The Actuarial Profession
making financial sense of the future

Risk & Investment Conference 2011

Paul Davies

Risk Appetite And Risk Limits

How To Ensure Top-Down Appetite Is Consistent With Bottom-Up Limits

Purpose of presentation

- How do you turn a qualitative view on attitude to risk into a practical implementation of meaningful limits applied to the business?
- This presentation hopes to give practical insights and examples, through identifying the key questions in a process for creating a risk appetite and implementing risk limits.

Introduction and relevance of risk appetite

- Risk Appetite is an important statement of a Board's attitude to risk.
- Risk limits within your Risk System are a requirement of the Solvency II directive
  - The ORSA will report on the overall solvency needs taking into account the specific risk profile, **approved risk tolerance limits** and the business strategy of the undertaking.
- "There is a big step between defining and applying risk appetite." FSA
- "Risk Limits often failed in the recent financial crisis because firms took risks that their board and management did not know or understand"

What is Risk Appetite?

ST9 Core Reading:

- risk appetite is broadly defined as the degree of risk that an organisation (or individual) is willing to accept in order to achieve objectives.
- includes:
  - consideration of the level and types of risk that are desired in order to meet objectives (including objectives of value creation and growth)
  - risk tolerance (i.e. how much risk the organisation is prepared to retain or how much variability it is prepared to withstand)

A Risk Appetite Framework

- Risk Appetite is likely to be both qualitative (attitude) and quantitative (Value Limits).
- It needs qualitative statements that define
  - The approach to risk within the organisation,
  - What risks will be accepted,
  - The priorities of the company
- Quantitative metrics and limits will implement the risk appetite framework

A risk appetite framework:

- Is set by the Board or Senior Management of the company;
- May often develop from implicit 'risk appetite' set through past practise and decision making within the company;
- Takes the existing risk culture in the organisation and develops a structure to better enable decision making

The Key Questions

Risk Appetite	**What risks are part of the Business Strategy?** **What are the Objectives?**
Risk Tolerance	**What are Acceptable Outcomes?** **With what Confidence?**
Risk Limits	**What are the Key Risk Drivers?** **Are Stress tests of these risks acceptable?**

5

Risk Appetite:
What risks are part of the Business Strategy?

- A Financial Services company generally exists to take on risk that can add value to its shareholders
  - The business strategy sets the risks the company seeks to take on
  - It adds value through how it manages these risks, through its abilities, knowledge, perception and innovation
  - It is the risks that it chooses to take, and the amount of these risks (limits) that define its risk appetite.
  - It should also understand the risks it doesn't want, and those risks which are consequential to its business that it seeks to minimise – e.g. Operational risks

- Consider the Existing risk profile and key products for new business

Risk Appetite:
What are the Business Objectives?

- What does the firm seek to achieve?
  - Earnings
  - Business Growth
  - Policyholder returns
- Is there a business plan of strategies to be followed?
- Who are the stakeholders to satisfy?
- These objectives identify the metrics most important to the company for decision making
  - Solvency Capital
  - Economic Capital
  - Rating Agency Models
  - Earnings
  - Embedded Value
  - New Business
  - Reputation
  - Staff Morale
  - Risk Culture
  - Liquidity

Risk Tolerance: What is the range of Acceptable Outcomes?

- Risk implies that a range of outcomes is likely.
- Some of the impacts of these outcomes may not be acceptable to the business objectives.
  - Reduced Solvency
  - Volatile Earnings
  - Regulatory Intervention
  - Insufficient liquid Cash resources
  - Reducing Shareholder dividends
  - Operational impacts
  - Reputational impact
- What shock, financial or other, to the business can be taken and still maintain existing business plans
- What would be a trigger for management actions within the business that would change the business strategy.
- What can the company withstand without impacting its own 'success' criteria, and what would be the potential consequences of failing to meet these acceptable outcomes

Risk Tolerance: Over what time horizon and Confidence level?

- How often is the company prepared to accept a 'non-acceptable' outcome
- What level of risk event that could occur should still be expected to lead to an acceptable outcome, e.g.
  - A 1 in 10 year stress over one year
  - A Single standard deviation of experience
- This defines the amount of buffer required within the business strategy and plan, against the risks the business undertakes. The higher the acceptable outcome or risk severity to be covered, the larger the buffer required.
- This is not a requirement to hold capital on capital, but gives a target for the company to operate within
- By setting these stresses on the output from an Internal Model Risk Model, e.g. a risk probability distribution, a demonstration of Use in a Solvency II context is made.

Example Risk Tolerance

- For example, the Board may express its risk tolerance with reference to one or more of:
  - the company's solvency level
    - The solvency ratio should stay above the threshold X% over the year with a 90% probability.
    - The company is prepared to lose $Y from a single standard deviation risk event over the next 12 months
  - its credit rating
    - The probability that the company's credit rating is reduced from the current AA to A-, or worse, in the next twelve months should be no more than 2%.
  - its earnings and ability to pay dividends
    - Dividend volatility over the next year should be no more than Y%.

Developing Risk Limits:
What are the key risks and their Drivers?

- Which risks within the organisation have the ability to take the company beyond its risk tolerance, i.e. to an unacceptable outcome?
  - What risks have the largest capital exposure – these are the most material to the organisation
  - What risks are most sensitive to affecting the key business outcome metrics
- What are the main drivers of these risks
  - Amount of exposure
  - Riskiness characteristics
  - Levels of new business
  - Speed of emergence of a risk
- It is to these risks and their drivers that the business should set limits

Developing Risk Limits: Are stress tests of these risks acceptable?

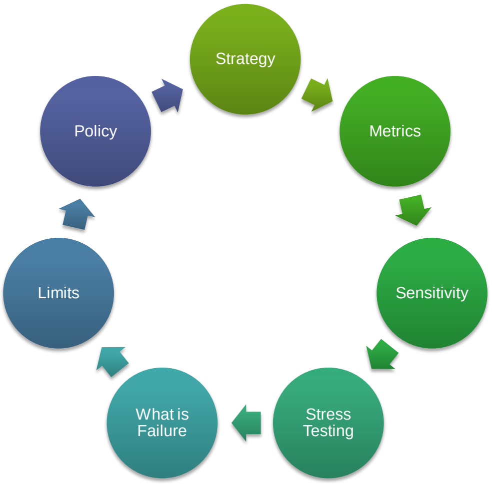
- Identify the drivers of risk that are the most important and stresses to these in line with the stated confidence level and time horizon
- Understand how the business outcome metrics change as these drivers changes. What are the sensitivities of the key outcomes.
- What risks are already beyond their risk tolerance – these risks need the most immediate attention
- Other risks will have additional capacity within the organisation.
- Limits can be set within the company to ensure the company tolerates the potential outcomes
  - A RAG analysis of risks can highlight the risks to focus attention upon

How should Risk Limits be defined?

- Risk Limits can be set in relation to a risk category, e.g.:
  - Amount of Capital required
  - Amount of Earnings at Risk from a single stress
  - Maximum Exposure (Market value, sum at risk, etc)
- Risk Limits in the business should be 'Soft limits' that stop your risk drivers breaching your overall risk tolerance
- Management can take action to
  - Change strategy
  - Review and increase limits if not breaching risk tolerance (may decrease other limits to compensate)
  - Seek higher approved risk tolerance limits

A Risk Appetite Process

- An iterative process the company can follow
- This is likely to take several iterations to fully embed.
- Start simply with what you already have and know
- Board and Senior Management engagement is crucial to early success.



Key Messages

- Set limits to ensure the business strategy can still stand after a defined level of risk stress event
  - Understand your business strategy, risk profile and capital interactions
  - What are the acceptable and unacceptable outcomes
  - Define quantitative criteria that to be met after a stressed risk event
  - How would the business strategy change after a risk event
  - Are the outcomes too sensitive to risk drivers or is their capacity for additional risk
- The process is iterative so start simple with major risks and then refine

Working Group

- Paul Davies
- Simon James
- Dokkie Nel
- Nick Parry

Questions or comments?

Expressions of individual views by members of the Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.