Climate risk management and opportunities for life insurers

Executive Summary

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Climate change risk is increasingly seen as a hot topic within the insurance industry and with regulators. Financial regulators have recently become more vocal on the subject, with some emphasising that the financial system has a key role to play in the transition to a low-carbon economy.

Our research papers focus on the climate-related risks faced by life (re)insurers, as well as the corresponding risk management process. We have produced two full research papers—one on climate risk management and one on climate risk solutions.

We have used real case studies throughout the two papers to illustrate approaches that can be taken.

Purpose of Executive Summary paper

The full research papers are accessible but quite detailed. As such, we have prepared this Executive Summary version to note some of the key highlights of the two research papers and to act as a guide to both the full risk management paper and the full solutions paper.

Climate risk management

WHAT IS CLIMATE-RELATED RISK?

Climate-related risks consist of two[1] different categories of risk: physical and transition. The differences between these risks are summarised in Figure 1.

FIGURE 1: CLIMATE RISK DEFINITIONS

RISK	DEFINITION
Physical Risk	▪ Physical risks are risks associated with the direct impact of climate change. Physical risks can be divided into two further categories, acute and chronic. ▪ Acute physical risks are event-driven, including increased severity of extreme weather events such as cyclones, hurricanes, or floods. ▪ Chronic physical risks arise from longer-term shifts in climate patterns, e.g. sustained higher temperatures that may cause rising sea levels or heatwaves.
Transition Risk	Transition risks arise from the transition to a low-carbon, greener economy. This transition could result in large changes in value of certain assets or higher costs of doing business. Regulation and reputation risks can also arise as a result of this transition.

In general, we would expect transition risks to be greater if action is taken over the short to medium term to combat climate change, resulting in lower potential physical risks in future. However, if sufficient action is not taken, there may be less transition risk and greater expected physical risk in future. In this way, physical risk and transition risk are generally considered to be inversely related. An exception to this is in a scenario where there is a delayed disorderly transition, resulting in both high transition risk and high physical risk as the transition is too late to reduce the physical risks associated with climate change.

WHY IS CLIMATE-RELATED RISK DIFFERENT?

Climate-related risks differ from traditional insurance risks in the following ways:

Historical data is rarely relevant: Metrics must be forward-looking in order to capture the evolving nature of climate-related risks.

There is a high level of uncertainty associated with probability and impact: There are many potential future economic outcomes. Future development could be driven by political decisions, which can be difficult to predict.

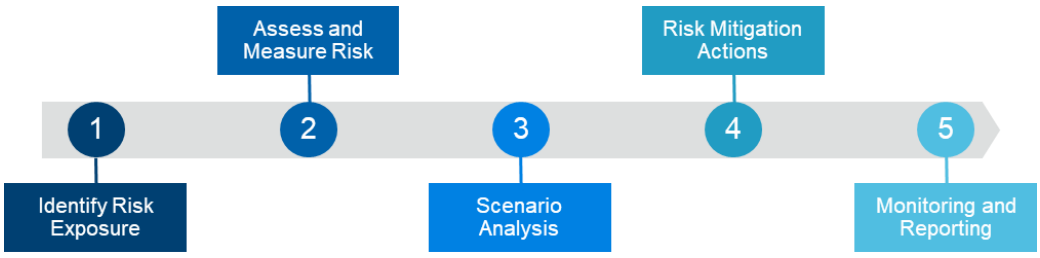
Climate risk is an emerging risk: Best practice is developing. Risk exposure and risk tolerance may not line up initially and it may take some time to reduce climate risk exposure.

Time horizons matter: For climate-related risks we need to look over longer time horizons to reflect their long-term nature. However, there is also the possibility of fast reactionary changes as the political landscape and consumer sentiment can change suddenly.

Climate risk management process

The risk management process for climate risk is the exact same as the process used for any typical insurance risk and is outlined in Figure 2.

FIGURE 2: RISK MANAGEMENT PROCESS



[1] Sometimes "liability" risk is considered as a third risk category. However, liability risk has increasingly been considered as an element within physical and transition risk rather than considered separately. We have treated it as such in our research.

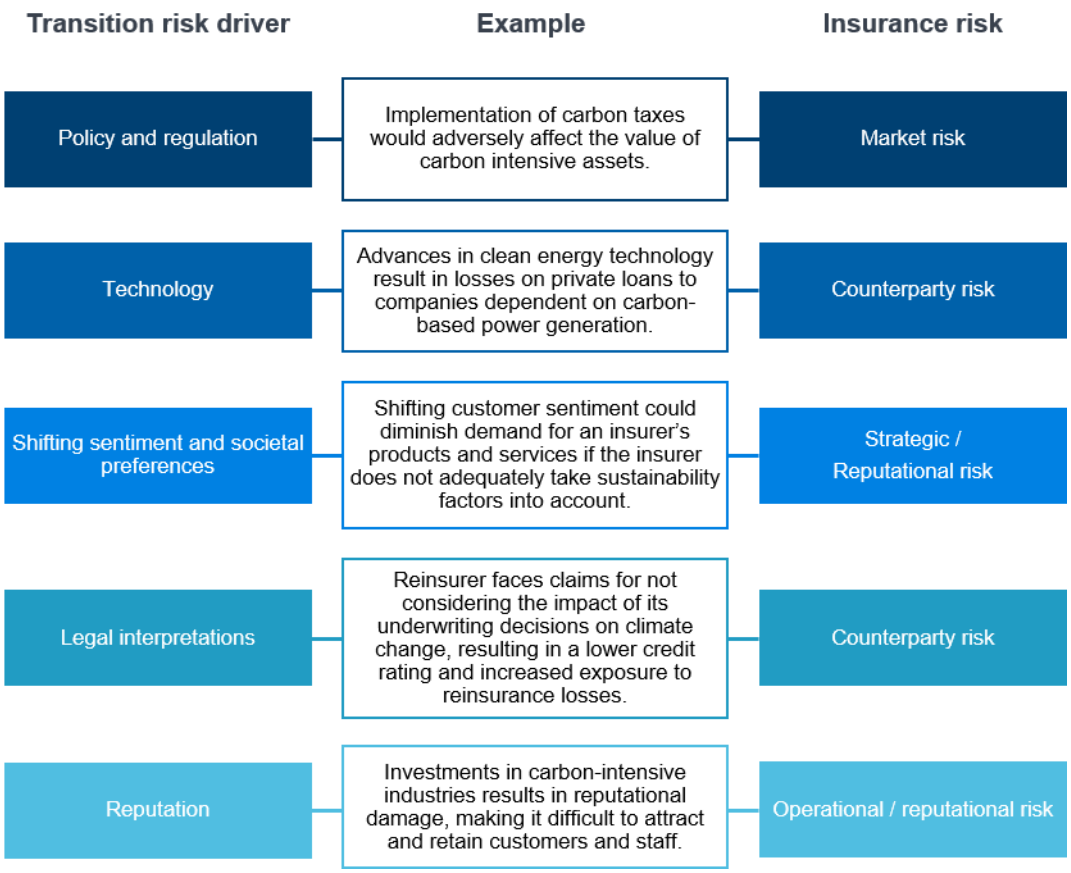
IDENTIFY RISK EXPOSURE

An increased focus on climate change can be driven by regulatory pressures but is also driven by investors as they seek to understand how dependent insurance companies, and other investments, are on fossil fuels and how resilient their business models are to the effects of climate change. Many of the largest insurance groups are already considering the impact of climate risk on their balance sheets and are committed to taking action against climate change, for example by committing to transition their underwriting portfolios to net zero greenhouse gas emissions by 2050.

One of the main areas of focus is on risks that can arise as the world transitions away from carbon-intensive economic activities. Therefore, to identify transition risk exposure, it is important to identify the drivers of the transition to a low-carbon economy. These drivers include policy and regulation, technology, shifting sentiment and societal preference, legal interpretation and reputation. It is important for insurers to understand how the drivers of transition risk interact with the main types of risks that they face. Whilst climate risk could be considered as a standalone risk type, given its potential wide-ranging impacts it is much more typical and in line with best practice to consider how climate risk interacts with each of the traditional risk categories considered by insurers.

There are numerous ways in which the various transition risk drivers could impact the main types of risks faced by insurers. Some examples of these relationships are provided in Figure 3. They are based on examples provided by the European Insurance and Occupational Pensions Authority (EIOPA) in its opinion on climate risk scenarios in the Own Risk and Solvency Assessment (ORSA).[2]

FIGURE 3: MAPPING OF TRANSITION RISKS TO PRUDENTIAL INSURANCE RISKS



[2] EIOPA (19 April 2021). Opinion on the supervision of the use of climate change risk scenarios in ORSA. Retrieved 30 October 2021 from https://www.eiopa.europa.eu/sites/default/files/publications/opinions/opinion-on-climate-change-risk-scenarios-in-orsa.pdf.

Different insurers will face the risks above in varying degrees and, therefore, it is important that each insurer goes through a risk identification process.

In the case of physical risk, there are two categories of risk drivers corresponding to the two categories of physical risks—acute and chronic. The full paper shows some example mappings of physical risks to insurance risks.

CASE STUDY 1: IDENTIFYING CLIMATE-RELATED FINANCIAL RISKS FOR AN INVESTMENT PORTFOLIO

Milliman developed a framework to provide a client with a structured way of identifying the financial risks arising from climate change on its investment portfolio. During a workshop process, conversations with key individuals from the firm were structured with the following steps:

- Identify key asset classes
- Create a climate risk matrix containing climate risk drivers and the identified asset classes
- Populate the climate risk matric by identifying climate risk drivers for each of the key asset classes
- Mapping of climate risk drivers to risk categories within the risk register

The output of this process provided our client with an updated risk register which incorporates climate risk drivers for each asset class, allowing the client to take a more structured approach to assessing the climate risk associated with its current investment portfolio.

ASSESS AND MEASURE RISK

Assessing and measuring climate-related risk exposures is an evolving science, and some companies may consider it to be a daunting task. However, this is an important part of the risk management process, and it will be difficult to meet regulatory requirements in respect of climate risk scenario analysis without assessing the potential risk exposure. It is important to remember also that regulators expect that climate risk assessments will evolve and mature over time. We expect that many insurers will take a best-efforts approach initially, in particular where data is unavailable.

The Task Force on Climate-Related Financial Disclosures (TCFD) published a report[3] in 2017 on recommendations for climate-related financial disclosures, and many global organisations, including insurers, have signed up to support the TCFD. The Annex to the TCFD report[4] suggests some specific carbon-related metrics that can be used to assess carbon exposure to an asset portfolio, which can be used as a measure for transition risk exposure in respect of the investment portfolio.

For life insurance companies, as large institutional investors, a key transition risk relates to the potential change in the value of assets as a result of climate-related risks (or opportunities). The potential financial impact of this risk includes changes in the value of assets based on carbon emissions, changes in asset values based on carbon price and/or demand, write-offs or disinvestment of existing assets due to high emissions. In a worst-case scenario, the assets could become stranded and therefore have little or no value. In addition to carbon emissions, other factors could also impact asset values such as policy changes or changes in consumer sentiment. Assets are also exposed to physical risks. Property values, for example, may fall in value due to weather events.

In order to assess the risk exposure of an asset portfolio, insurers will need to understand the current and future carbon emissions of the assets they invest in. In order to do this a company would need to carry out a look-though of its assets and gather data on the carbon emissions of the companies in which it invests within its bond and equity portfolio.

[3] TCFD (June 2017). Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures. Retrieved 30 October 2021 from https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf.

[4] TCFD (June 2021). Proposed Guidance on Climate-related Metrics, Targets, and Transition Plans. Retrieved 30 October 2021 from https://assets.bbhub.io/company/sites/60/2021/05/2021-TCFD-Metrics_Targets_Guidance.pdf.

CASE STUDY 2: ASSESSING EXPOSURES FOR A UNIT-LINKED PORTFOLIO WITH LIMITED ACCESS TO DATA

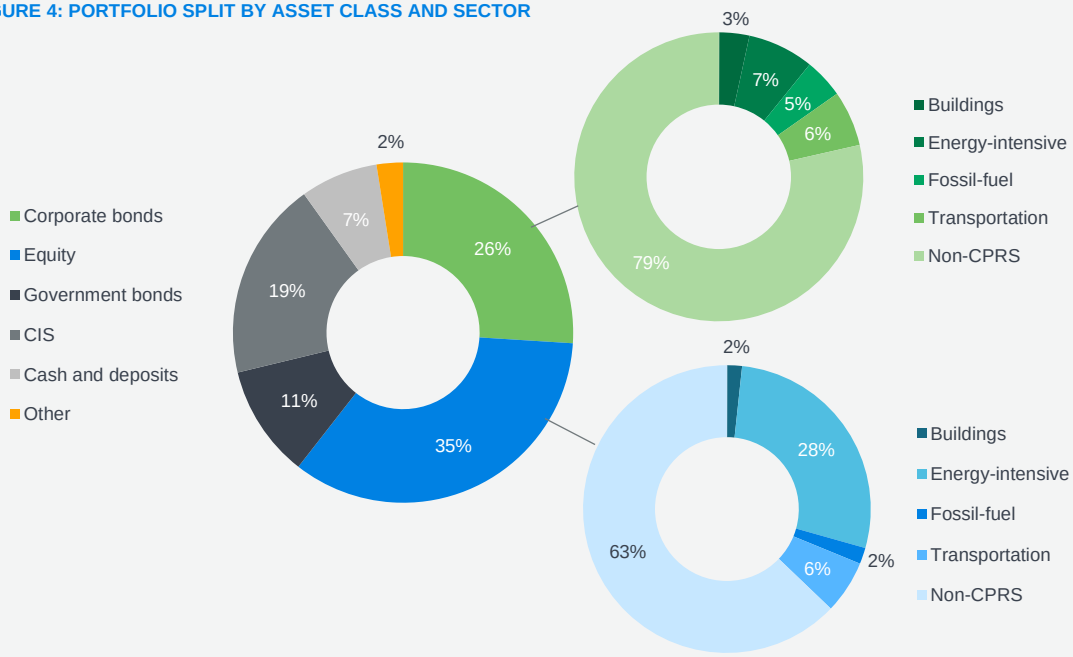
Within the Solvency II Tripartite Template (TPT) files, a Nomenclature of Economic Activities (NACE) code is assigned to each fund. The NACE code provides details of the industry in which the company invested in operates, in a standardised format. To assess climate-related risk exposure for this client, we developed a Python model to assign a climate risk indicator based on the NACE codes for each asset in the TPT files.[5] We focused on equity and corporate bond investments for this analysis to understand the transition risk associated with these exposures.

The University of Zurich "Climate Policy Relevant Sectors"[6] (CPRS) were used to assign a climate risk indicator to each investment by NACE code. The publicly available information on Climate Policy Relevant Sectors includes a list of NACE codes for industries whose revenues could be impacted either positively or negatively by a disorderly low-carbon transition. This includes sectors such as fossil fuel, utility and electricity, buildings, transportation, agriculture and other energy-intensive industries.

We classified investments as "CPRS" or "Not CPRS" depending on their NACE codes, with the CPRS investments defined as "high-risk" from a climate risk perspective. The aim was to use readily available data to carry out a high-level initial assessment of the transition risk exposures within the unit-linked funds, with a focus on corporate bonds and equities (approximately 60% of investments in the unit-linked funds).

While there were some assets that were unclassified because their NACE codes were missing from the TPT files, the output shows that approximately 80% of corporate bonds and approximately 65% of equities are invested in companies that are not active in the CPRS. Figure 4 shows the split across the portfolio.

FIGURE 4: PORTFOLIO SPLIT BY ASSET CLASS AND SECTOR



This analysis provides the company with some insight into where the climate exposures are in respect of the unit-linked funds. For example, 28% of equities are invested in energy-intensive sectors. The next step for this company is to take a more detailed look at the TPT files to understand what equity funds this relates to and how diversified they are.

[5] Unfortunately, as part of this analysis we identified that the TPT files are not consistently populated by all asset managers, and in some cases data is limited or missing. We had to allow for this in our model and therefore the output is not as accurate as it would be had all the information been available consistently in the TPT files.

[6] University of Zurich. Climate Policy Relevant Sectors. FINEXUS: Centre for Financial Networks and Sustainability. Retrieved 30 October 2021 from https://www.finexus.uzh.ch/en/projects/CPRS.html.

CASE STUDY 3: CLIMATE CHANGE AND MORTALITY IN ACTUARIAL PROJECTION MODELS

This case study looks at how insurers could incorporate climate change and its impact on mortality into actuarial projection models. Please see full paper for more details.

SCENARIO ANALYSIS

Transition risk can be analysed by considering the potential pathways to a low-carbon economy, and the speed at which these pathways could evolve. Scenarios will reflect actions taken by the insurer itself to transition to a low-carbon economy or achieve low-carbon credentials, as well as reflecting external developments such as actions taken by the wider industry, technology changes and changing government policies, regulation and consumer sentiment. Scenario analysis is used to explore the potential ways that transition might evolve. Physical risk scenarios will need to focus on both acute and chronic physical risks.

Several organisations have published their own scenarios. In France, the Autorité de Contrôle Prudentiel et de Résolution (ACPR) launched a 2020 climate pilot exercise using reference scenarios of the Network of Central Banks and Supervisors for Greening the Financial System[7] (NGFS). The NGFS scenarios are based on a framework exploring the transition pathway and the strength of the response:

1. **Orderly**: There is an immediate response. Emissions are reduced in a measured way to meet climate goals of achieving a net zero carbon emissions economy.
2. **Disorderly**: There is a sudden and unanticipated response. It is disruptive but sufficient enough to meet climate goals.
3. **Hothouse world**: There is very little action and we continue to increase emissions. There is significant global warming and, as a result, strongly increased exposure to physical risks.
4. **Too little, too late**: Not enough is done to meet climate goals and the presence of physical risks spurs a disorderly transition

ACPR published the main results from the pilot exercise in April 2021[8] and concluded that there was generally a moderate exposure of French insurers to transition risk. However, it has noted that this conclusion is based on a lot of uncertainty.

In the UK, the Bank of England launched a 2021 Biennial Explanatory Scenario exercise to explore the vulnerability of participants' business models to future climate policy pathways and associated degrees of global warming. The exercise tests the resilience of end-2020 balance sheets to climate-related finance risks at different points under several scenarios. The scenarios consider different routes to achieving net zero greenhouse gas emissions, which have different speeds and manner of transition, and consequently different pathways for the physical risks from climate change:

- **Early policy action**: Transition to a lower-carbon economy is started immediately and the transition is achieved smoothly. By 2050 the ambition is for the goal of net zero carbon emissions to be achieved. Carbon prices rise and other policies intensify gradually, meaning that the global average temperature increase under this scenario does not exceed 1.8°C.
- **Late policy action**: Transition to a lower-carbon economy is delayed until 2031 and the transition is more sudden and disorderly to ensure the global average temperature increase under this scenario does not exceed 1.8°C by the end of the century. Transition risks are most pronounced in this scenario, as the more compressed timeframe for reducing emissions results in material short-term transition measures being required across the economy.
- **No additional policy action**: Under this scenario, no additional measures are taken to transition to a lower-carbon economy and global emissions are therefore not reduced. The global average temperature increase under this scenario will exceed 3.3°C by the end of the century. Physical risks are therefore most pronounced in this scenario as the absence of transition policies results in growing emissions, and therefore increased temperatures, chronic changes in weather patterns and increased frequency and severity of extreme weather events.

The results of the exercise are expected to be released in May 2022.

[7] NGFS (June 2020). NGFS Climate Scenarios for Central Banks and Supervisors. Retrieved 30 October 2021 from https://www.ngfs.net/sites/default/files/medias/documents/820184_ngfs_scenarios_final_version_v6.pdf.

[8] ACPR. A First Assessment of Financial Risks Stemming From Climate Change: The Main Results of the 2020 Climate Pilot Exercise. No. 122-2021. Retrieved 30 October 2021 from https://acpr.banque-france.fr/sites/default/files/medias/documents/20210602_as_exercice_pilote_english.pdf.

One of the main challenges in both the UK and France approaches is the length of the time horizon under the exercise. Compared to the usual stress test horizons of three to five years, the 30-year horizon brings about a more complex and costly approach. This is exacerbated by the difficulty in identifying the sectors that are sensitive to transition risks.

The EIOPA opinion on climate-related risks in the ORSA[9] advises that the long-term scenario analysis can be conducted at a high level at first, and then further developed to be more granular. Therefore, the implementation of a thorough scenario analysis exercise for a company would be a product of developing a simple approach and gradually refining it to be more robust. A demonstration of this can be seen in the two case studies below. The first shows a simpler approach while the second (which is detailed in the full paper) shows a more sophisticated method.

CASE STUDY 4: SCENARIO ANALYSIS FOR EXPOSURE OF A PORTFOLIO OF PROPERTIES TO CLIMATE CHANGE RISKS

Milliman supported a client in developing its scenario analysis, with a particular focus on property exposure. A range of scenarios were considered, including both physical and transition climate risks. The transition risk scenarios were centred around the changing policy landscape. For example, one scenario considered the possibility that there were changes to regulations around energy efficiency requirements, and so changes were required to properties to ensure the new requirements were met. Implications were also considered, for example that the client was unable to sell any properties until the required energy efficiency ratings were met.

This scenario was carried out and developed as part of the client's ORSA. The properties in the portfolio were analysed by energy efficiency ratings. For properties of a lower rating, it was assumed that additional work would be required for the property to meet the required energy efficiency, causing the value to reduce. Properties of a higher rating are expected to increase in value. The impact of these changes in value would take over a year to occur, but for practicality immediate shocks were applied to the property values. There were also additional secondary impacts as a result of the fall in property assets.

The client used the output of this exercise to assess the potential future exposure to climate-related risks on its property portfolio. This exposure will continue to be monitored, with the scenario included in the ORSA updated periodically, in order to ensure the client's property portfolio remains within risk tolerance. This initial exercise also prompted the client to apply climate considerations to other aspects of its business, such as corporate bond selection, underwriting and third-party management.

CASE STUDY 5: SCENARIO ANALYSIS FOR EXPOSURE OF A PORTFOLIO OF CORPORATE BONDS TO CLIMATE CHANGE RISKS

Milliman partnered with a large UK insurer to help measure the exposure of its corporate bond portfolio to transition risk. Please see the full paper for more details.

MONITORING AND REPORTING

In the steps above we have identified and assessed key climate-related risks with a number of different insurance company case studies, in addition to considering the challenges associated with scenario analysis. The final step in the process is monitoring and reporting. In the context of climate-related risk, both internal reporting and external reporting, via public disclosures, are relevant. Both are discussed in this section of the full research report.

Internal risk reporting is one of the pillars of a risk management framework. Reporting climate-related metrics enables a company to integrate climate risk into its risk management system. Internal reporting of climate-related risks should form part of a company's existing risk reporting framework, rather than being considered separately. However, holding a "deep dive" session on climate-related risks with senior management and the board of directors is advised when the risk reporting is initially introduced. This ensures that the reporting metrics are clearly understood.

[9] EIOPA. Sensitivity Analysis of Climate-Change Related Transition Risks.

Two examples of climate change metrics that are generally advised to be included in internal risk reporting are the carbon footprint of investments and the portfolio warming potential. These metrics are commonly used by life insurers to report transition risk exposures for internal reporting and also for climate-related risk disclosures. Recently companies have been placing more of an emphasis on portfolio warming potential as it is forward-looking and provides companies with greater chances to reduce transition risks. In contrast, the measure relating to carbon footprint tends to be backward-looking. The full paper provides examples of both measures.

In relation to public disclosures, the TCFD is a good place to start. The TCFD recommendations[10] on disclosure requirements include that companies:

- Disclose details of the governance around climate-related risks and opportunities
- Disclose the actual and potential impacts of climate-related risks and opportunities on businesses, strategy and financial planning where such information is material
- Disclose how the climate-related risks are identified, assessed and managed
- Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material

The disclosure requirements have been adopted already by a number of TCFD supporters, including insurers.

CASE STUDY 6: EXTERNAL REPORTING – LEGAL AND GENERAL INVESTMENT MANAGERS

The Legal and General Group in the UK is one of the companies leading the financial services industry in addressing climate change. It is a supporter of the TCFD and regularly publishes reports on sustainability and climate change. In addition to being the UK's largest life insurer, the group also includes Legal and General Investment Managers (LGIM), which has about £1.3 trillion in assets under management (AUM).[11] LGIM has been vocal on its commitment to tackling the climate change challenge. The company is committed to engaging with listed companies in climate-critical industries that are responsible for the majority of greenhouse gas emissions. Companies that fall short of LGIM's minimum standard will be subject to voting sanctions or disinvestment. LGIM's minimum standards include appointing a member of the board to be responsible for climate-related issues, comprehensive carbon disclosures, programmes to reduce greenhouse gas emissions and more.

LGIM's most recent Climate Impact Pledge report[12] was published in June 2021. For the insurance industry, the company's expectations are that investments and underwriting activities will shift from "brown" to "green." It reports that more insurers need to commit to carbon-neutral investment portfolios, and that the momentum on net zero across the sector must be matched by more widespread disclosure on Scope 3 emissions[13] reporting for investment portfolios.

The 2021 report included three large, listed insurance companies on the sanction list due to their not having Scope 3 emissions disclosures associated with their investment portfolios.

[10] Recommendations of the Task Force on Climate-related Financial Disclosures: https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf

[11] LGIM internal data as at 31 December 2020. The AUM disclosed aggregates the assets managed by LGIM in the UK, LGIMA in the US and LGIM Asia in Hong Kong. The AUM includes the value of securities and derivatives positions. See https://www.legalandgeneralgroup.com/about-us/.

[12] LGIM's Climate Impact Pledge: The 2021 Results.

[13] Scope 3 emissions are the result of activities from assets not owned by the insurance company, but that indirectly impact on the company's value chain. This includes investments.

Climate risk solutions

Once climate transition risk has been assessed, the next question is what can insurers be doing about it?

In our second research paper, we discuss some potential areas for consideration. Given the vast scale of the topic, this is not meant to be an exhaustive list. However, it hopefully helps provide some useful insights, perspectives and food for further thought.

We provide a summary of some of the approaches insurers have already been taking, to help provide a potentially useful benchmark to your own company's current strategy. Here we particularly focus on the management of investment risk in legacy investment portfolios. Secondly, thinking more broadly about product strategy, we discuss some ideas about new areas insurers could be considering, to help in making a contribution in addressing climate change. Some of these ideas are more developed than others, but hopefully they may help to stimulate further thinking around potential new product innovation for your organisation.

We split the report into two sections, illustrated by the schematic below.

INVESTMENT RISK

Driving Decarbonisation	▪ **Divestment:** Divesting requires careful consideration of the climate transition risk exposures and whether it is likely to be an effective strategy in practice for achieving decarbonisation. Divesting from thermal coal is a common strategy for many large insurers. ▪ **Engagement:** This is a tactic more aligned with establishing long-term relationships with investee counterparties for key holdings. Engagement can be a powerful tactic when collaborating with other investors. The Climate Action 100+ initiative sets out an industry standard framework for this. ▪ **Passive Portfolio Optimisation:** Active decisions are required over the choice of benchmark. There is now a proliferation of specialist benchmarks that optimise weights to reduce the carbon footprint of an index and align with decarbonisation pathways.
Managing Decarbonisation Risk	▪ **Carbon Emissions Trading Schemes (ETS):** These schemes are becoming an increasingly expanding regulatory requirement for various sectors of the economy. They act to impose a regulatory price on carbon emissions. ▪ **Carbon Derivatives for Risk Mitigation?** Carbon derivatives on key emissions trading schemes are becoming more liquid. We discuss the pros and cons of using these derivatives for long-term risk mitigation purposes.
Investing in Green Enablement	▪ **Equity Investment:** There is a positive aspect to climate transition risk in the potential market opportunity from sectors that will help enable the Net Zero economy. Specialist equity can capture growth from these sectors. ▪ **Bond Investment:** Insurers could play a key leading role to further scale and mainstream this asset class niche, which is likely to play a key role in financing investment for a net zero economy. ▪ **Existing Property Investment:** Retrofitting projects on existing commercial property investments could provide an opportunity to enhance returns. ▪ **New Infrastructure:** The UK and EU have ambitious targets for new renewable energy structures, which could present attractive investments for some insurer liabilities, if the challenge of specialist expertise can be met.
Scaling Negative Emissions	▪ The Intergovernmental Panel on Climate Change (IPCC) has set out the case for a need for negative emissions technology, albeit with a degree of caution. Swiss Re and AXA are examples of European (re)insurers already investing in this area.

PRODUCT STRATEGY

Influencing Customer Behaviour

- The banking and non-life insurance sectors have already been developing products to positively influence customers towards sustainable behaviour, as well as embedding green practice in product management. This includes green mortgages, green house insurance, green motor insurance and default application of carbon offsetting.
- Great Eastern of Singapore recently claim to have launched the first "green life insurance" product—a three-year guaranteed savings plan that invests exclusively in projects aimed at climate change mitigation.

Enabling Green-Conscious Customers

- **Green Investment Option:** There is a clear need to offer investment options to new customers who are keen to have an impact on climate change. Demand is likely higher for younger segments, and so combining a fintech solution is likely to be appealing.
- **"Climate Neutral Now" Carbon Offseting Option:** The voluntary carbon market can be an important mechanism for channelling finance to climate projects in developing countries. Offering an option to offset the carbon footprint funded by portfolio investments, with a regular payment to purchase carbon credits, can be a way to support this market. Given the continuing increase in carbon price, range of potential projects and fragmented carbon markets, devising an appropriate pricing and risk management strategy will likely be important for success.
- **Community Energy:** Smart technology now exists to enable community energy on a geographically dispersed basis. Direct renewable energy ownership can be a smart way to hedge energy price inflation. This also enables customers to have a tangible positive impact on climate change.

Supporting Customers in Personal Decarbonisation

- **"Micro-Infrastructure" Green Bonds:** Insurance companies are now issuing green bond debt. Such capital proceeds could potentially be used to offer financing to customers on domestic renewable energy and energy efficiency installations. Financing could be bundled with life insurance cover. Standardisation can help manage cost. Composite insurers that offer property insurance may also be well placed to manage risks.
- **"Electric Vehicle Endowments":** The endowment structure, traditionally used for cost-efficient funding of house purchases, could potentially be translated to fund electric vehicle (EV) purchases instead. Insurers could offer such financing for EVs only, to drive the shift away from combustion engines.
- Leaving the transfer of EV ownership to contract maturity gives flexibility should customer preferences change. As society shifts towards a low-carbon economy in the coming years, outright vehicle ownership may become less popular, with the emergence of shared ownership models.

Taking a Holistic View to a Better Retirement

- **Aligning Personal Decarbonisation With Retirement Savings:** Given the parallel crisis in retirement savings adequacy, careful consideration ought to be given to financing of personal decarbonisation to avoid substituting regular savings into a pension. Instead, personal decarbonisation financing products could be designed to also align with increased savings towards a pension. Regular premium payments could default into pension savings at the end of the financing term. Tax-free cash entitlements could also be targeted for financing purposes.
- **Holistic Retirement Planning:** Traditionally retirement planning involves optimising income from a pension pot to meet retirement goals. However, financial well-being in retirement is a function of both income and expenses. Domestic energy costs are a key element of core expenses.
- **Domestic Renewable Energy Self-generation and Energy Efficiency:** These options are now at a cost level that can deliver attractive returns on investment over a typical retirement planning period. The returns can, in some scenarios, be superior to expected returns on cash flows from many retirement income products.

Conclusion

While the effects of climate change on our planet are uncertain, it is definite that life (re)insurers will be impacted either directly through physical risks, or from a transition to a greener economy, or both. The exact effect of this impact on insurers' balance sheets is a great unknown. Therefore, it is important for insurers to account for any material climate risk exposures in their risk management frameworks.

The climate risk management process outlined in this Executive Summary paper (and the full climate risk paper) provides a useful guide for insurers in beginning to account for climate-related risks in their risk management frameworks and ORSAs. The case studies demonstrate that often the best approach is to begin with a high-level overview of a potential risk exposure, before developing models and processes to be more granular and to include a wider range of exposures. The case studies also highlight the importance of innovation in quantifying the impact of climate risk with little relevant historical data. However, there are many challenges yet to overcome, particularly as this is an everchanging landscape both in terms of policy and in the nature of climate change itself.

We note that the opportunities for life insurers have been less talked about but there are a number of interesting options available to these companies. They include a multitude of options in both the management of investment risk and in terms of product strategy. These options have been highlighted in this Executive Summary paper and in more detail in the full solutions paper.

We hope that our research has brought the risks and opportunities alike to life a bit more for readers and has given you a greater understanding going forward in your work.

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