



Monetary Authority of Singapore

GUIDELINES ON ENVIRONMENTAL RISK MANAGEMENT (ASSET MANAGERS)

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1 INTRODUCTION

1.1 These Guidelines apply to all holders of a capital markets services licence for fund management (“LFMC”) and real estate investment trust (“REIT”) management, and to fund management companies registered (“RFMC”) under paragraph 5(a)(i) of the Second Schedule to the Securities and Futures (Licensing and Conduct of Business) Regulations (Rg.10) [“SF(LCB)R”] (hereinafter collectively referred to as “asset managers”). The Guidelines aim to enhance the resilience of funds (including REITs) and segregated mandates (hereinafter collectively referred to as “funds/mandates”) that are managed by asset managers, by setting out sound environmental risk management practices that asset managers can adopt.

1.2 MAS recognises that the scale, scope and business models of asset managers and the investment strategies that they employ can be different. MAS expects an asset manager’s approach to managing and disclosing environmental risk to mature as the methodologies for assessing, monitoring and reporting such risk evolve. An asset manager should implement these Guidelines in a way that is commensurate with the size and nature of its activities, including the investment focus and strategy of its funds/mandates. For avoidance of doubt, the Guidelines shall not prohibit or restrict an asset manager from complying with applicable laws and discharging their fiduciary duties and other legal obligations to their customers.

1.3 Asset managers which are part of global groups¹ may take guidance from or leverage their Group’s environmental risk management governance structure, framework and policies, if they have determined that the Group’s governance structure, framework and policies meet the principles set out in these Guidelines.

1.4 MAS is cognisant that asset managers may be appointed to different roles (for instance, as an investment manager, sub-manager or advisor) in the management of a fund/mandate. The Guidelines would generally be applicable to asset managers that have discretionary authority over the investments of the funds/mandates that they are managing. Conversely, for asset managers that do not have discretionary authority over the investments of the funds/mandates, the Guidelines would not apply.

1.5 Where asset managers delegate the investment management to sub-managers or advisors, asset managers still retain overall responsibility for environmental risk management and should convey their expectations on environmental risk management to the sub-managers or advisors. Asset managers should put in place appropriate processes and procedures to assess and monitor the sub-managers’ or advisors’ compliance with the expectations set.

1.6 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 are not prescriptive or exhaustive.

¹ 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.

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 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 has the potential to financially impact funds/mandates managed by asset managers (refer to the diagram below for illustration), through physical and transition risk channels⁵.

- a. Physical risk arises from the impact of weather events and long-term or widespread environmental changes. For instance, rising frequency and severity of extreme weather events can impair the value of assets held by companies, or indirectly impact supply chains, thus affecting companies’ operations and profitability, and potentially, their viability. Water risk (e.g. water scarcity, pollution and droughts) may increase the operating cost of companies in water-intensive sectors. Investments into these companies can therefore be impaired.
- b. 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 instance, the transition to a low-carbon economy can impair the profitability of companies in carbon-intensive businesses. Punitive actions taken against companies that pollute the environment (e.g. revocation of operational permits for companies involved in open burning practices) can have a material impact on the valuation of companies in these sectors and result in stranded assets⁶. Investment portfolios

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.

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.

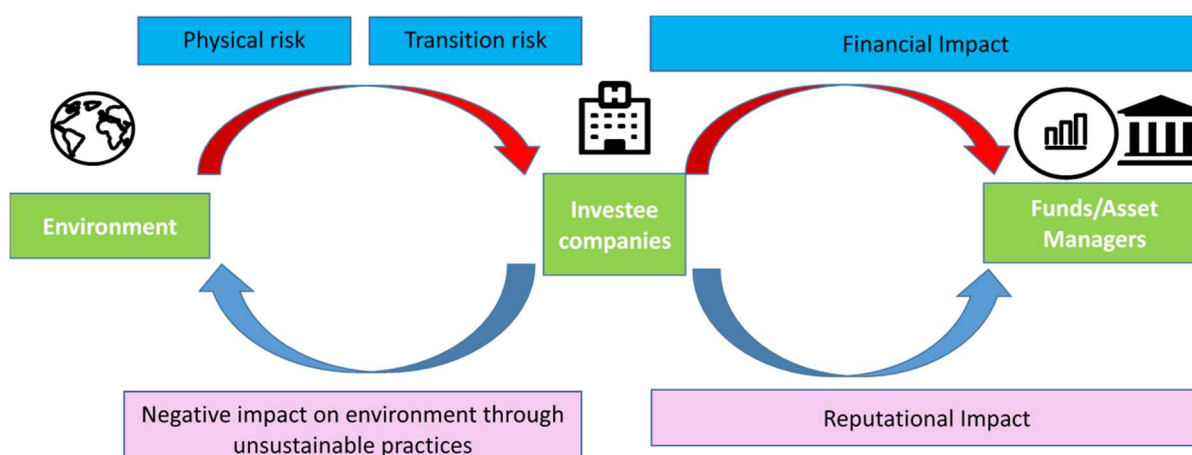
⁵ These channels are more commonly associated with climate change given the current focus on transition to a low-carbon economy. Where applicable, asset managers should also consider physical and transition risk channels in relation to other aspects of environmental risk beyond climate change, as methodologies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

⁶ Defined by the International Energy Agency to refer to “investments which are made but which, at some time prior to the end of their economic life (as assumed at the investment decision point), are no longer able to earn an economic return, as a result of changes in the market and regulatory environment brought about by climate policy”.

managed by asset managers may also be exposed to volatility and downside risk where business models are disrupted by changes in market or consumer demands to address environmental impact.

2.3 Reputational risk can arise when asset managers invest into companies that carry out business activities which have a negative impact on the environment. Negative perception of asset managers' business practices can adversely affect their abilities to maintain or grow their assets under management.

Potential financial and reputational impact of environmental risk on funds and asset managers



2.4 Environmental risk can vary by sector, geography, time horizon and other factors. As such, the extent of its relevance and materiality will vary depending on the investment horizon, focus, and strategy of the funds/mandates. For instance, environmental risk can be more significant in sectors that consume more natural resources and produce more greenhouse gas ("GHG") emissions. In terms of geography, certain countries can be more exposed to extreme weather events arising from climate change compared to others. Environmental risk, in particular physical risk, is likely to materialise over a longer time horizon. Hence, perceived future risk can be underestimated in the short term, and current asset valuations may hence be exposed to unexpected adjustments in years to come.

2.5 It is crucial for asset managers to ensure the resilience of their customers' assets against the impact of environmental risk. Besides implementing robust environmental risk management policies and processes, asset managers can play a key role in the transition towards an environmentally sustainable economy by channelling capital through their green 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 investment activities would also mitigate reputational risk for asset managers. Asset managers can also contribute to global collective action by engaging with stakeholders such as 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 determining the asset manager’s strategies, business plans and product offerings. These include identifying environmental risks and opportunities over the short and long term and evaluating the actual and potential impact of these risks and opportunities on the asset manager’s strategies, business plans and products. These should also take into consideration the asset manager’s responses to the objectives set out under international agreements such as the Paris Agreement, as well as national policies. In this regard, the Board and senior management should set the tone and articulate the asset manager’s approach on environmental risk management for the different asset classes it invests in and investment strategies that it employs.

3.2 Regulation 13(B)(1)(a) and Regulation 54A of the SF(LCB)R require all LFCMs and RFMCs, respectively, to put in place a risk management framework to identify, address and monitor the risks associated with customers’ assets that they manage, which is appropriate to the nature, scale and complexity of the assets. Regulation 13 of the SF(LCB)R also requires REIT managers to identify, address and monitor the risks associated with its business activities in a manner that is commensurate with their nature, scale and complexity. Such risks include environmental risk, to the extent that it is material to the assets managed.

3.3 The Board and senior management should maintain effective oversight of the asset manager’s environmental risk management and disclosure. They should also oversee the integration of environment risk into the asset manager’s investment risk management framework. Where environmental risk is deemed material to the assets managed, asset managers 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.

3.4 The Board, or a committee delegated by it, is responsible for:

- a. approving an environmental risk management framework and policies to assess and manage the environmental risk of the assets managed, taking into consideration the asset manager’s fiduciary role and other legal obligations vis-à-vis its customers;
- b. setting clear roles and responsibilities of the Board and senior management, including personnel and functions responsible for oversight of environmental risk of the assets managed; and
- c. ensuring that directors have adequate understanding of environmental risk, and senior management is equipped with appropriate expertise for managing environmental risk.

3.5 Senior management is responsible for:

- a. ensuring the development and implementation of an environmental risk management framework and policies, as well as tools and metrics to monitor exposures to environmental risk, including resilience of the funds/mandates managed by the company to different environmental scenarios. The framework should include how the asset manager incorporates environmental risk considerations in its investment research, portfolio construction, risk management and stewardship practices across different asset classes and investment strategies;
- b. reviewing regularly the effectiveness of the framework, policies, tools and metrics and making appropriate revisions, taking into account changes in the asset manager's business, size and complexity as well as risk environment;
- 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 that appropriate and timely actions are taken to address the risk; and
- d. allocating adequate resources with appropriate expertise, including through capacity building and training, to manage the environmental risk of the assets managed.

3.6 Senior management should also update the Board on material environmental risk issues in a timely manner. For asset managers where the Board and senior management are one and the same, both the Board and senior management would be jointly responsible for the expectations set out in paragraphs 3.4 and 3.5.

3.7 The asset manager should have in place a clear allocation of responsibilities for management of environmental risk in accordance with the three lines of defence model. Business line staff should take into consideration environmental risk when establishing and managing funds/mandates, particularly if they invest in sectors with higher environmental risk. The risk management function should monitor the business line's implementation of the asset manager's risk management policies, including challenging practices and decisions, where appropriate, while the compliance function should ensure adherence to applicable rules and regulations. The internal audit function should consider as part of its independent review, the robustness of the asset manager's risk management framework in managing environmental risks.

4 RESEARCH AND PORTFOLIO CONSTRUCTION

4.1 Asset managers should embed relevant environmental risk considerations⁷ in their research and portfolio construction processes if they have assessed them to be material. In addition to considering the investment horizon, risk and return profile of an investment and fundamental factors, such as economic conditions, central bank policy, sector trends and geopolitical risks, asset managers should also evaluate the potential impact of relevant environmental risk on an investment's return potential.

4.2 In assessing environmental risk, asset managers should consider both transition and physical risks on an individual asset and/or portfolio level and take reference from international standards and frameworks⁸.

4.3 Asset managers should apply risk criteria to identify sectors with higher environmental risk. The risk criteria may include the level of GHG emissions, vulnerability to extreme weather events, and linkages to unsustainable energy practices, deforestation and pollution. For sectors with higher environmental risk, asset managers should develop sector-specific guidance to aid its investment personnel in understanding the environmental issues pertinent to such sectors. Where appropriate, the guidance could take into account internationally recognised sustainability standards and certification scheme⁹, as well as the investee company's strategy to manage its environmental risk.

4.4 In considering the materiality of environmental risk with respect to the different asset classes (such as public equity, fixed income, and real estate/infrastructure), asset managers can take reference from the following examples:

- a. For equity investments, asset managers could consider the primary environmental risk factors that would affect the long-term success of the issuer. Given that equities are effectively perpetual instruments, equity investors could consider long-term risks in addition to short and mid-term risks. Some of these risk factors may be country, industry and/or location specific. These risk factors may affect the issuer's ability to grow sustainably, if they are not managed appropriately. For example, investing in the equity of a semiconductor manufacturer may require an understanding of the plant's water use intensity, including water availability and stress. In addition, broader themes and trends could also be considered, including possible impact from climate change and extreme weather events.

In analysing these risks, asset managers could seek to understand, analyse, and incorporate key metrics into their investment analysis. Asset managers could also

⁷ It is recognized that environmental risk management practices and methodologies are more established for climate risks at this stage. Asset managers may take a progressive approach towards environmental risk management, starting with more well-established areas, and then progressing to other environmental risk types as generally accepted methodologies and practices emerge.

⁸ These include the Global Reporting Initiative, CDP (formerly the Carbon Disclosure Project), the Sustainable Accounting Standards Board and Task-Force on Climate-related Financial Disclosure.

⁹ For example, the International Finance Corporation Performance Standards and the Roundtable on Sustainable Palm Oil.

seek to analyse and consider the targets that issuers have set for management of their key risks (for example reduction in GHG emissions or water use intensity).

- b. For fixed income investments, asset managers could consider a variety of key environmental indicators from the issuers, as well as external environmental data providers, to achieve an impartial and holistic view of the environmental risk associated with a specific credit investment. Where the credit investment is used to finance a specific project, asset managers could consider the environmental risk profile of the project as well.

Asset managers could also consider the seniority (senior/subordinated/junior subordinated) as well as the maturity of the credit investment when assessing the relevance and materiality of environmental risk. The level of seniority and maturity of the credit will expose investors to varying degrees of financial impact from the issuer's exposure to environmental risk. Asset managers could therefore carefully assess the pricing (yield/coupon level) of such credits against the risks involved.

- c. For direct real estate investments, asset managers could consider a variety of operational indicators (in areas such as GHG emissions, energy management, waste and water management), as well as the possible impact from climate change and extreme weather events. Asset managers could also consider the extent to which the operational indicators and environmental events may affect potential tenant demand. Asset managers could also assess the potential impact of any new regulations on properties which do not meet minimum environmental standards.
- d. For investments in REITs, given there is no direct control of the real estate investments, additional assessment could be given to the governance and strategy of the REIT manager in monitoring and evaluating the environmental risks of the assets within the trust.

In considering the environmental impact of investments across different asset classes, asset managers may consider procuring asset class-specific research from external third parties, where appropriate, to supplement its own internal assessment.

4.5 Asset managers should also be mindful of internal aggregate limits that their customers have set for specific sectors or types of activities, such as sector limits on companies in the fossil fuel sector, or caps on carbon emissions in the portfolio.

4.6 Asset managers' approach to managing environmental risk could be influenced by the investment objective and strategy (active versus passive) of the fund/mandate that they manage. Given that passive managers have limited leeway in their research and portfolio construction processes beyond benchmark selection and engagement of index providers on universe of sustainable indexes, stewardship is a key lever to manage environmental risk. Similarly, active managers may be constrained in the extent to which they can deviate from a reference benchmark or index. Where such constraints exist, asset managers can still manage and mitigate environmental risk in their portfolios by influencing their investee companies to

have sound environmental risk mitigation measures. Asset managers should therefore incorporate environmental risk considerations into their stewardship frameworks (please refer to section 6).

4.7 For portfolio construction, asset managers should include measurement and management of the various environmental risk factors that are present in a portfolio on an aggregate basis, where material. For example, an asset manager can monitor the total GHG emissions of a portfolio, with reference to a benchmark of a comparator group¹⁰.

5 PORTFOLIO RISK MANAGEMENT

Ongoing Monitoring

5.1 Asset managers 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. Should there be developments (such as occurrences of natural disasters and changes in regulations) that could materially affect the operations and financials of an investee company, an asset manager should re-assess the risk and return profile of the investment or portfolio. This would allow the asset manager 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 risk in the investment or portfolio. The asset manager 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.

Scenario Analysis

5.2 Where environmental risk is material in the investment portfolios, asset managers should develop capabilities in scenario analysis¹¹ to assess its impact on the portfolios, including the portfolios' resilience to financial losses under a range of outcomes.

5.3 Asset managers should include, where relevant, short and long-term environmental scenarios (using conservative and regularly reviewed assumptions) into its scenario analysis of portfolios for 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, an asset manager could assess the impact

¹⁰ Asset managers can draw on the work by UN Global Compact, the Principles for Responsible Investment and the CDP to aid them in developing guidance in this area.

¹¹ Asset managers 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, and NGFS' *Climate Scenarios for Central Banks and Supervisors*, 2020. Asset managers may also consider referring to scenarios aligned with scientific climate change pathways, including from the IPCC or International Energy Agency.

on revenue and profitability of investee companies that are more exposed to sea level rise (such as companies owning seafront properties) or extreme weather events (such as agricultural companies). On transition risk, asset managers could assess the level of sensitivity of an investee company's cost of doing business to higher carbon price; whether higher costs could be partially offset by increasing prices and its impact on consumer demand. These scenarios should also incorporate forward-looking information, as analysis 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 environment¹².

5.4 Where data may be limited, asset managers should consider qualitative assessments and engage investee companies to adopt practices and framework of disclosure that best identify the risks and opportunities most relevant to their businesses.

5.5 Asset managers should use the results of their scenario analysis when reviewing the environmental risk profile of their managed portfolios, as well as their environmental risk management policies and practices.

5.6 Asset managers should also maintain proper documentation of the key features of the scenario analysis, 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

5.7 Asset managers should equip its staff, including through capacity building and training, with adequate expertise to assess, manage and monitor environmental risk in a rigorous, timely and efficient manner. The asset manager should regularly review such capacity building programmes to incorporate emerging issues relating to environmental risk management.

6 STEWARDSHIP

6.1. Asset managers are expected to exercise sound stewardship to help shape the corporate behaviour of investee companies positively through engagement, proxy voting and sector collaboration¹³. This includes supporting investee companies' efforts in the transition towards more sustainable business practices over time, while maintaining the asset managers' risk management standards. Asset managers should establish a process to prioritise issues and companies for engagement that is consistent with the interests of its customers and aligned with the asset manager's investment objective and strategy. Asset managers may consider the materiality of the environmental risk in the portfolios, the relationship with the investee company and the investee company's willingness and ability to improve its environmental risk profile, as well as the availability of alternative options to effectively

¹² Central Banks and Supervisors Network for Greening the Financial System, *Technical Supplement: Macroeconomic and financial stability: Implications of climate change*, 2019.

¹³ Asset managers should consider aligning their stewardship initiatives to the Singapore Stewardship Principles and draw on international resources, such as the International Corporate Governance Network Stewardship Principles and Principles for Responsible Investment for guidelines on active ownership.

mitigate the investment's exposure to environmental risk. Asset managers should also maintain proper documentation to support its engagement efforts, and report on their stewardship initiatives. Engagement outcomes should feed into the research and portfolio construction, and risk management processes outlined in Sections 4 and 5.

6.2. Topics for engagement with investee companies may include but are not limited to:

- a. raising of environmental issues with investee companies to increase their awareness of environmental risks and opportunities;
- b. influencing the behaviour of investee companies to better manage and mitigate environmental risk;
- c. gathering information to supplement existing environmental risk disclosures from investee companies; and
- d. encouraging investee companies to provide relevant and timely environmental risk data and/or clearer disclosures to improve data availability and consistency¹⁴.

6.3 Asset managers should consider collaborative engagements with other asset managers/investors for efficiency, enhanced influence and legitimacy when engaging investee companies, and to build knowledge and skills¹⁵.

6.4 For asset managers that manage real estate investments, they should consider implementing asset enhancement initiatives, such as putting in place measures to improve energy and water efficiency or waste management, or attaining green building certification for these investments.

7 DISCLOSURE

7.1. Asset managers should disclose their approach to managing environmental risk in a manner that is clear and meaningful to their stakeholders, including existing and potential customers. Asset managers are encouraged to disclose the potential impact of material environmental risk to customers, including quantitative metrics such as exposures to sectors with higher environmental risk. An asset manager's disclosure may be consolidated at the group or head office level.

7.2. Asset managers' disclosure should be in accordance with well-regarded international reporting frameworks¹⁶, such as recommendations by the Financial Stability Board's Task-

¹⁴ Asset managers may wish to take reference from international reporting frameworks, such as the standards set by Global Reporting Initiative in their engagement with investee companies.

¹⁵ Asset managers 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.

¹⁶ For example, standards and frameworks set by the CDP, Climate Disclosure Standards Board, Global Reporting Initiative, International Integrated Reporting Council, and Sustainability Accounting Standards Board.

Force on Climate-related Financial Disclosures (“TCFD”). The TCFD recommendations provide a useful framework for the disclosure of climate-related risks as follows¹⁷:

- 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 asset managers’ businesses, relevant products and investment strategies, where such information is material;
- c. Risk management, with regard to how the asset manager 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 material¹⁸.

7.3 Asset managers should review their disclosures regularly to improve their comprehensiveness, clarity and relevance, taking into account generally accepted measurement practices and methodologies.

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 GHG 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.