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Integrating climate risk into the own risk and solvency assessment

An emerging regulatory theme

Since the 2020 Task Force on Climate-related Financial Disclosures survey¹, the South African Prudential Authority (PA) has begun signalling its intent to integrate climate-related risk into its regulatory and supervisory mandate. In line with this, a guidance notice was released earlier in May 2024 on 'climate-related governance and risk practices for insurers'. This guidance notice aims to illustrate approaches that should be considered in managing an insurer's climate-related governance and risks².

The steps taken by the PA are in-line with what we are seeing from regulators abroad. Climate stress testing exercises have already been used by several regulators, notably the Bank of England, the Australian Prudential Regulation Authority, the European Central Bank, Banque de France and the Hong Kong Monetary Authority³. These tests were carried out to estimate the size the financial exposures of participants and the financial services sector more broadly in respect of climate-related risks.

The aforementioned authorities have used scenarios as set out by the Network for Greening the Financial System⁴ (NGFS) in its assessment of determining the impact of climate-related risks. Devised by climate scientists and economists, the seven scenarios set out by the NGFS provide a reference for how climate change (physical risk) and climate policy and technology trends (transition risk) could evolve in different futures. This framework is widely used by regulators for its consistency, comprehensiveness and alignment with international climate goals⁵.

Network for Greening the Financial System⁶

Created in 2017 by a group of central banks and supervisors, the NGFS aims to support stakeholders in strengthening the global response required to meet the goals of the Paris Agreement (to limit the global temperature increase to 1.5 degrees by 2030). In addition, it seeks to enhance the role of the financial system in managing risks and mobilising capital for green and low carbon investments.

In 2021 the Bank of England ran three NGFS scenarios to explore the financial risks posed by climate change for the largest United Kingdom (UK) banks and insurers⁷. Results from the study indicated that the scenarios are likely to create a drag on the profitability of these financial institutions. Projections indicated that costs incurred will be lowest for the earlier and well managed activities performed to reduce greenhouse gas emissions, contributing to the slowdown of climate change. Results of the study also indicated that some potential unexpected losses from climate change that initially fall on banks and insurers may ultimately be passed onto its customers.

¹ <https://www.resbank.co.za/en/home/publications/publication-detail-pages/prudential-authority/pa-public-awareness/Financial-Sector-Awareness/9855>

² https://www.resbank.co.za/content/dam/sarb/what-we-do/prudential-regulation/climate-related-risk/2024/G1%20Insurers%20Climate%20Guidance_Risk.pdf

³ <https://www.unepfi.org/themes/climate-change/a-comprehensive-review-of-global-supervisory-climate-stress-tests/>

⁴ <https://www.ngfs.net/en>

⁵ <https://www.unepfi.org/themes/climate-change/a-comprehensive-review-of-global-supervisory-climate-stress-tests/>

⁶ <https://www.ngfs.net/en/about-us/governance/origin-and-purpose>

⁷ <https://www.bankofengland.co.uk/stress-testing/2022/results-of-the-2021-climate-biennial-exploratory-scenario>

Prudential policy: maintaining financial stability to support the fight against climate-change

Anecdotally, we are already seeing consumers starting to bear these costs in some markets. State Farm, California's largest insurer, has sought increases of as high as 52%⁸ for some of its residential insurance rates. Under Proposition 103 enacted by voters in 1988, insurance companies are legally free to choose where they will write policies in California. As a result, insurance companies are writing more risks in areas of the state deemed less risky, especially with the continued threat of climate change.⁹ In response to this, the Insurance Commissioner of California recently unveiled significant reforms, allowing insurers to incorporate the use of catastrophe models in California rate making, so long as insurers increase the extent of insurance cover provided in wildfire prone areas - a 'fundamental shortcoming of Proposition 103'¹⁰. The Californian regulator also released a statewide map showing areas where wildfire risk and FAIR Plan policies¹¹ are concentrated. With this map, insurance companies in California will have direct knowledge of where they need to write more policies in the state in order to utilise catastrophe modelling in determining rates. These rates are subject to the regulator's approval¹⁰. What we are witnessing in California is how the regulator is having to intervene to protect vulnerable communities, as well as safeguard the integrity of the state's insurance market.

This case-study demonstrates how climate risk stress testing and scenario modelling can help regulators to: This case-study demonstrates how climate risk stress testing and scenario modelling can help regulators to:

- develop targeted regulations and penalties;
- develop climate-related disclosure and reporting standards; and
- understand how climate change poses a systemic risk within the financial services sector and helps participants build climate stress testing and risk management capabilities.

From a business benefit perspective, climate risk stress testing can help insurers improve awareness of climate change and related risks and opportunities, enhance risk management practices, improve the communication and engagement with counterparties and improve risk management of day-to-day operations.

The own risk and solvency assessment (ORSA) process is a particularly useful tool for insurers to enhance their understanding of the risk profile and capital position of climate-related risks¹².

Incorporating climate risks into the ORSA

Climate change, with its far-reaching implications, has become a central concern for insurers. While the task of incorporating climate considerations into enterprise risk management (ERM) and ORSA processes may appear daunting, it is essential for the industry's resilience and long-term viability. Climate risk permeates various dimensions of risks traditionally faced by insurers, including market, credit, underwriting, mortality, morbidity, liquidity and operational risk.

⁸ <https://edition.cnn.com/2024/07/02/business/state-farm-california-rate-hikes/index.html>

⁹ <https://www.insurance.ca.gov/0400-news/0100-press-releases/2024/release023-2024.cfm>

¹⁰ <https://www.insurance.ca.gov/0400-news/0100-press-releases/2024/release023-2024.cfm>

¹¹ FAIR plans, also known as Fair Access to Insurance Requirements plans, are state-mandated property insurance plans that provide coverage to individuals and businesses who are unable to obtain insurance in the regular market (<https://content.naic.org/cjpr-topics/fair-access-insurance-requirements-fair-plans#:~:text=Issue%3A%20FAIR%20plans%2C%20also%20known,insurance%20in%20the%20regular%20market.>)

¹² <https://www.masthead.co.za/wp-content/uploads/2019/01/Prudential-Standard-GOI-3.1-ORSA.pdf>

Included below is a summary of the South African prudential standards and guidance notes relevant to climate risk. Additionally, we outline next steps that insurers can take to integrate and embed climate risk considerations within their ORSA process.

Area of consideration	Prudential guidance ¹²	Next steps and considerations
ERM integration	<p>Governance and Operational Standard for Insurers (GOI) 3¹² sets out the expectations for insurers to “Take into account any factor which may materially affect the sustainable long-term performance of assets, including factors of an environmental, social and governance character” within their investment policy.</p> <p>Furthermore, GOI 3.1¹² sets out expectations for insurers to use the ORSA process to “...address a combination of quantitative and qualitative elements relevant to the medium- and longer-term business strategy of the insurer”. This includes an expectation to “...identify, measure, monitor, manage, and report the short- and long-term risks and potential risks of the insurer;”.</p> <p>While there is limited explicit guidance in relation to climate change in current legislation, the PA published further guidance to assist insurers in this assessment. The guidance¹²:</p> <ul style="list-style-type: none"> • 3.1 sets out more clearly the regulator’s stance that environmental, social and governance (ESG) risks should be integrated within the broader ERM process. This should support the identification of material risk and risk exposure from climate. • 3.1.2 sets the expectation for insurers to consider impacts across the balance sheet (i.e. assets and liabilities). • 3.2 sets clear expectations for the four control functions: risk management, compliance, actuarial and internal audit functions’ responsibilities in relation to climate-related risk. • 3.8 recognises the importance of transition planning and development of transition plans to help mitigate the impact of climate-related risks. 	<p>The PA expects insurers to integrate climate risk into each step of the ERM process, frameworks and policies more explicitly. Some key steps to consider include:</p> <ul style="list-style-type: none"> • Conduct thorough assessments to identify and evaluate climate-related risks and exposures. This includes understanding physical, transition and liability risks across the balance sheet. • Aggregate exposures across entities within a group to gain a comprehensive understanding of which exposures are or may become material across the entities within the group (be it life insurers, non-life insurers, banks, asset managers, health insurers or other non-financial services entities). • Consider which risk types defined within your organisation’s risk taxonomy are likely to be materially impacted. • Material risks and exposures should be incorporated in the ORSA process, including emerging risk analysis and scenario testing. • Improvements and enhancements to processes and key opportunities should also be assessed on a continuous basis (e.g. technologies that could help mitigate climate risk impacts, new products, new policy clauses, sustainable investment opportunities, to name a few). • Develop transition plans once a thorough understanding of the materiality of climate-related risks is determined and documented.
Time horizon	<p>The PA guidance sets the expectations for insurers to consider throughout the ORSA process, on a forward-looking basis over the business planning period and beyond, where relevant:</p> <p>4.2.1 ...“depending on the business mix, this time horizon will typically extend over a 3 to 5 year period for the ORSA. For some pure non-life insurers with short duration contracts, the time horizon may be shorter than 3 years. Some climate-related risks may however take longer to fully materialise, and insurers should ensure that the ORSA also includes appropriate scenarios with extended time horizon, where relevant.”</p>	<p>The typical time horizon adopted by insurers for the ORSA process projections is three to five years, matching the business planning horizon. However, insurers are expected to also consider the impacts of long-term risks which span over a longer period than the typical business planning period.</p> <p>Insurers should assess the impact of climate scenarios over longer-term periods. This could be addressed through emerging risks included as part of the ORSA process, or outside of this process in a way that seeks to improve the understanding of longer-term impacts of climate change.</p> <p>Globally, financial services entities have been seen to rely on NGFS defined scenarios with time horizons of 10 years or more, looking as far out as the year 2050.</p>

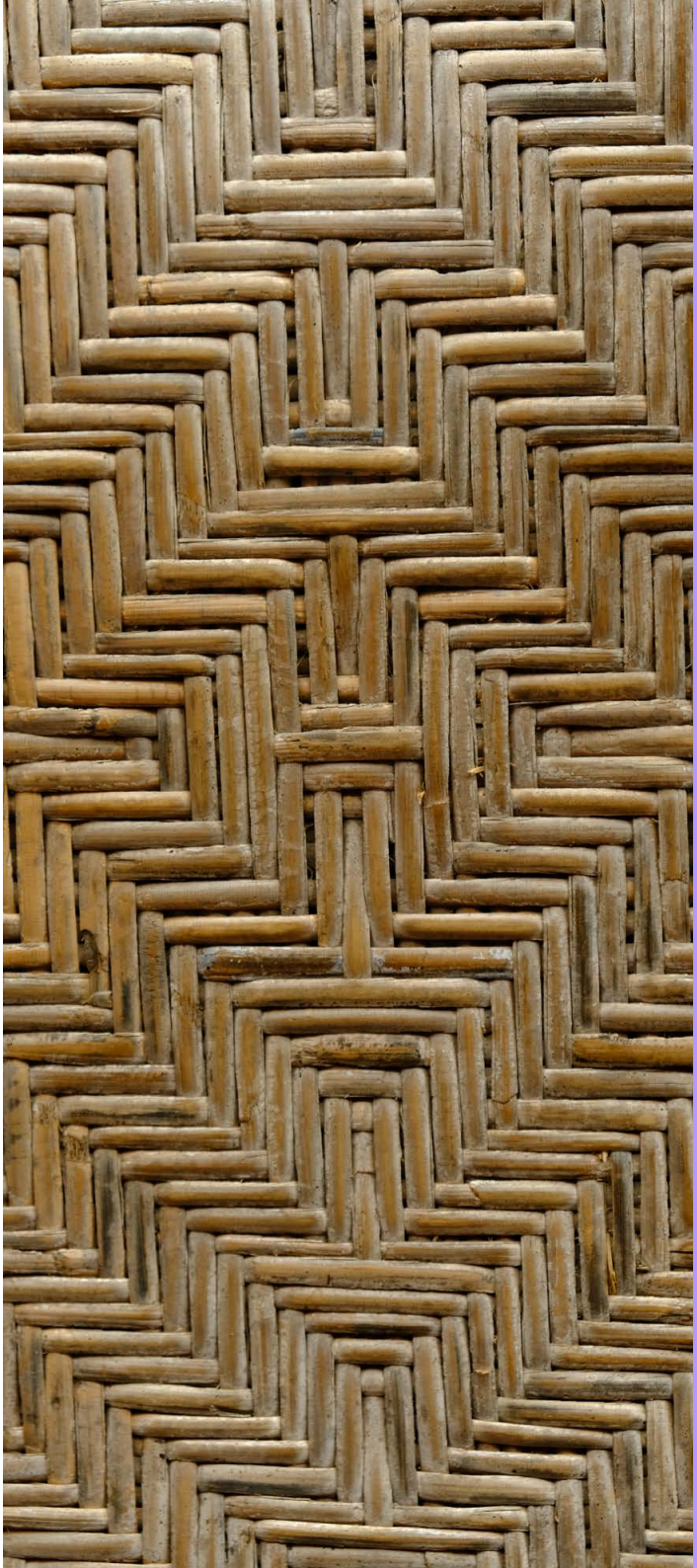
Area of consideration	Prudential guidance ¹²	Next steps and considerations
<p>Stress testing and scenario analysis</p>	<p>The PA guidance sets the expectations for insurers to develop and use climate scenarios, where appropriate, to enhance the understanding of climate risk and supplement risk and capital management processes:</p> <ul style="list-style-type: none"> • 4.3.2 Stress testing and scenario analysis should be designed such that the output can be used for decision-making at the appropriate management and strategic levels. • 4.3.3 Insurers are expected to align the objectives of these analyses with the insurer’s risk appetite and risk management framework. • 4.3.4 Scenarios should be designed such that it is sufficiently severe but plausible with a forward-looking perspective in mind. • 4.3.4 When material, this analysis should include the identification and assessment of the direct and indirect impact of climate-related risks, including as part of the scenario analysis and (reverse) stress testing process. 	<p>Stress and scenario testing is a key component of the ORSA process and is employed to better understand the key risks faced using a forward-looking perspective.</p> <p>We highlight a few examples of global practices below:</p> <ul style="list-style-type: none"> • Climate risks and potential impacts can be better understood through scenario analysis, which can be qualitative or quantitative in nature. Insurers can begin with developing their thinking around which scenarios to test or wait for regulatory guidance to be provided. This was largely the case for UK financial institutions where the regulator conducted the Climate Biennial Exploratory Scenario (CBES) exercise in 2021¹³. This exercise applied to insurers and banks and the regulator specified the scenarios to be applied by these financial institutions. • Insurers should consider, as appropriate to the portfolio of risks, different scenario types: physical risk, transition risk or integrated scenarios (such as the NGFS scenarios). • For insurers that are ready to follow a quantitative approach, there are existing scenarios that can help in this respect. While these scenarios may not be tailored to the insurer’s portfolio, they are widely used globally and can help insurers build a solid foundation. The prevailing scenarios include the NGFS¹⁴ and United Nations Environment Programme Finance Initiative¹⁵ (UNEP FI) scenarios. The NGFS scenarios are long-term in nature and formed the foundation of the 2021 CBES exercise conducted in the UK. The UNEP FI scenarios cover medium-term analyses. • Insurance groups are encouraged to test the impact of a scenario on all entities within the group that are likely to be impacted by the chosen scenario. • To derive maximum value from scenario analysis, insurers and insurance groups will rely on their understanding of material climate-related exposures and emerging risks to develop bespoke scenarios that are severe but plausible and reflect the specific risk profile and business objectives at hand. • As with any scenario analysis, the value is often in exploring risk management actions that can be taken and understanding the likely beneficial impact these could have on asset portfolios, liability profiles, product development or other strategic initiatives. • Considering the data challenges associated with assessing climate risk, adopting a multi-disciplinary approach becomes crucial. Insurers can use other proven methods to refine forecasts, including expert elicitation and leveraging the science behind the ‘wisdom of crowds’. <p>Regardless of the approach followed, there will be limitations and these need to be considered and communicated in the ORSA report. The journey towards climate-related resilience is iterative and it is important to foster a continuous improvement mindset.</p>

¹³ <https://www.bankofengland.co.uk/stress-testing/2022/results-of-the-2021-climate-biennial-exploratory-scenario>

¹⁴ <https://www.ngfs.net/ngfs-scenarios-portal/>

¹⁵ <https://www.unepfi.org/themes/climate-change/scenarios-for-assessing-climate-related-risks-new-short-term-scenario-narratives-by-une-pfi-and-niesr/>

Area of consideration	Prudential guidance ¹²	Next steps and considerations
<p>ORSA reporting requirements</p>	<p>Based on the PA guidance, the following requirements should be clearly documented and explained in the ORSA documentation to allow for supervisory review:</p> <ul style="list-style-type: none"> • 4.4.1.1 The process followed to identify, assess, monitor, and report on climate-related risks; • 4.4.1.2 The climate-related risks identified including their transmission channels and how these would result in financial risk to the insurer considering traditional risk categories; • 4.4.1.3 The impact these identified climate-related risks could have on the insurer's strategy and business plan; • 4.4.1.4 The impact these identified climate-related risks could have on the insurer's solvency position, liquidity, and profitability; • 4.4.1.5 Risk management and risk mitigation strategies to mitigate and manage these risks; • 4.4.1.6 Details on the scenario analysis and stress tests used to assess the impact from these risks; • 4.4.1.7 Contingency plans to deal with divergence and unexpected events; and • 4.4.1.8 Details on the challenges identified in the process of assessing climate-related risks and how these could be addressed in the future. 	<p>The ORSA process culminates annually into an ORSA report, that is board approved and submitted to the PA.</p> <p>Various sections of the ORSA report could be used to convey management's view on climate-related exposures, risks and opportunities. In particular:</p> <ul style="list-style-type: none"> • the ERM section can be used to convey the insurer's current understanding of climate risks. The focus should be on risks assessed as being material to the insurer or the insurance group. • the emerging risk section is forward looking and focuses on the perspectives of risks that are still uncertain or not well understood. This section can be used to inform the board and regulators about longer-term risks associated with climate and key uncertainties. This can also form the basis of the thinking around which scenarios to test going forward. • the stress and scenario section will outline the narrative of the climate change scenarios selected. This will include information on the scenario narrative, key assumptions, assessed impact and management actions that can be taken to reduce the risk and limitations of the assessment.



Key challenges with scenario analysis

Assessing climate risk and integrating it into the ORSA process presents several challenges, particularly in scenario testing. We explore four key challenges below and provide potential ways to overcome these (the list of remediations is not intended to be exhaustive):

Challenge	Description	Remediation
Data limitations	Insufficient, incomplete or inaccurate historical data on climate-related events hampers accurate risk assessments.	As mentioned earlier, with the use of expert elicitation, experts can offer valuable insights even when historical data is insufficient or unavailable to understand the potential new normal caused by climate change. Bringing together the right experts to focus on the central issue of climate change and following a structured process of discussion and aggregation of collective views is an effective way to address an unfamiliar problem, especially one that has not been encountered before.
	<ul style="list-style-type: none"> Insufficient data granularity hampers accurate risk assessment and scenario modelling. Climate modelling tools must align with insurers' business exposure. 	<p>To address the issue of insufficient data granularity and ensure climate modelling tools align with insurers' business exposure, insurers can take several steps, including:</p> <ul style="list-style-type: none"> Research and compile a list of free and paid data sources that provide climate-related information. Once these have been assessed for relevance, explore membership or subscription options. Lobby the regulator and various other relevant bodies that can support collection and maintenance of requisite industry-wide data required for climate-related modelling. Invest in data collection to gather more granular data on climate-related risks. Insurers should define the data required to understand own business exposure to climate change and start collecting and maintaining the necessary levels of information. Data needs and data sources should be regularly monitored and updated as the science develops and the business understanding of climate-related risks and opportunities is enhanced.
Scenario uncertainty	Future climate scenarios are uncertain and diverse.	<p>Actions insurers can take to enhance their understanding of the financial impact of climate change include:</p> <ul style="list-style-type: none"> Develop a range of scenarios over time that cover the physical, transitional and liability impacts on the insurance entity or group. Stress test portfolios against various climate futures. Seek a range of expertise in-house and externally, including but not limited to reinsurance providers, economists and other relevant experts.
Expertise	Insufficient in-house expertise to integrate climate risk into the risk assessment and ORSA processes.	<ul style="list-style-type: none"> Leverage external expertise or third-party service providers. Seek training on climate-related topics to upskill board and senior management as needed. Raise awareness about climate risks among employees, agents and policyholders. Communicate transparently about climate risk exposure and mitigation efforts. Engage with regulators to understand how expectations are developing and the range of market practices. Identify areas where deeper expertise is required.

Challenge	Description	Remediation
Regulatory expectations	Locally, integrating climate change in the ORSA process and other risk assessment processes has not yet been legislated. In the near future this may change where regulators may enforce more robust climate risk management processes and the reporting thereof.	<ul style="list-style-type: none"> Stay informed about regulatory updates, both locally and abroad. Engage with regulatory bodies, such as the PA and Financial Sector Conduct Authority, to understand expectations. Align internal practices with current guidance (Guidance Note 1 of 2024). Consider performing at least a self-assessment against this guidance or obtain an independent view to identify key gaps in current approaches to understand the risks and financial impact of climate change. Participate in industry forums and working groups to share best practices and learn from peers.

ESG integration is not a once-off exercise

The ERM and ORSA processes are expected to continue to evolve from one reporting cycle to the next. We recommend that management indicate in each reporting cycle plans for improvement or reconsideration in the various areas impacted by climate change.

KPMG’s recent banking survey demonstrates that banks predominantly rely on regulatory defined scenarios to inform scenario analysis and stress testing. However, leading banks are starting to develop their own scenarios. With insurance regulatory developments largely following that of the banking industry, it would be safe to assume that we can expect the insurance industry to follow a similar path.

Stakeholder collaboration – addressing the climate crisis together

There are several ways in which insurers can collaborate to effectively address climate risks within the industry and more broadly. While we include several options, the list is not exhaustive and other avenues may exist:

- Participation in industry groups**
 By joining industry associations and working groups focused on climate risk, insurers can keep abreast of global developments and thought leadership. The Association for Savings and Investment in South Africa (ASISA) for example, has an ESG working group in which local insurers can participate.
- Policy advocacy**
 Insurers can advocate for policies and regulation that support climate risk mitigation and adaptation. This includes engaging with policymakers to promote regulations that encourage sustainable practices. Regulations and policy can help to ensure insurers are on an equal footing and enforce a consistent set of rules. Without regulation some insurers could withdraw from certain markets, leaving segments of society vulnerable and exposed. Many large insurers advocate directly to policymakers and indirectly through trade associations for strategies that promote an orderly transition to a low-carbon economy¹⁶.

¹⁶ [Climate advocacy policy and participation... - Generali Group](#)



- **Collaborative research**

Insurers can actively engage in joint research projects or fund academic research to better understand climate risks and develop innovative solutions. Insurers could consider partnering with research institutions to further enhance their knowledge of climate risk impacts and mitigation strategies. By working with the Singapore Economic Development Board, for example, AON's Singapore-based Climate Hub was able to develop a Climate Risk Monitor. This tool helps AON's global clients navigate environmental risks and opportunities¹⁷. The tool uses standard emission scenarios over multiple time horizons to align with regulatory requirements.

- **Disaster response and recovery**

Insurers can collaborate with governments and non-governmental organisations on disaster response and recovery efforts. This ensures a co-ordinated approach to managing the impacts of extreme weather events. At the 27th United Nations Meeting on climate (COP27) for example, the 'Loss and Damage Fund' was launched. These funds can be leveraged with other funding sources to implement meaningful adaptation and disaster risk reduction projects and tackle the rising protection gap against extreme events in the most vulnerable countries. (Re)insurers could engage through these platforms with governments and local actors to develop proposals to be submitted to the Loss and Damage Fund to launch or expand insurance solutions in these nations. The fund received pledges of just over USD 700 million to start assisting developing countries that are particularly vulnerable to the adverse effects of climate change¹⁸.

- **Technology partnerships**

Collaborating with technology companies to develop tools and solutions can enhance climate risk management. Allianz for example, has published a goal to invest EUR 20 billion (USD 21 billion) in climate and cleantech solutions by 2030¹⁹.

- **Sharing best practices and lessons**

Insurers would be encouraged to share best practices and lessons learned through industry conferences, webinars and publications. This not only helps insurers stay updated on the latest developments but provides an opportunity for benchmarking and improving own practices. For example, Old Mutual Insure recently presented on a micro approach to managing catastrophe risks at the Actuarial Society of South Africa's 2023 annual convention²⁰.

Conclusion

By collaborating in various ways insurers can enhance own resilience and that of the insurance industry while also providing additional benefit to society in their insurance product offering.

Climate change poses unprecedented challenges for the insurance industry. As extreme weather events become more frequent and regulatory expectations evolve, insurers must adapt swiftly to safeguard financial stability and meet policyholder needs. By using the ORSA as a starting point, insurers can begin to better quantify climate risk exposures and drive value for themselves and society more broadly.

¹⁷ [Aon launches new climate risk tool | Captive International](#)

¹⁸ [COP28: Key messages and implications for insurers | The Geneva Association](#)

¹⁹ [Allianz to Invest Over \\$20 Billion in Climate & Cleantech Solutions by 2030 - ESG Today](#)

²⁰ [It's getting harder to insure your home against climate risk. \(oldmutual.co.za\)](#)