

LIFE & HEALTH SCENARIOS of CLIMATE CHANGE

Terry Narine, FSA, FCIA
terrarnarine@actuwit.com

Avoid filling this space with text, will not be seen by audience

- Insurers have a mixed view on the level of priority to place on climate change with 55% rating as “low” or “no priority” and 45% rating as “moderate” or “high” priority
- 55% of respondents believe that climate change will have a material impact on their business in the next 5 to 10 years
- 58% of insurers in the survey either have implemented or plan to implement a sustainability program to manage the risks and opportunities from climate change
- Insurers largely involve their Risk (85% of respondents) and Regulatory and Reporting functions (50%) to understand and manage associated risks

NETWORK FOR GREENING THE FINANCIAL SYSTEM – NGFS SCENARIOS

- Used by Central Banks and Supervisors [NGFS Scenarios Portal](#)
- NGFS Scenarios – a window into different plausible futures
- Central banks and supervisors explore impacts to economy, financial system
- Seven Scenarios:
 - Orderly – Net Zero 2050, Below 2°C, Low Demand
 - Disorderly – Delayed Transition
 - Hot House World – Nationally Determined Contributions, Current Policies
 - Too-Little-Too-Late – Fragmented World
- Include these scenarios in pricing, valuation and ORSA stress-testing

ACTUWIT MODEL

- A model to determine extra life and health claims from climate change by country
- Products include Life, Disability, Critical Illness, Cancer, Hospitalizations, and LTC
- Extra claims would be modeled in Pricing, Valuation and ORSA Stress-testing
- Two key assumptions - CO₂ emissions and health care costs, lung cancer from pollution.
- An extra 10% of lung cancers will be caused by climate change
- Up to 50% of all cancers may be impacted by climate change in the coming years
- 25% of all cancers are lung cancer (American Lung Association)
- 70% of critical illness claims are for cancer
- Mental health disability claims rise 50% following a climate event (floods)
- 10% of hospitalizations are for cancer
- Erodes profit margins of insurance products and threatens insurance solvency
- Are insurance companies appropriately reserved and capitalized for these risks?

% Increase in Health Claims by Scenario

| Scenario /Year | Net Zero 2050 | Below 2° Celsius | Low Demand | Delayed Transition | Nationally Determined Contributions | Current Policies | Fragmented World |
|----------------|---------------|------------------|------------|--------------------|-------------------------------------|------------------|------------------|
| 2030 | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| 2035 | 3% | 2% | 2% | 3% | 4% | 4% | 4% |
| 2040 | 5% | 3% | 3% | 5% | 7% | 8% | 9% |
| 2045 | 4% | 4% | 3% | 8% | 10% | 12% | 13% |
| 2050 | 3% | 1% | 2% | 10% | 12% | 14% | 15% |

The challenge of climate justice

| Country | %Past Emissions | % Global Population | Ratio/ %Population |
|--------------------------|-----------------|---------------------|-----------------------|
| China | 13% | 18,7% | 0,7 |
| USA | 25% | 4,3% | 5,8 |
| EU(28) | 22% | 6,7% | 3,3 |
| India | 3% | 17,7% | 0,2 |
| Others | 37% | 52,60% | 0,7 |
| *Fair ratio = 1.0 | | | |

| | Emissions % in 2018 | Tonnes CO2 per capita | % Global Population | Ratio/ %Population |
|--------------------------|------------------------|--------------------------|------------------------|-----------------------|
| China | 27% | 7,0 | 18,7% | 1,4 |
| USA | 15% | 16,6 | 4,3% | 3,5 |
| EU(28) | 9% | 6,7 | 6,7% | 1,3 |
| India | 7% | 2,0 | 17,7% | 0,4 |
| Others | 42% | 3,8 | 52,60% | 0,8 |
| *Fair ratio = 1.0 | | | | |

The actuarial profession is uniquely qualified to help optimize a global response

- The Health Forum could join with the AFIR Section to document the health benefits and the reduction in global warming achievable while freeing up km² of agricultural land to feed billions of people.
- Actuaries can create appropriate scenarios and estimate the impacts in terms of Km², reduction in methane emissions, increase in food supply, DALYs added, improved health outcomes.
- Produce transparent concrete illustrations to better educate the population and decision makers



SINGAPORE ACTUARIAL CONFERENCE 2024
26 - 29 August 2024

QUESTIONS?