

PANDEMIC BRIEFING

Scenario and Stress Testing Considerations COVID-19

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Objective and Scope

The objective of this document is to assist actuaries in scenario and stress testing in the context of COVID-19.

This document has been provided by the Stress Testing Working Group, a group of cross practice actuaries formed as part of the Institute's COVID-19 Working Group.

Scope: Focus Question

- How can actuaries, as advisors to insurers, banks and super funds, use scenarios and stress testing to assist their stakeholders to manage their businesses amidst the high level of uncertainty from the potential impact of the COVID-19 pandemic?

We define scenarios as a plausible view of future events with the triple focus of:

- **Users** = actuaries as advisors to financial organisations
- **Context** = For COVID-19 in both immediate and longer term
- **Purpose** = for guidelines to assist in range of work by actuaries

Stress Testing is a subset of scenarios with a focus on more extreme but still plausible outcomes.

Business continuity planning (BCP) is not in scope.

Context and Purpose

The Context

This is a world with twin stresses of 'pandemic' and 'economic slowdown'.

Pandemic

- In December 2019, China reported cases of a viral pneumonia caused by a previously unknown pathogen that emerged in Wuhan, a city of 11 million people in central China. The pathogen was identified as a novel (new) coronavirus (recently named Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)), which is closely related genetically to the virus that caused the 2003 outbreak of Severe Acute Respiratory Syndrome (SARS). SARS-CoV-2 causes the illness now known as Coronavirus disease 2019 (COVID-19). Currently, there is no specific treatment (no vaccine and no antiviral) against the new virus.

The Initial response in Australia is focused on:

- Minimise transmission (to avoid overwhelming the health system).
- Prepare and support health system needs.
- Provide information to support best practice health care and to empower the community and responders to manage their own risk of exposure.

Different countries have adopted different approaches (some in lockdown, some like South Korea have focused on testing regimes). Intention is to break the chain of transmission and 'flatten the curve'.

The latest development in Australia is the Roadmap to a COVIDSafe Australia, which focuses on:

- Gradually relaxing lockdown rules with minimal COVID-19 outbreaks.
- Ongoing testing of the population for COVID-19 and enhanced contact-tracing of encounters with carriers of the virus.

In this environment, the impact on population and insured life mortality, morbidity and mental health is highly uncertain.

Economic Slowdown

Minimising transmission has led to a severe economic slowdown in Australia and globally. Businesses have been hit hard, particularly aviation, tourism, hospitality, and large parts of retail. There are stresses for large corporates and APRA regulated entities. Adaptive practices will be required. The issues arising include:

- How can we get out of this? We need to keep the pandemic under control but can't stay permanently in lockdown, and an immunisation vaccine may be 18+ months away or may never arrive.
- What are the merits of the many emerging infection models and views?
- What is the impact of the economic slowdown and huge stimulus packages?

Amid this uncertainty, what stresses do financial institutions need to withstand and how will actuaries advise on modelling these outcomes?

Purpose of Guidelines

The uses of forecasts and stress tests are:

Table: Characteristics of Actuarial Advice

Purpose:	Scenarios	Approach	Output
1. Accounting provisions	Probable future forecast	Point estimate with adequacy testing	Outstanding claims provisions; Liability Adequacy Testing; Premium liabilities
2. Capital Management	Stressed scenarios of varying severity	Run scenarios to test outcomes against risk appetite in ICAAP. Reverse stress test to assess resilience.	Capital targets, triggers, buffers and action plans
3. Business & Strategic Planning	Plausible future set of scenarios	Run scenarios based on business options	Business and strategic outcomes and actions

Target Assistance from the Stress testing working group:

1. Approach and scope of stress testing.
2. Selection of ranges of assumptions, including reference to potential source.
3. Checklist of issues to consider.

Stress Testing Working Group Assistance

1. Approach and Scope

- Use existing stress testing governance and infrastructure (models and resources) where available.
- Adopt a quick and flexible approach enabling multiple “what ifs?”
- Consider prior pandemic stress tests as a base (if available).
- Consider potential correlations and causality (eg. link between economic assumptions and insurance claims).
- Prioritise material product lines.
- Consider liquidity, profit, capital, strategic and operational impacts.

2. Assumptions

- Consider both direct (e.g. insurance claims, investment markets etc.) and indirect impacts (economic downturn).
- Consider the course of the pandemic over time and use a time period that suits the outputs (e.g. shorter time period for liquidity than for capital).
- Ranges for assumptions – refer to Pandemic Centre for potential global mortality and infection rates across different countries.
- Macroeconomic assumptions – consider sourcing from internal economists or through external sources (e.g. RBA).

3. Checklist of issues to consider

Stakeholder Engagement

- Who are the key internal stakeholders (Board/CEO/CFO/CRO/Head of Product etc.)?
- Who are the key external stakeholders and how should they be engaged (e.g. APRA)?
- What is the cadence of ongoing engagement with key stakeholders?

Operational

- Volumes of claims and availability of key staff to run the business.
- Can staff operate remotely?
- Impact of school closures on staff capacity/productivity.
- Can claims management work properly (e.g. medical checks)?
- Are key functions missing?
- What happens if key staff have the illness?
- What is the mental well-being of staff and what impact will this have?
- Are parts of the IT system broken?
- Government and/or regulator actions (eg. reduced claims screening/management).

Claims and Product

- Products impacted.
- Impact of external pressure to pay claims not covered by policy wordings.
- Own, competitors' and reinsurers' policy wordings, and gaps between them.
- Impact of operational capacity constraints on claims management and subsequent reserving (e.g. longer processing times may lead to lower decline rates and claim termination rates).
- Underwriting and distribution of new business.
- Ability to re-price (and constraints on doing so e.g. Health insurance action).
- Implications on bonuses for traditional products and investment account policies.
- Do stresses from the parent entity, subsidiaries or overseas branches impact the Australian business?

Economic

- Asset valuations (including unlisted assets) and impairment testing.
- Impact of very low interest rates (possibly negative).
- What are the implications of asset valuations on strategic asset allocations and target asset allocations – does the investment portfolio require rebalancing?
- Are there any limitations to portfolio rebalancing?

- Are there any beneficial impacts from the change in economic conditions (e.g. currency depreciation) and how quickly can these benefits revert back?
- Access to liquidity.
- Solvency of counterparties (e.g. reinsurers) including pressures to apply higher provisions for unreceived cashflows.

Data and Modelling

- Is the required data available? If not, what approximations can be made?
- Are models fit for purpose? If not, what high level modelling needs to be done?
- What are the key limitations/assumptions being made in the modelling – how material are these in the context of the COVID-19 scenario? Consider materiality throughout the projection period.
- How quickly can the outcomes be modelled and what is the frequency of refreshing the modelled outcomes?
- Given the uncertainty, what experience/benchmarking can be used to get comfort around the results?
- Are the assumptions and outcomes used in the modelling of one part of the business consistent with those used in another part of the business?

Risk Management

- Are outcomes within risk appetite? If not, what mitigating actions can be taken to bring outcomes within appetite?
- Do existing risk management and ICAAP practices work?
- Do capital buffers and triggers need to change?

Additional resources for the risk management implications of COVID-19 are available on the Pandemic Resources Centre. ([Pandemic Briefing Risk Management implications of Coronavirus \(COVID-19\) – for Managers](#))

Strategic impact

- Is a material change in strategy required?
- Is the business in risk of failing – should the organisation be thinking about activating its Recovery Plan?
- Are existing Key Performance Indicators still appropriate for incentive remuneration in the current environment?

Mitigating Actions

- Consider the suite of mitigants included in ICAAP and the Recovery Plan. These may include mitigants used in prior stress tests – will these mitigants work in this event?
- Does the market/parent have the capacity to provide capital (and at what price)?
- Are mitigants reasonable (e.g. are expense reductions realistic, re-pricing, capital access, de-risking)?
- Are there any side effects from using these mitigants (e.g. reputational damage)?
- Are there any regulatory constraints – do the mitigants need regulatory approval?
- What information does senior management and the Board need to see before deciding whether to deploy these mitigants?
- Consider the impact of mitigants deployed by competitors.

Multiple Stresses

- Other perils can still occur during the pandemic – what multiple events are plausible and worth testing? Are outcomes within risk appetite?

Next Steps

Please provide feedback on the [Pandemic Resource Centre Discussion Forum](#).

Reference Documents

- Actuaries Institute: [Pandemic Resource Centre](#)
- [Thoughts for Life insurance Actuaries](#) (Jennifer Lang, Michael Dermody, Colin Yellowlees, Alex Stitt, 27/3/2020)
- [APRA issues guidance to authorised deposit-taking institutions and insurers on capital management](#) (April 2020)
- [PANDEMIC: What every actuary advising an Australian financial services organisation should know](#) (Alex Stitt, May 2006)
- [Quantifying Coronnavirus](#) (The Actuary, April 2020)
- [Roadmap to a COVIDSafe Australia](#) (The Australian Government, May 2020)

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