

Climate Risk Seminar

19th July 2024

Role of Actuaries in Climate Risk Management

Saigeeta Bhargava, Partner, PwC India



What do actuaries do?

Actuaries specialize in quantifying and managing the financial impacts of uncertainty and risk.



Traditional Roles



Emerging Areas

Insurance

Designing, pricing, managing, and quantifying liabilities for life, health, and property/casualty insurance products to ensure financial stability and coverage.

Data Analytics and Big Data

Using advanced analytics and data science to forecast trends, improve decision-making, and enhance business strategies.

Risk & capital management

Quantifying the impact of market, insurance, credit, liquidity, operational, and other risks on the assets and liabilities of insurance companies and banks; developing strategies to mitigate those risks.

Pensions and Retirement

Developing pension plans, calculating liabilities, and advising on funding strategies to maintain financial health of retirement funds.

Climate Change & Environment Risks

Analyzing the financial impact of climate change and developing mitigation strategies. Along with integrating climate risk into overall risk management frameworks.

Effect of Climate Risk on Insurance



Physical Risk

- **Underwriting losses increase** over time due to **more frequent** and **more severe weather** events, if pricing is not proactively adjusted.
- **Severe mortality and morbidity** events caused by climate change (e.g., extreme heat), while often difficult to forecast, can have **large impacts** on mortality & morbidity over an extended period.
- Increased natural catastrophic exposure can lead to **greater capital requirements or higher premiums**.
- Climate change-induced sea level rise **renders operations in vulnerable areas uninsurable**.

Transition Risk

- **Shift in customer preferences** (eg, towards electric vehicles) can reduce demand for certain types of insurance products and could lead to underpricing / higher claims ratios due to limited historical data on repair costs.
- **Traditional expertise may fail** and new skills to access the risk
- **Availability and affordability of insurance products** for certain anti climatic sectors (e.g., industries engaged with fossil fuels) will be affected.
- **Increase investment uncertainty** leaving insurers unable to meet guaranteed returns and investment targets
- Transition risks **may continue to emerge from unexpected sources** as changes are made to move towards a low carbon economy.
- **Business strategies** may not be taking long term impact of sustainability factors.

Underwriting Considerations related to climate risk



01

How do I expect climate change to **affect my key risk metrics in different locations** and what calculation mechanism should I use to assess this?

02

What would my **current exposures look like when adjusted** to take into account the effect of climate change in a 2C or 4C global warming scenario at different time horizons?

03

How should I **adjust my underwriting/ pricing today** to allow me to transition to my target portfolio incorporating climate change factors?

04

How should I incorporate expected climate related change into my **reinsurance strategy** and reinsurance credit risk analysis?

Reserving Considerations related to climate risk

01

Longer claims handling process due to increasingly more severe weather resulting in lengthier claims pattern development

02

Severity of natural catastrophes steadily increasing over time will make it **difficult to predict the impact of weather events** on the portfolio

03

Decreasing credibility of historical experience as claim patterns may change over time due to accumulation risk of natural catastrophes and others like migration trends, employment trends

04

Changes in reinsurance programs as existing programs will become either too expensive to maintain or become ineffective at providing sufficient protection

05

Impact of events not reflected in the data (latent claims) e.g., climate related litigation

What role can Actuaries Play



Product Development

- **Designing parametric insurance solutions** that offer rapid predetermined payouts based on specific climate-related triggers.
- Playing a role in **adaption finance** helping in climate risk mitigation



Quantification of climate risk

- **Perform stress testing** to assess the potential impacts of climate risk on financial stability and resilience.
- **Measuring** the greenhouse gas (**GHG**) **emissions** impact on physical and transition risk.
- **Updating** current Cat **Models**.



Investment strategy

- Help set targets and develop **KPIs** to measure investment strategies **to manage climate risk**.
- Design **models to evaluate** the physical risks of **climate change on investments** and assess the transition risk associated with necessary changes.



Accounting

- Assisting organizations in **integrating climate-related financial disclosures** into their reporting frameworks.
- Ensuring **compliance with emerging regulatory requirements**.



Advising stakeholders

- **Advising** regulators and policymakers on **climate-related policies and governance**.
- Contributing to public debates and **trainings on climate resilience** and mitigation efforts.

Thank You