (e.g. food, coastal protection, absorption of pollution) that underpin economic activities and human well-being. Drivers of environmental changes can adversely impact natural capital and disrupt the provision of ecosystem services, leading to reduced flow of benefits to the economy and people.

are of concern include climate change, loss of biodiversity, pollution and changes in land use. These environmental challenges call for urgent collective actions to address environmental risk. Climate change stands at the forefront of these concerns, with the Intergovernmental Panel on Climate Change (“IPCC”) estimating that continued carbon emissions in line with historical rates would likely lead to global warming of 1.5 °C between 2030 and 2052³. There has also been a significant rate of decline in biodiversity worldwide, alongside a significant alteration of three-quarters of the land and more than 60% of the marine environment, which are caused by human actions⁴.

2.2 Environmental risk poses potential financial and reputational impact to banks (refer to Diagram A for illustration). The financial impact on banks’ portfolios and activities can arise through physical and transition risk channels⁵. Physical risk arises from the impact of weather events and long-term or widespread environmental changes. Transition risk arises from the process of adjustment to an environmentally sustainable economy, including changes in public policies, disruptive technological developments, and shifts in consumer and investor preferences. The impact of environmental risk can vary by geography, line of business, sector, customer characteristic and other factors. As such, the extent to which environmental risk is relevant and material to a bank will vary depending on the bank’s business strategy and activities.

2.3 Environmental risk can translate into known financial risk types for banks including:

- a. Credit risk: Rising frequency and severity of extreme weather events can impair the value of assets held by banks’ customers, or indirectly impact supply chains affecting customers’ operations and profitability, and potentially, their viability. The transition to a low-carbon economy can also impact the profitability of customers in carbon-intensive businesses. In addition, punitive actions taken against customers that pollute the environment (e.g. revocation of operational permits for customers involved in open burning practices) can result in a material financial impact on these customers. Water risk (e.g. water scarcity, pollution and droughts) may increase the operating cost of companies

³ IPCC, *Global Warming of 1.5 degrees, Summary for Policymakers*, 2018.

⁴ Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, *Global Assessment Report on Biodiversity and Ecosystem Services*, 2019.

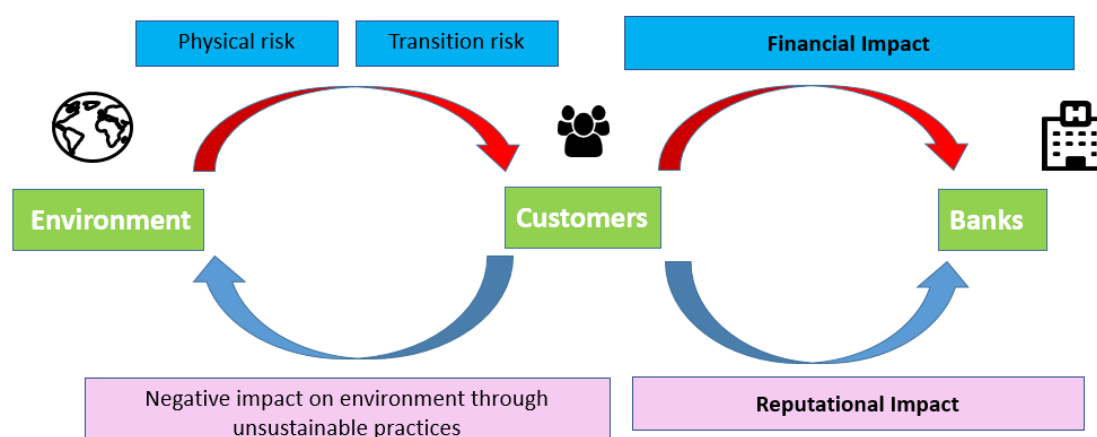
⁵ These channels are more commonly associated with climate change given the current focus on transition to a low-carbon economy. Where applicable, banks should also consider physical and transition risk channels in relation to other aspects of environmental risk beyond climate change, as methodologies for managing and disclosing such risks continue to evolve.

in water-intensive sectors. These factors can lead to increased credit risk for banks, as customers' abilities to repay their debt obligations are reduced, and collaterals held by banks are impaired.

- b. Market risk: Banks may be exposed to a decline in valuation and increased volatility in their investments (particularly in carbon-intensive sectors and companies that have contributed to significant environmental degradation) as a result of shifts in investor preferences.
- c. Liquidity risk: Natural disasters can cause widespread damage on physical property and incur significant costs (e.g. construction and repair), leading to a surge in funds withdrawal and demand for emergency loans, and exacerbating liquidity stresses in banks. Banks may also experience difficulties in liquidating assets impacted by weather events, or stranded in the transition towards an environmentally sustainable economy. Depositors and investors, who are increasingly environmentally-conscious, may also cut back on sources of funding for banks that finance activities with a negative impact on the environment.
- d. Operational risk: Severe extreme weather events can disrupt business continuity by negatively impacting the bank's infrastructure, systems, processes and staff.

2.4 Reputational risk can arise from banks financing customers that carry on business activities which have a negative impact on the environment. Negative perception of such financing activities can adversely affect banks' abilities to maintain or establish business relationships.

Diagram A: Potential financial and reputational impact of environmental risk on banks



2.5 It is crucial for banks to build resilience against the impact of environmental risk as part of their business and risk management strategies. Besides implementing robust environmental risk management policies and processes, banks can play a key role in the transition towards an environmentally sustainable economy by channelling capital through their green financing and investment activities. A gradual and smooth transition would alleviate physical and transition risks by reducing the probability of a “too little, too late” scenario, where physical costs of environmental changes may be exacerbated and policymakers would need to implement mitigation measures in a belated and disruptive manner. Engaging in green financing activities would also mitigate reputational risk for banks. The right-pricing of loans and investments to account for environmental risk will promote new opportunities for green financing. Banks can also contribute to global collective action by engaging with stakeholders such as customers, regulators, rating agencies, academia and civil society, to promote mutual understanding on environmental issues across sectors and geographies.

3 GOVERNANCE AND STRATEGY

3.1 The Board of Directors (“Board”) and senior management play critical roles in incorporating environmental considerations into the bank’s risk appetite, strategies and business plans. These include identifying environmental risks and opportunities, and evaluating the actual and potential impact of these risks and opportunities on the bank’s strategies and plans. Board and senior management should consider both the short term (within the bank’s business planning horizon) and the longer term (given that the impact may arise beyond the maturity of current portfolios and run into decades) when assessing the impact of environmental risk and opportunities.

3.2 Board and senior management should maintain effective oversight of the bank’s environmental risk management, including the policies and processes to assess, monitor and report such risk. Board and senior management should have an institution-wide view of the bank’s environmental risk exposures and oversee the integration of such risk into the bank’s enterprise risk management framework. Board and senior management are expected to periodically review the adequacy and effectiveness of the bank’s environmental risk management framework. Where environmental risk is deemed material to the bank, it should designate a senior management member or a committee to oversee environmental risk, to ensure that such issues are reviewed at a sufficiently senior level.

-
- 3.3 The Board, or a committee delegated by it⁶, is responsible for:
- a. approving an environmental risk management framework and policies to assess and manage the bank's environmental risk exposures on an ongoing basis;
 - b. ensuring that environmental risk, where material, is addressed in the bank's risk appetite framework, including the setting of qualitative and quantitative measures as appropriate. For example, the bank could establish a qualitative risk appetite statement that articulate its approach towards managing environmental risk, while quantitative risk appetite measures could include limits on aggregate exposures to sectors or customers with higher environmental risk;
 - c. setting clear roles and responsibilities of Board and senior management, including personnel who are responsible for oversight of the bank's environmental risk; and
 - d. ensuring adequate management expertise and resources for managing environmental risk, including through training and capacity building.
- 3.4 Senior management is responsible for:
- a. developing and implementing an environmental risk management framework and policies, as well as tools and metrics to monitor exposures to environmental risk, including both actual and potential impact, and resilience of the organisation's strategy to different environmental scenarios;
 - b. reviewing regularly the effectiveness of the framework, policies, tools and metrics and making appropriate revisions, taking into account changes in the bank's risk profile and business strategies;
 - c. establishing an internal escalation process for managing environmental risk (including material environmental risk exposures and exceptions to the environmental risk management framework or policies) and ensuring that appropriate and timely actions are taken to address the risk;

⁶ For a bank incorporated in Singapore, the committee should be a Board-level committee. For a bank incorporated outside Singapore, the committee could be a Board-level committee, or a management committee or body responsible for the oversight of the institution in Singapore.

-
- d. updating the Board on material environmental risk issues in a timely manner; and
 - e. allocating adequate resources with appropriate expertise to manage the bank's environmental risk.

4 RISK MANAGEMENT

Policies and Procedures

4.1 The bank should develop a risk management framework to manage environmental risk in a systematic and consistent manner. Under this framework, the bank should put in place robust policies and processes, including:

- a. Clear articulation of the roles and responsibilities of business lines and functions in managing environmental risk;
- b. Identification and assessment of environmental risk on a customer and portfolio basis, including policies covering specific sectors with higher environmental risk;
- c. Implementation of effective risk management practices and internal controls to manage environmental risk; and
- d. Effective monitoring of environmental risk and timely update to the bank's Board and senior management.

Risk Identification and Assessment

4.2. The bank should identify material environmental risk at both customer and portfolio levels (particularly for sectors with higher environmental risk), and assess the potential impact on the bank.

4.3 The bank should apply risk criteria to identify sectors with higher environmental risk. The risk criteria may include the level of greenhouse gas emissions, vulnerability to extreme weather events, and linkages to unsustainable energy practices, deforestation and pollution⁷. For sectors with higher environmental risk, the bank should develop

⁷ For reference, the Association of Banks in Singapore's Guidelines on Responsible Financing has set out a list of industries with elevated environmental, social and governance risk.

sector-specific policies, which clearly articulate the bank's expectations towards an existing or prospective customer, and where possible, take into account internationally recognised sustainability standards and certification schemes⁸, as well as the customer's strategy to manage its environmental risk.

4.4 The bank should assess each customer's environmental risk as part of its assessment process for credit facilities or capital markets transactions (collectively referred to as "transactions"). The assessment should include, where relevant, an analysis of the severity of the environmental risk, as well as capacity, commitment and track record of the customer in managing such risk. The assessment should also consider the ability and willingness of the customer to introduce risk mitigation measures. For example, in assessing the customer's environmental risk, the bank may refer to external ratings on environmental performance, or develop its own risk assessment and rating methodology. The bank may also incorporate the customer's exposures to climate transition risk in its assessment.

4.5 Transactions with higher environmental risk should be subject to the bank's enhanced due diligence, which may include site visits to the customer and separate review by in-house or external personnel with environmental risk expertise. Where applicable, such transactions should be escalated to an internal committee or appointed individual for approval. All decisions are expected to be documented appropriately.

4.6 The bank should take a consistent approach to environmental risk and issues across different business lines (e.g. credit extension and underwriting services for capital markets transactions), where possible.

Risk Management and Monitoring

4.7 The bank should actively manage and monitor its environmental risk exposures at both customer and portfolio levels. At the customer level, the bank should monitor on an ongoing basis for any adverse environment-related activity, or potential non-compliance with the bank's policies.

4.8 The bank should engage each customer that poses higher environmental risk, to improve the customer's environmental risk profile and support its transition towards sustainable business practices over time, while maintaining the bank's risk management standards. The bank may consider the use of financing conditions or covenants in loan agreements, to require a customer with higher environmental risk to take steps to

⁸ For example, the International Finance Corporation Performance Standards and the Roundtable on Sustainable Palm Oil.

manage its environmental risk within an acceptable timeframe. These conditions may include developing a sustainable transition strategy and adhering to applicable certification standards. For a customer that does not manage its environmental risk adequately, the bank should consider a range of mitigating options such as reflecting the cost of the additional risk in the loan pricing, applying limits on the loan exposure, and re-assessing the customer relationship, including declining future transactions and exiting the relationship.

4.9 The bank should encourage customers to provide relevant corporate environment-related disclosures (to the extent appropriate and applicable), to foster greater awareness of environmental risk and engender responsible behavior. To inform its risk management, the bank should also consider using data from both publicly available and proprietary sources, and work with external experts to enhance the quality of data collected to better understand a customer's environmental risk profile.

4.10 At the portfolio level, the bank should develop quantitative and qualitative tools and metrics to monitor and assess its exposures to environmental risk, where material. For example, these metrics may be used to assess the bank's portfolio exposures to geographical areas and sectors with higher environmental risk, measure the carbon intensity of customers in high-risk sectors, or consider the impact of environmental risk on its collateral valuations. In determining the environmental risk metrics, the bank should consider the materiality of the environmental risk factors, and risks of greater materiality and severity should be prioritised and monitored more closely. Where the potential impact of environmental risk is assessed to be material, the bank should take appropriate mitigating measures. For example, the bank could develop plans to manage significant concentration in its portfolio to geographies and sectors with higher environmental risk.

4.11 The bank should provide all relevant information on its material environmental risk exposures to its Board and senior management to monitor progress against the bank's risk appetite and business strategies, and to support decision making on environmental risk management. In addition, exceptions noted during the monitoring process should be addressed promptly and surfaced to senior management, or the Board, where warranted.

Scenario Analysis and Stress Testing

4.12 The bank should develop capabilities in scenario analysis and stress testing to assess the impact of material environmental risk on its risk profile and business strategies, and explore its resilience to financial losses under a range of outcomes. The bank should identify and simulate scenarios, which are plausible and relevant to the bank, while

factoring in the interlinkages between environmental risk and other risks⁹. For stress testing purposes, the bank should incorporate these risks both qualitatively and quantitatively into the scenarios¹⁰ and project its financial conditions under a base scenario and stress scenarios.

4.13 The bank should include, where relevant, short-term and long-term environmental scenarios (using conservative and regularly reviewed assumptions) into its scenario analysis and stress testing for strategic planning and risk management purposes. The analysis may incorporate an assessment of physical and transition risks across a range of climate-related scenarios, including increases in global temperature and whether the transition to a low-carbon economy occurs in an orderly or disorderly fashion. For example, on physical risk, the bank may estimate how changes in climate and extreme events can affect the productivity of assets within customers' portfolios, and impact their revenue and probability of default. On transition risk, the bank may analyse the impact of varying carbon taxes on customers' cash flows and creditworthiness. The more severe scenarios could include the implementation of aggressive climate change mitigation policies globally, for example, a sharp rise in carbon taxes, or much stricter environmental regulations. These scenarios should also incorporate forward-looking information, as an assessment that relies solely on historical data might systemically underestimate potential risks, in view of the uncertainties and long-term horizon associated with changes in the environment¹¹.

4.14 The bank should use the results of its scenario analysis and stress testing when reviewing its environmental risk management policies and practices. The bank should also maintain proper documentation of the key features of the scenario analysis and stress testing, including the choice of scenarios, reasonableness of assumptions, assessment of results, considerations on the need to take actions, and actions taken to address the risk.

⁹ While stress testing and scenario analysis are more commonly conducted for climate risk where methodologies are better established, these may also apply to other aspects of environmental risk, as generally accepted measurement practices and methodologies emerge. Banks should keep abreast of good practices in this evolving area, e.g. the Task Force on Climate-related Financial Disclosures' *Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities*, 2017.

¹⁰ In particular, quantitative parameters that correspond to specific stress testing scenarios may be informed by modelling work. Examples of such modelling include the use of statistical models to determine the frequency of flooding events, or the use of modified economic models to estimate economic or financial impact.

¹¹ Central Banks and Supervisors Network for Greening the Financial System, *Technical Supplement: Macroeconomic and financial stability: Implications of climate change*, 2019.

Capacity Building

4.15 The bank should provide training and equip its staff with adequate knowledge to assess, manage and monitor environmental risk in a rigorous, timely and efficient manner. The bank should regularly review such capacity building programmes to incorporate emerging issues relating to environmental risk management.

5 DISCLOSURE

5.1 The bank should, at least on an annual basis, disclose its approach to managing environmental risk in a manner that is clear and meaningful to its stakeholders. The bank is encouraged to disclose the potential impact of material environmental risk on the bank¹², including quantitative metrics such as exposures to sectors with higher environmental risk. The bank's disclosure may be consolidated at the group¹³ or head office level.

5.2 The bank should take reference from international reporting frameworks¹⁴, including recommendations by the Financial Stability Board's Task Force on Climate-related Financial Disclosures ("TCFD"), to guide its environmental risk disclosure. The TCFD recommendations provide a useful framework for the disclosure of climate-related risks as follows¹⁵:

- a. Governance, including the Board's oversight and management's role in assessing and managing climate-related risks and opportunities;
- b. Strategy, in relation to the actual and potential impact of climate-related risks and opportunities on the bank's businesses, strategy and financial planning, where such information is material;
- c. Risk management, with regard to how the bank identifies, assesses and manages climate-related risks; and

¹² The bank should make the disclosure in a sustainability report, annual report and/or on its official website.

¹³ Group refers to the ultimate holding company, its subsidiaries and any other company or entity treated as part of the ultimate holding company's group of companies according to the Accounting Standards.

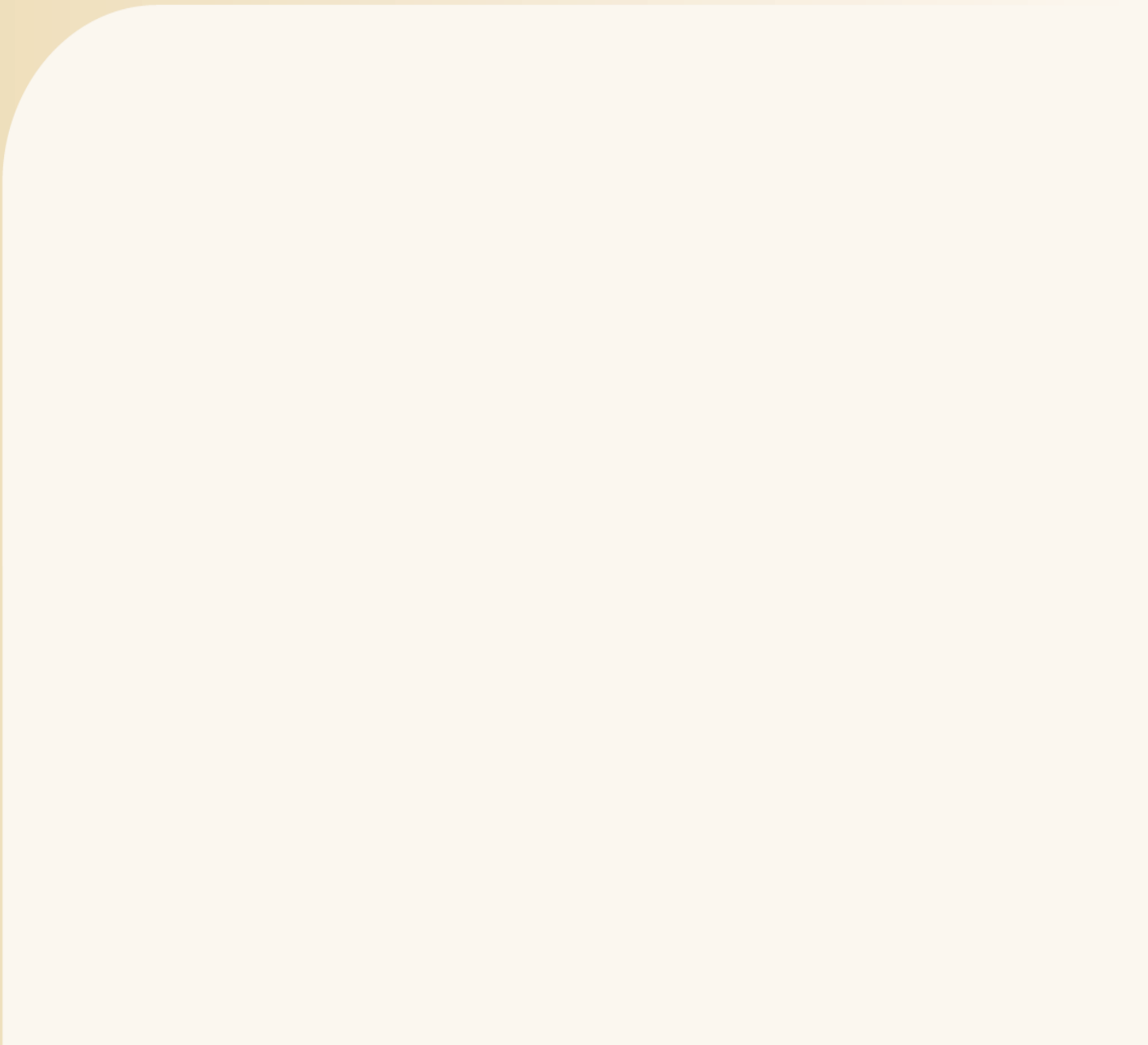
¹⁴ For example, standards and frameworks set by the Global Reporting Initiative, Sustainability Accounting Standards Board and Climate Disclosure Standards Board.

¹⁵ TCFD, *Recommendations of the Task Force on Climate-related Financial Disclosures*, 2017.

-
- d. Metrics and targets, to assess and manage relevant climate-related risks and opportunities where such information is material¹⁶.

5.3 The bank should review its disclosure regularly to improve its comprehensiveness, clarity and relevance, taking into account generally accepted measurement practices and methodologies.

¹⁶ For example, TCFD recommends the disclosure of Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas emissions, and the related risks. Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.



Monetary Authority of Singapore