CONSULTATION PAPER

P004-2020

June 2020

Proposed Guidelines on Environmental Risk Management (Insurers)

Monetary Authority of Singapore

Contents

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 insurers.

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 –

Insurers: https://eservices.mas.gov.sg/survey/se/0DE6A2EA549340D4

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 2052[1]. 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 actions[2].

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 insurers, including insurers carrying on business in Singapore under a foreign insurer scheme established under Part IIA of the Insurance Act (Cap. 142).

3.2 MAS recognises that the scale, scope and business models of insurers can be different. An insurer 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 insurers' underwriting and investment activities. An insurer should also apply the Guidelines to other activities that expose it to material environmental risk.

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 insurer's risk appetite, strategies and business plans, and to effectively oversee the insurer'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 insurer's risk appetite framework, so that environmental risk exposures beyond the insurer'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 an insurer, the insurer 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 insurer'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 insurers to designate a senior management member or a committee to oversee environmental risk, where such risk is material.

Risk Management

4.3 Insurers 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 underwriting and investing practices. It is important for insurers 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 insurer 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 insurer 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 insurer 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 insurer 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 insurer's exposures to environmental risk are well understood and managed. The insurer should also engage each customer that poses higher risk, to improve its environmental risk profile, and support its transition towards sustainable business practices.

4.5 MAS also proposes for the insurer 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 insurers 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 comments on whether there are specific aspects of environmental risk management policies and processes that would benefit from further supervisory guidance.

Underwriting

4.6 MAS proposes for insurers to incorporate environmental risk considerations into the underwriting process, taking into account the insurers' overall risk management framework and risk appetite. Where the insurer has an existing relationship with a customer who does not manage the environmental risk adequately, the insurer should consider various options such as pricing in the additional risk, applying specific limits on underwriting exposure, and re-assessing the relationship with the customer, which may include exiting the relationship.

4.7 Where customers are assessed to have a higher environmental risk profile, the Guidelines set out the escalation and monitoring processes that the insurer should undertake, such as in-depth due diligence and developing tools and metrics to monitor its underwriting exposures to environmental risk. Such tools would enhance the insurer'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 insurer's underwriting exposures to geographical areas and sectors with higher environmental risk, or measure the carbon intensity of customers in high-risk sectors.

Question 7.	MAS seeks feedback on the insurers' escalation and monitoring frameworks in relation to the underwriting process in considering environmental risk, as well as the expectation for insurers to develop tools and metrics to monitor the insurers' underwriting exposures to environmental risk, and examples of the aforementioned tools and metrics that may be adopted.

Investment

4.8 From an asset selection perspective, MAS proposes measures that the insurer should undertake to ensure that it can monitor the inherent environmental risk in its investment portfolios. The insurer should also take into consideration the impact of environmental risk on its investment portfolio under various stress scenarios and time factors.

4.9 The proposed Guidelines also aim to promote responsible business behaviour by encouraging insurers to work on environmental related issues with companies who are particularly exposed to such environmental risk.

Question 8.	MAS seeks comments on the proposed and any additional measures that can be used to help the insurer monitor and mitigate the environmental risk inherent in the investment portfolio.

Disclosures

4.10 Meaningful disclosure of an insurer'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.

4.11 MAS proposes that an insurer discloses, at least annually, its approach to managing environmental risk and the potential impact of material environmental risk on the insurer. The latter includes quantitative metrics such as exposures to sectors with higher environmental risk. An insurer's disclosure may be consolidated at the group[3] or head office level.

4.12 MAS also proposes that insurers 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 disclosure. The TCFD recommendations provide a useful framework for the disclosure of climate-related risks.

Question 9.	MAS seek comments on the proposed form and frequency of disclosure of environmental risk by an insurer.

General

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

Question 10.	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 insurers' 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 insurers 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 insurers. Some insurers 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

[3] 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.

the Guidelines are issued, for insurers to assess and implement the Guidelines as appropriate.

Question 11.	MAS requests for examples of sound risk management practices currently implemented by insurers, which would meet the expectations in the Guidelines.
Question 12.	MAS seeks comments on the proposed implementation approach, including the proposed transition period of 12 months.

Annex A

LIST OF QUESTIONS

Annex B

PROPOSED GUIDELINES ON ENVIRONMENTAL RISK MANAGEMENT (INSURERS)

1 INTRODUCTION

1.1 These Guidelines aim to enhance the insurance sector's resilience to and management of environmental risk through setting out sound risk management practices. The Guidelines apply to all insurers, including insurers carrying on business in Singapore under a foreign insurer scheme established under Part IIA of the Insurance Act (Cap. 142). The Guidelines are applicable to insurers' underwriting and investment activities, and other activities that expose insurers to material environmental risk.

1.2 MAS recognises that the scale, scope and business models of insurers can be different. MAS expects an insurer's approach to managing and disclosing environmental risk to mature as the methodologies for assessing, monitoring and reporting such risk evolve. An insurer 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-being[1]. Environmental issues that 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

[1] 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.

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^{o}C between 2030 and 2052[2]. 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 actions[3].

2.2 Environmental risk poses potential financial and reputational impact to insurers (refer to Diagram A for illustration). The financial impact on insurers' portfolios and activities can arise through physical and transition risk channels[4]. 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 an insurer will vary depending on the insurer's business strategy and activities.

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

a. Market risk: Insurers 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.

b. Operational risk: Severe extreme weather events can disrupt business continuity by negatively impacting the insurer's infrastructure, systems, processes and staff.

c. Insurance risk: More frequent and severe natural catastrophe events can result in higher claims and underwriting losses. Environmental risk may also lead to higher liability risk, which include the risk of environmental-related claims

[2] IPCC, *Global Warming of 1.5 degrees, Summary for Policymakers*, 2018.

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

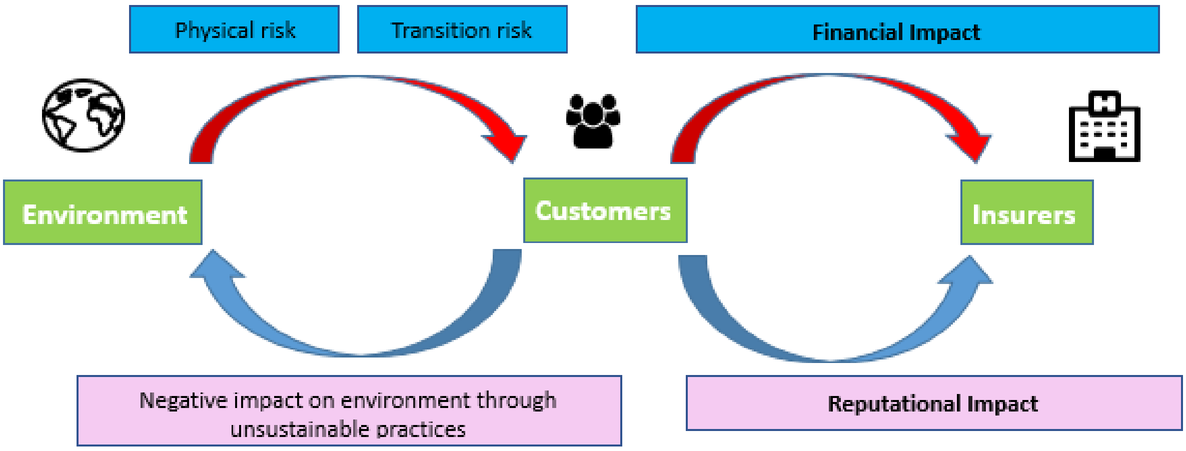
[4] These channels are more commonly associated with climate change given the current focus on transition to a low-carbon economy. Where applicable, insurers should also consider physical and transition risk channels in relation to other aspects of environmental risk beyond climate change, as methodologies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

under liability policies as well as direct claims against insurers for failing to manage environmental risk. For instance, insurers may be exposed to greater liability risk stemming from directors and officers policies, where the management of the insured may not have considered or responded to the impacts of climate change and environmental risk.

d. Liquidity risk: Natural disasters can cause widespread damage on physical property and incur significant costs (e.g. construction and repair) when the insurance risk materialises, leading to a surge in need for funds, and exacerbating liquidity stresses in insurers. Insurers may also experience difficulties in liquidating assets impacted by weather events, or stranded in the transition towards an environmentally sustainable economy. Investors, who are increasingly environmentally-conscious, may also cut back on sources of funding for insurers that underwrite activities with a negative impact on the environment.

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

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



2.5 It is crucial for insurers 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, insurers can play a key role in the transition towards an environmentally sustainable economy by channelling capital through their underwriting 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. Contributing to sustainable activities would also mitigate reputational risk for insurers. Insurers 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 insurer'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 insurer's strategies and plans. Board and senior management should consider both the short term (within the insurer'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 risks and opportunities.

3.2 Board and senior management should maintain effective oversight of the insurer'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 insurer's environmental risk exposures and oversee the integration of such risk into the insurer's enterprise risk management framework. Board and senior management are expected to periodically review the adequacy and effectiveness of the insurer's environmental risk management framework. Where environmental risk is deemed material to the insurer, 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 it[5], is responsible for:

a. approving an environmental risk management framework and policies to assess and manage the insurer's environmental risk exposures on an ongoing basis;

[5] For an insurer incorporated in Singapore, the committee should be a Board-level committee. For an insurer 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.

b. ensuring that environmental risk, where material, is addressed in the insurer's risk appetite framework, including the setting of qualitative and quantitative measures as appropriate. For example, the insurer 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 insurer'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 insurer'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;

d. updating the Board on material environmental risk issues in a timely manner; and

e. allocating adequate resources with appropriate expertise to manage the insurer's environmental risk.

4 RISK MANAGEMENT

Policies and Procedures

4.1 As required under MAS Notice 126 (Enterprise Risk Management), an insurer should have in place an enterprise risk management ("ERM") framework which provides for the identification and quantification of relevant and material risks, including environmental risk.

Risk Identification and Assessment

4.2 The insurer should identify material environmental risk (particularly for sectors with higher environmental risk) and assess the potential impact on the insurer.

4.3 The insurer 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 pollution[6]. For sectors with higher environmental risk, the insurer should develop sector-specific policies, which clearly articulate the insurer's expectations towards an existing or prospective customer, and where possible, take into account internationally recognised sustainability standards and certification schemes[7], as well as the customer's strategy to manage its environmental risk.

4.4 The insurer should take a consistent approach to environmental risk and issues across different functions (e.g. underwriting and investment functions), where possible.

Risk Management and Monitoring

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

[6] Some examples (non-exhaustive) of industries with elevated environmental risk include: agriculture, chemicals, defense, forestry, infrastructure and mining.

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

4.6 The insurer should engage each customer that poses higher environmental risk, to improve the customer's[8] environmental risk profile and support its transition towards sustainable business practices over time, while maintaining the insurer's risk management standards. The insurer should also perform an analysis and assess its exposures to environmental risk where material.

4.7 The insurer should provide all relevant information on its material environmental risk exposures to its Board and senior management to monitor progress against the insurer'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

4.8 The insurer should develop capabilities in scenario analysis and stress testing consistent with MAS Notice 126 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 insurer should identify and simulate scenarios, which are plausible and relevant to the insurer, while factoring in the interlinkages between environmental risk and other risks[9]. For stress testing purposes, the insurer should incorporate these risks both qualitatively and quantitatively into the scenarios[10] and project its financial conditions under a base scenario and stress scenarios.

4.9 The insurer 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

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[8] In this context, these will be insurers' corporate customers.

[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. Insurers 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

transition to a low-carbon economy occurs in an orderly or disorderly fashion. For example, on physical risk, the insurer may estimate how changes in climate and extreme events can affect claims incurred. On transition risk, the insurer 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 environment[11].

4.10 The insurer should use the results of its scenario analysis and stress testing when reviewing its environmental risk management policies and practices. The insurer 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.

Capacity Building

4.11 The insurer 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 insurer should regularly review such capacity building programmes to incorporate emerging issues relating to environmental risk management.

5 UNDERWRITING

Integrating Environmental Issues

5.1 Underwriters should be provided with the means to check the potential impact of the proposed transaction on the environment, 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.

5.2 Insurers should develop internal guidance for processes on risk detection and risk escalation, while taking into account its overall risk management framework and risk appetite. These should be embedded as part of the insurer's underwriting policy.

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

Environmental risk appetite and processes may require greater customisation to fit into the existing processes.

Decision-Making on Environmental Risk

5.3 The insurer should assess each customer's environmental risk as part of its underwriting assessment. The assessment should include, where relevant, an analysis of the severity of 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 insurer may refer to external ratings on environmental performance, develop its own risk assessment and rating methodology or incorporate the customer's exposures to climate transition risk in its assessment. The insurer may also consider imposing underwriting conditions to require a customer with higher environmental risk to take steps to 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 insurer should consider a range of mitigating options such as reflecting the cost of the additional risk in the insurance premiums, applying limits on the underwriting exposure, and re-assessing the customer relationship, including declining future transactions and exiting the relationship. Part of the decision-making on environmental risk is to also consider if the customer has taken action to remedy or mitigate the environmental risk, which might make it acceptable. A customer's performance history regarding the management of environmental risk may inform the assessment of the effectiveness of planned mitigation measures.

Escalating Environmental Risk to Decision-Makers

5.4 Transactions with higher environmental risk should be subject to the insurer'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.

Measuring and Monitoring Underwriting Exposures

5.5 The insurer should develop quantitative and qualitative tools and metrics to monitor and assess its underwriting exposures to environmental risk, where material. For example, these metrics may be used to assess the insurer's underwriting exposures to geographical areas and sectors with higher environmental risk, or measure the carbon intensity of customers in high-risk sectors. In determining the environmental risk metrics, the insurer 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 insurer should take appropriate mitigating measures. For example, the insurer could develop plans to manage significant concentration in its portfolio to geographies and sectors with higher environmental risk.

6 INVESTMENT[12]

Ongoing Monitoring

6.1 Insurers should put in place appropriate processes and systems to monitor, assess and manage the potential and actual impact of environmental risk on individual investments and portfolios on an ongoing basis, where material.

6.2 The insurer should consider environmental impacts both from a macro, top-down, as well as from a more granular bottom-up asset selection perspective to the extent practicable. Customers from sectors deemed to be of higher environmental risk should be selected for additional scrutiny.

6.3 The insurer should consider developing mechanisms and metrics that provide a reasonable indication of the environmental risk inherent in their investment portfolios. The insurer should consider monitoring the evolution of any such identified metrics in order to assess impacts and effectiveness of any action implemented over time.

6.4 The insurer may use its own indicators to assess the environmental impacts from companies engaged in or related to these activities and other activities the insurer deems relevant. The insurer may consider using publicly available information as well as proprietary information, research, models, and ratings from internal or external providers to inform its portfolio analysis and assessments.

6.5 Should there be developments (such as occurrence of natural disasters and changes in regulations) that could materially affect the operations and financials of an investee company or substantially affect its broader investment portfolio, the insurer should promptly re-assess the risk and return profile of the individual investment or portfolio as applicable. This would allow the insurer to make an informed decision on whether to continue with the investment, make adjustments to the composition of the portfolio, or put in place other mitigating measures to better manage the environmental

[12] Insurers with investment activities should also 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.

risk in the investment or portfolio. The insurer should also escalate these material environmental risk exposures and exceptions in accordance with its internal escalation process to ensure appropriate and timely actions are taken to address the risk.

6.6 Consistent with Section 4 of these Guidelines, the insurer should undertake a comprehensive review of its investment portfolios regularly under relevant stress scenarios, to assess what the longer-term impact of environmental changes are.

6.7 The insurer should consider appropriate changes over time to mitigate the impact of any significant risks on their portfolios, whether through specific investment or divestment actions.

Promotion of responsible business behaviors

6.8 The insurer should consider engaging with companies individually and asset managers, as appropriate, to help shape the corporate behaviour of investee companies positively through engagement, proxy voting and sector collaboration. This includes supporting investee companies' efforts in the transition towards more sustainable business practices over time, while maintaining their risk management standards. Insurers should establish a process to prioritise issues and companies for engagement that is consistent with the interests of its customers and aligned with the insurer's investment objective and strategy. Insurers should maintain proper documentation of such engagement efforts, where applicable.

6.9 The insurer should consider collaborative engagement with other investors for efficiency, enhanced influence and legitimacy when engaging investee companies, and to build knowledge and skills[13].The insurer should encourage companies in which they invest to provide relevant corporate environment-related disclosures (to the extent appropriate and applicable), to foster greater awareness of environmental risk, and engender responsible behavior.

[13] Insurers can draw on resources made available as part of the Principles for Responsible Investment(PRI) , including the Introductory Guide to Collaborative Engagement and the PRI Collaboration Platform.

7 DISCLOSURE

7.1 The insurer 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 insurer is encouraged to disclose the potential impact of material environmental risk on the insurer[14], including quantitative metrics such as exposures to sectors with higher environmental risk. The insurer's disclosure may be consolidated at the group[15] or head office level.

7.2 The insurer should take reference from international reporting frameworks[16], 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 follows[17]:

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 insurer's businesses, strategy, and financial planning, where such information is material;

c. Risk management, with regard to how the insurer identifies, assesses, and manages climate-related risks; and

d. Metrics and targets to assess and manage relevant climate-related risks and opportunities where such information is material[18].

[14] The insurer should make the disclosure in a sustainability report, annual report and/or on its official website.

[15] 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.

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

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

[18] 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.

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

Monetary Authority of Singapore