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# DEVELOPING THE RISK APPETITE FRAMEWORK OF A LIFE INSURANCE BUSINESS

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# Structure of Paper

1. Risk Appetite Framework (including definitions)
2. Risks facing Life Insurers
3. Risk Appetite Statement
4. Risk Tolerances and Risk Limits
5. Calculating and Cascading Risk Tolerances to Risk Limits
6. Process for Setting the Risk Appetite Framework
7. Embedding Risk Management

# Today's Outline

1. Defining Risk Appetite
2. Setting Risk Tolerances and Risk Limits
3. Cascading Risk Tolerances to Risk Limits
4. Monitoring and Governance

# Definitions

- The paper aims to provide clarity around Risk Appetite terms.
- Definitions for key Risk Appetite terms were chosen after considering the definitions used by APRA and key international organisations.
- Tended to adopt definitions advocated by the Financial Standards Board.

# Defining Risk Appetite

# Risk Appetite

***"The aggregate level and types of risk an institution is willing to assume, or to avoid, within its Risk Capacity to achieve its strategic objectives and business plan."***

# Risk Appetite Statement (RAS)

***"The articulation in written form of the aggregate level and types of risk that a firm is willing to accept, or to avoid, in order to achieve its business objectives. It includes qualitative statements as well as quantitative measures expressed relative to earnings, capital, risk measures, liquidity and other relevant measures as appropriate. It should also address more difficult to quantify risks such as reputation and money laundering, as well as business ethics and conduct."***

- No "one size fits all" design and structure for a RAS.
- Requirements will differ depending on size and complexity of business.

# Defining Risk Appetite – Risks to Consider

- Board's have flexibility in how they define their Risk Appetite and the types and amounts of risk they chose to have exposure to.
- The RAS should cover what the Board considers to be the institution's key risks.
- CRO Forum proposes four broad risk categories for the Board to consider:
  - Achievement of target performance;
  - Preservation of capital;
  - Maintenance of liquidity; and
  - Protection of franchise value.
- Each of these risks categories requires a clearly articulated qualitative or quantitative bound.

# Setting Risk Tolerances and Risk Limits

# Risk Tolerance

***"Risk Tolerances are the quantitative measures and qualitative assertions for the maximum risk allowed by the appetite. Risk tolerances are typically set at the enterprise level."***

- Defined on enterprise outcome variables, e.g. profit, solvency.
- Risk Tolerances are typically designed relating to business units, products or material risk.

# Risk Limits

***"The restrictions prescribed by an institution on its business activities, designed to constrain overall risk taking within the Risk Tolerances established in the Risk Appetite Statement. Risk Limits are operational in nature and serve to cascade the Risk Tolerances into practical constraints on business activities."***

- Provide operational controls on the level of the organisation that manages risk on a daily basis.
- Expressed in metrics convenient to monitor.
- Provide a brake against excessive risk taking.

# Risk Tolerances and Risk Limits – what's the difference?

- Risk Tolerances can be viewed as constraints on business *outputs.*
- Risk Limits can be viewed as constraints on business *inputs.*
- Effectively applied, Risk Limits are the manner in which Management gives effect to the Board's Risk Appetite and associated Risk Tolerances.

# Attributes and examples of Risk Tolerances

| Component of Tolerance | Examples |
|---|---|
| **Identification and definition of the set of strategic outcome or exposure variables upon which risk will be expressed** | Profit, solvency, value, liquidity, reputation, individual risk silos |
| **What the planned outcome is** | EBITDA growth of 8%, Solvency ratio of 150% |
| **What the tolerated outcome is** | EBITDA growth of 0%, Solvency ratio of 120% |
| **An expression of the frequency of the tolerated outcome** | 5%, or 1 in 10 years |

# Attributes of Risk Limits

| Attribute of Risk Limit | *Description* |
|---|---|
| **Must be measurable** | If a risk owner can't tell if they are within a limit they can't take remedial action. |
| **Quantitative Limits are preferable** | We recognise that some Limits may not be amenable to quantification. |
| **Should be sufficiently binding as to potentially restrict the business** | A speed limit that cannot be reached doesn't help a risk owner in conducting business but may impose a reporting burden. They also lead to a blasé attitude to the risk function. |
| **Should be unambiguous** | Discussion should be about what the limits should be, not whether they were breached or not. |
| **Expressed in the language of the business** | The limits will be discussed and agreed with the risk owners. It is important that they be expressed in terms risk owners and the business can understand, measure and report on. |

# Cascading Risk Tolerances to Risk Limits

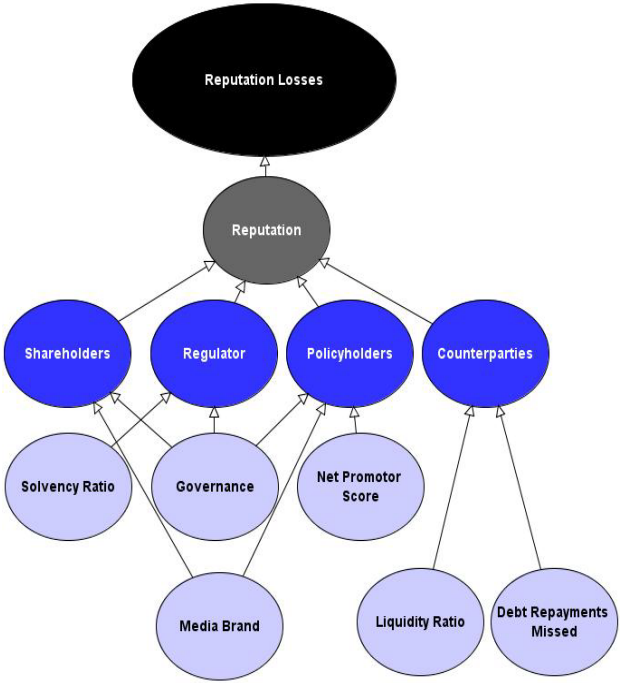
# Cascading Risk Tolerances to Risk Limits

- Unlike Risk Tolerances which are set using judgement of the Board, Risk Limits can be determined using a variety of approaches.
- Ideal approach – start with outcome constraints as defined by Risk Tolerances and work backwards to determine the set of constraints on input variables consistent with the outputs. This approach is difficult in practice because insurance companies are “complex adaptive systems”.

# Useful Cascading Techniques

| Nature of System | Description of System | Useful Cascading Techniques |
|---|---|---|
| **Deterministic** | No uncertainty about future outcomes. | Direct (mathematical risk statistics) |
| **Complicated** | Characterised by one-to-many relationships. | Euler methods, causal simulation models, segment analysis, Generalised Linear Models |
| **Chaotic** | Small changes in inputs result in extremely larges changes in outputs. | None |
| **Stochastic** | Characterised by random variables whose future states are uncertain. | Frequentist statistics |
| **Complex Adaptive** | Characterised by many- to-many relationships. | Causal and structural models Bayesian statistics/networks |

# Cascading Complex Adaptive Systems: Reputation Risk Example




1. Elicit the causal system or network of cause to effect relationships holistically in a qualitative sense.
2. Elicit the dynamics of how the cause to effect relationships operate to generate outcomes.
3. The above information can be captured in the form of a Bayesian Network model.
4. Inference techniques can used to reverse propagate a conditional outcome such as a Risk Tolerance, to work out all the possible combinations of states on the input variables that are consistent with the outcomes.

# Monitoring and Governance

# Monitoring

- Risk appetite should be monitored with sufficient frequency and efficiency to enable timely decision making in response to changes in the organisation's risk profile.
- Monitoring of risk levels against Risk Tolerance and Risk Limits is a key risk management function.
- Typically carried out using risk dashboards with traffic light indicators – indicate where risks sit in relation to Risk Appetite.
- Outcomes that have breached Risk Tolerance levels do not necessarily breach the Risk Tolerance as the frequency statement may not have been breached.

# Governance

- A governance framework ensures the ongoing integrity of the Risk Appetite Framework.
- Best practice is for the Board to be involved in both developing and approving the Risk Appetite.
- Board should be consulted early on to ensure the RAS reflects their combined appetite for risk.
- Risk owners should be engaged early to ensure Risk Limits are easily understood, meaningful and measurable.

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# Questions?