Financial Condition Reporting

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What I shall cover

- What does “financial condition” mean?
- Insurance company risks
- Methods of modelling individual risks
- Insurance as a means of mitigating risk
- “Bringing it all together”
- Tail dependency
- Risk measures

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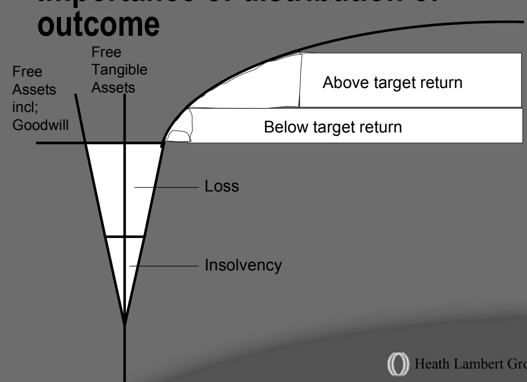
Importance of distribution of outcome



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Who is interested in what?

- FCR covers all aspects though some stakeholders may only be interested in part of the result
- Shareholders want high risk adjusted returns
- Policyholders want security at the most cost effective price
- FSA wants companies to have "adequate resources"

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Adequate resources

- Meet customer liabilities even if things go wrong - probabilities not defined
- Resources include: capital, reinsurance, procedures, and IT systems, guarantees (if enforceable), contingent capital, qualified staff
- Firm (insurers, banks, etc) must (as part of business plan) test ability to cope with reasonable adverse scenarios
- Well-run firms doing this anyway
- Process documented - so available to FSA (Prin 11)

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Institute of Actuaries paper on FCA

- Provides a framework for evaluating a company's financial position in relation to the risk it covers both from a solvency & a shareholder perspective
- Concentrates on non-life insurance but covers the principles for all companies.
- It covers both readily quantifiable risks and those not so readily quantifiable e.g. management succession
- The Profession's response to the FSA proposal.
- Corley Report also calls for FCR reports for Life Co's

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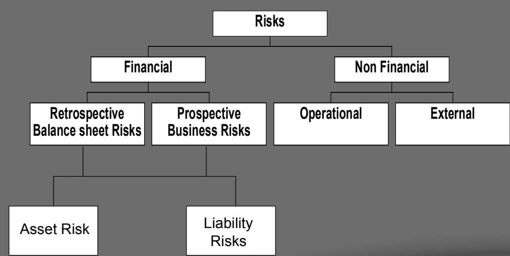
Insurance Company Risks



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Methods of Modelling Risk

- Financial Risk - investment models
- Financial Liabilities - actuarial models
- Operational Risk Modelling needs to be handled with care
- In many cases other disciplines will be required
- Some consultancy firms specialize in people risk
- Can the firm survive adverse scenarios?

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Operational Risk

- ASSESSMENT OF OPERATIONAL RISK

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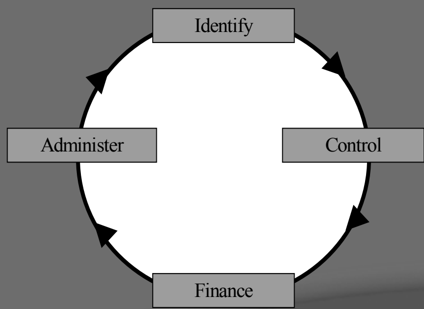
Risk Management Circle



Effective control requires quantification

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Management and Business Risk

- Some can be modelled using econometric or causal modelling techniques
- Some are really risks for shareholders rather than capital issues
- Stress testing can be a useful quantification technique
- Insurance often cannot be used for this type of risk

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Quantification of Operational Risk

- It is more complex than pricing conventional insurance risk
- The risks are more under control of the institution than many insured perils
- Changes in practice can have a material impact
- Organisations do not like to admit to Operational Risk losses
- Some are not readily amenable to statistical analysis e.g. management succession risk

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Scenarios

- Distributions may not be the best approach to evaluating certain types of operational risk
- Test the survival of the organisation to adverse scenarios
- Especially suitable for “people risks” e.g. succession planning

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Quantification of Operational Risk

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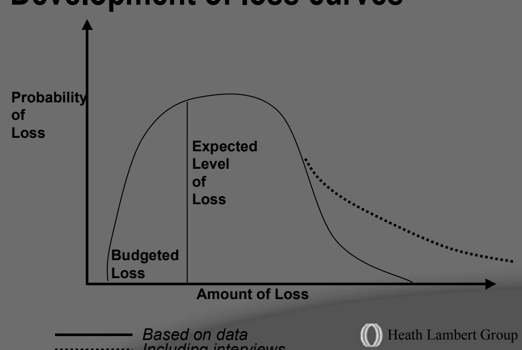
Development of loss curves



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Questions

- The difficulty is the need to estimate the right tail in a skew distribution
- How good is the left of the curve at predicting the right tail
- Use of Bayesian statistics or credibility theory
- What distributions fit the data
- What techniques are best at supplementing the data for "missing large claims"

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What are the other methods?

- Delphi techniques
- Decision trees and causal modelling

? Fuzzy Logic

? Others

? Use data bases for left side and other techniques for right side

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Developing adverse scenarios for soft risks

- Not readily quantifiable
- Develop control processes & assess impact on whole organization under different DFA scenarios
- It is the Board's responsibility to assess risk. The report provides a regular & systematic framework
- It adds value to the company in reducing & controlling risk
- In many cases holding capital is not necessarily the best approach
- Can we develop some case studies?

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Insurance to cover Operational Risk

- This is a non-trivial subject.
- Basel has many doubts.

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Coverage Gaps

- If complete cover is not available then capital will need to be held against remaining risk
- Insurance should mitigate operational risk cost and so should be allowable
- Operational Risk models would need to be run with and without insurance
- Contracts with material exclusions may not mitigate overall capital requirements much
- All Risks Cover is preferable
- Much operational risk violates an underwriting rule that the insured should not be able to manipulate his loss experience
- Some risks may not be insurable e.g. management succession risk

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Claims Disputes

- Some financial impact as a dispute creates coverage gap
- Change insurance practice of conducting investigations at point of claim to investigating at point of sale
- Financial Enhancement Ratings (FER)
- Different in conditions (DIC) coverage

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Bringing it together

- This is a key part of the process
- It is not well understood - the silo mentality is very strong
- Actuaries are very well placed to undertake this role
- There is contribution from others to do this
- This is a major part of the profession’s contribution to the risk management field

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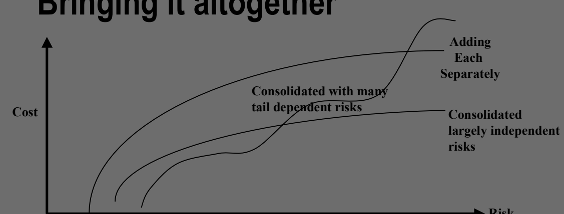
Bringing it altogether



- Adding the efficient frontiers will overstate the costs for a given risk as no adjustment is made for diversification credits
- Tail dependency is key to getting this right & is a key actuarial competitive advantage.

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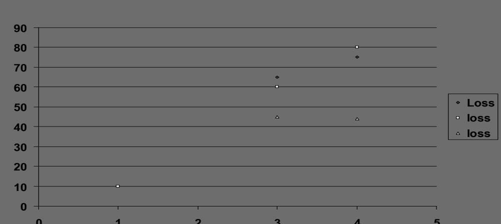
Tail Dependency



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Risk Measures

- Var works well for symmetrical risks
- ECOR is better for skew risks such as most insurance risks
- A coherent measure needs to be used across the group as a whole
- Beware of tail dependency
- Other constraints are also needed such as a requirement to maintain a credit rating

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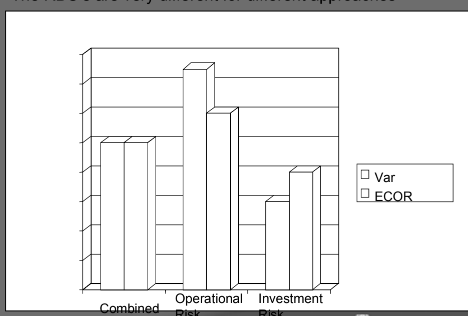
Why Does This Matter?

The RBC's are very different for different approaches



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Coherent Risk Measures

- To be coherent a risk measure (p) must satisfy four conditions:

(i) Translation Invariance $p(x + \alpha .r) = p(x) - \alpha$
(ii) Sub additivity $p(x_1 + x_2) \leq p(x_1) + p(x_2)$
(iii) Positive homogeneity for $\lambda \geq o$ $p(\lambda x) = \lambda (x)$
(iv) Monotonicity If $x \leq y$ $p(Y) \leq p(x)$

Var fails the sub additivity property

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