



Adopting SASB Metrics for Climate Risk Management in Life Insurance Companies

King Yin Pang, FSA, CERA, FRM

Any views and ideas expressed in the essays are the author's alone and may not reflect the views and ideas of the Society of Actuaries, the Society of Actuaries Research Institute, Society of Actuaries members, nor the author's employer.

INTRODUCTION

The idea of sustainability reporting borrows the concept from more traditional financial reporting that higher transparency would promote the proper behavior of the company by allowing stakeholders to monitor and challenge the actions of management. Risk management is normally built on the observable metrics in financial reporting or factors directly affecting them, with the rationale that those are considered critical to the financial performance of the company and quantifiable for risk monitoring. It is therefore reasonable to hold similar expectations to manage climate risk based on sustainability reporting metrics.

In order for such mechanisms to work effectively, the items disclosed should be able to capture the sustainability factors which have/may have a material impact on the financial performance of the company. This may not be necessarily the case when those parameters are selected with the intention of covering all industries, or the purpose of the disclosure serves a broader range of stakeholders than people with financial interests in the company.

The primary goal of SASB standards is “to require an entity to disclose information about its sustainability-related risks and opportunities that is useful to *primary users of general purpose financial reports* in making decisions relating to providing resources to the entity” (IFRS S1, italics in the original text). The emphasis of “providing resources” and hence financial perspective of the company in its sustainability performance matches the consideration of risk management. This paper aims to examine how the parameters offered by the SASB Insurance Standard can supplement the climate risk management process and identify any gaps which may exist. The scope is limited to life insurance companies selling protection and savings products to allow for a more in-depth analysis useful for practical applications.

CATEGORIZATION OF CLIMATE RISK

Climate risk is often categorized into two items, physical risk, and transition risk. From the perspective of risk management of a life insurance company, these two categories are too broad and shall be broken down into finer items. As an example, Bermuda Monetary Authority issued a guidance note in 2022 to identify the following risk factors which may arise from climate risk:

- A) Insurance risk
- B) Investment/market risk
- C) Credit/counterparty risk
- D) Operational risk
- E) Reputational risk

- F) Strategic risk
- G) Legal/litigation risk (BMA, 2022)

In general, physical risk is more related to insurance risk and operational risk, while transition risk is more related to reputational, strategic, and legal/litigation risk, while asset risk (including both investment and credit risk) may arise from both physical and transition risk.

The above typology would allow us to analyze the parameters used in sustainability reporting to see if they have been sufficiently represented.

SUSTAINABILITY REPORTING STANDARDS

The full list of metrics used in the SASB Insurance Standard can be found at SASB website:

<https://navigator.sasb.ifrs.org/sector/FN/industry/FN-IN>.

The focus of this paper is the relationship between disclosed metrics and risk management. Therefore, only sustainability reporting standards with specific metrics are considered. Standards such as the Task Force on Climate-related Financial Disclosures (“TCFD”) and the European Sustainability Reporting Standards (“ESRS”) provide general principles hence are not the subject of this paper. Among the standards offering list of quantitative and qualitative metrics, SASB and the Global Reporting Initiative (“GRI”) are the most commonly adopted. While GRI announced in 2021 a plan to develop sector-specific standards, the one for financial services is still pending to be released. Without sector specific standards, the metrics offered by GRI remain relatively general and broad for the use of risk management within a company and instead are more useful for a high level understanding of the performance of the company toward sustainability goals only.

MATCHING DISCLOSURE METRICS TO RISK APPETITE

This section will examine the seven categories of risks induced by climate change to check whether the metrics listed in the SASB Insurance Standard can provide good measures of the risk.

A) Insurance Risk

For a long-term life insurer, this mostly refers to mortality and morbidity risk. Life and medical insurance coverage mean that any one-time shock in mortality and morbidity rate from physical risk such as tsunami or forest fire is important. **FN-IN-450a.1: Probable maximum loss from natural catastrophe** provides information regarding potential loss under extreme climate events as an indicator on the desired level of capital. Likelihoods from one-in-50 to one-in-250 are adopted to show the volatility of climate risk. This disclosure metric also requires the reporting of both gross and net loss. This is important given the long-term nature of the policy, during which changes in reinsurance arrangements— e.g., rate increases or even reinsurer —are possible. Another dimension of the metric is geographical location, which is a critical factor in management of climate risk due to varying degrees of impact (sometimes even in opposite directions) among different latitudes, altitudes, closeness to sea or river, etc. Monitoring this metric shall then give a sense to the potential financial impact arising from insurance risk.

For the above measure to give a reliable monitoring metric, the modeling capacity of natural disaster is critical. Hence SASB offers another metric, **FN-IN-450a.2: Losses split into modeled and non-modeled natural catastrophe**. This provides monitoring of the scope of modeling to understand whether the in-house model covers all natural disasters that have material financial impact on the entity. Events such as droughts and snowstorms may have had relatively limited

impact in the past in some geographic locations, and therefore they are not explicitly modeled. An increasing portion of non-modeled losses may indicate an increased severity and frequency of such events due to climate change, and an enhancement of model capacity to cover a wider variety of natural disasters should be considered.

B) Investment/Market Risk & Credit/Counterparty Risk

These two risks rest on the asset side of an insurance company's balance sheet. Long-term life insurers normally have a huge balance sheet due to the timing difference between premium receipt and benefit payment of whole life or long-term policies. Climate risk may mean asset depreciation due to physical risks directly damaging the current value of assets, or transition risk affecting the on-going profitability of entities in the portfolio. Therefore, climate risk consideration should be factored into the overall investment management process. In performing pre-acquisition assessments or regular portfolio reviews, the physical risk and transition risk exposure should be covered to better understand how the performance of the investee may fluctuate due to climate change.

FN-IN-410c.2: Gross exposure for each industry by asset class is a useful starting point of the above. Fossil fuel industries like thermal coal and oil extraction will likely have declining profitability as the world transitions to more eco-friendly energy sources. The performance of the agriculture industry will also be subject to much higher volatility, depending on factors such as geographic location, frequency and severity of flooding and drought, global food supply, individual companies' capacity to cope with the changing environment, etc. The industry allocation of the portfolio can serve as a quick indicator of an insurer's exposure to climate risk.

FN-IN-410c.1: Absolute gross financed emissions by Scope 1, Scope 2, and Scope 3 supplements the investment and risk management decision by looking at the emission performance of individual assets. While **FN-IN-410c.2** identifies industries that are ostensibly impacted by climate change, **FN-IN-410c.1** distinguishes the future prospects of individual companies by examining their emissions levels. This allows companies within the same industry (e.g., automotive), but pursuing different strategies (e.g., electric vehicles vs. gasoline vehicles), to be differentiated and analyzed.

C) Reputational Risk & Legal/Litigation Risk

Reputational risk is often broadly defined as the risk that customers' and the general public's perceptions of a company's business activities negatively affect its performance.. For climate risk, it may mean that an insurer is offering insurance coverage which may sustain the continuous use of fossil fuel or energy intensive behavior, or the entity is not paying attention to its impact (e.g., investment) on climate change. The former is captured by **FN-IN-410b.1: Net premiums written related to energy efficiency**, but it is not very useful to life insurers, who are providing coverage to the life and health of an individual which is not linked to energy usage. The topic is better captured by the same metric **FN-IN-410c.1** on financed emissions as in the investment risk above, . It is expected that a company with financed emissions staying at a high level without any signs or roadmap of reduction will create an impression of irresponsible corporate behavior due to its lack of contribution to the net-zero target. The absence of any behavioral change also poses legal/litigation risk to the company.

D) Strategic Risk

Strategic risk is the key item determining the survival of an entity, and this is exactly why there is no single factor which can determine the level of strategic risk. It makes more sense to identify and analyze strategic risk using qualitative rather than quantitative approaches. SASB standards offer a number of discussion items on top of quantitative metrics, and items relevant to strategic risk include **FN-IN-410b.2: Products that incentivize environmentally responsible actions** and **FN-IN-450a.3: Approach to incorporate environmental risks into underwriting/risk management/capital process**. In essence, if the insurer could reflect climate risk considerations in its daily insurance operation process (i.e., product development/underwriting/risk management/capital management), the strategic risk can be mitigated if not reduced.

E) Operational Risk

Unfortunately, there is no metric in the SASB Insurance Standard which is related to operational risk. Alternative measures will be introduced in the next section.

LIMITATIONS AND ALTERNATIVE TOOLS FOR RISK MANAGEMENT

In spite of the intention of SASB standards, it is unreasonable to expect that the metrics proposed for public disclosure could provide a comprehensive assessment and monitoring of climate risk. The metrics only consider the most critical items to the insurance industry and do not distinguish between casualty vs. life insurance. Internal risk management within a long-term life insurer is expected to cover a more comprehensive list of risk factors and also more related to the business of life insurance. Some limitations and alternative risk management tools are discussed below:

A) Insurance Risk

FN-IN-450a.1: Probable maximum loss from natural catastrophe looks at the loss arising from climate risk, but only on a short-term basis. For long-term life insurers, it is often the longer-term trend on the increase of mortality and morbidity rate which is more difficult to predict and manage. With concrete records of medical technology advancement over the last two hundred years, it is common for actuarial assumption to embed an annual factor for mortality improvement (though less frequent for morbidity reduction). While it may remain a valid assumption to project further medical breakthroughs which could extend the life of human beings, it is uncertain how much of these technological benefits will be offset by the environmental factors, in particular if the average temperature increases by more than 2°C. Scenario testing is an important tool of risk assessment, with IPCC scenarios being the most widely used reference. However, IPCC scenarios often lack the level of granularity to perform a sufficiently detailed analysis for a company's use. Enhanced scenarios such as those prepared by NGFS should be considered.

Apart from scenario setting, the underlying assumptions on severity and frequency of natural disasters is critical. Companies should regularly monitor the quality of modeling to understand whether the underlying assumptions and distribution model are able to capture the volatility of climate risk. Very often we have sophisticated models on insurance liability, and this may lead to complacency over the level of risk control. This complacency could threaten the survival of an entity in particular when the projection runs far into the future and the reality could turn out to deviate significantly from expectations. Climate risk and long-term life policy are a combination which may run wild over multiple years, even decades. The analysis of variance over modeled values should be an early indicator of the necessity of assumption and/or model review.

B) Investment/Market Risk & Credit/Counterparty Risk

In comparison to other risk factors, investment/counterparty risks are quite well covered by **FN-IN-410c.1** and **FN-IN-410c.2** when both exposure by industry and the corresponding emission level are measured. These should be sufficient as a general measure in regular risk appetite monitoring, while investment management should drill down to the sustainability performance of individual assets to determine the level of physical and transition risks embedded in the investment.

C) Reputational Risk & Legal/Litigation Risk

As discussed above, financed emission is an important measure on reputational risk and legal/litigation risk given its level is directly linked to the impact to climate change and the achievement of the net-zero target. However, other potential incidents affecting reputation and inducing litigation may arise from time to time when opinion and expectation of the public changes, which may not be easily identified in advance. Keeping track of scandals and litigations related to climate risk for peer life insurers and other financial institutions could be a potential option for risk monitoring.

D) Strategic Risk

Maybe the most effective way of managing strategic risk arising from climate change is to ensure that such risk is well recognized and discussed at C-suite and Board levels. Only when climate risk is embedded into the derivation of the strategic plan can such risk be managed. On this area, instead of SASB, GRI 102: Climate Change may provide a good reference point on items such as transition plan and adaptation plan.

E) Operational Risk

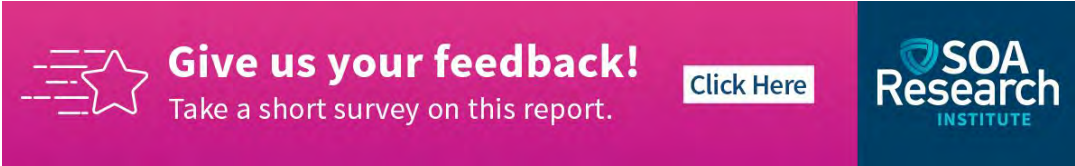
While the SASB Insurance Standard may consider operational risk less material in the scope of sustainability reporting of insurance companies, there are items in other industry standards which may be useful. For example, the SASB Real Estate Standard requires disclosure of **IF-RE-450a.1: Area of properties located in 100-year flood zones**. Risk management for long-term life insurers could modify this to report the office/backup centers located in 100-year flood zones to assess the climate risk on operational disruption.


CONCLUSION

For companies starting the process of climate risk management, sustainability reporting metrics could provide a good starting point. This addresses the items considered to be most material from the investor perspective as they are closely related to financial performance of the company. Preparing and monitoring such metrics for risk management purposes also supports the external reporting which may be required in the near future due to local regulations or rules imposed by the stock exchange. However, this should only be a transitional step to a more comprehensive and sophisticated management of climate risk. In particular, scenario testing is a very critical tool in managing such long-term risk for a long-term portfolio. Getting familiar with IPCC and NGFS scenarios will be necessary for actuaries working for long-term insurers in climate risk management to support the derivation of a transition/adaptation plan.

* * * * *

King Yin Pang, FSA, CERA, FRM, is a life actuary with more than 20 years of experience in financial reporting and capital management. His recent field of study is climate risk and sustainability reporting. He can be reached at kingyin.pang@gmail.com.



 **Give us your feedback!**
Take a short survey on this report.

[Click Here](#)

