Capital Structures In Insurance

- So, you have calculated your ICA
- And the FSA have given you some ICG.
- What happens next?

Focus on Economic Capital: Agenda

- Properties of capital allocation
- What capital to allocate
- How to allocate
- Shareholder vs. policyholder perspective
- Business performance
- Strategic planning
- Implementation
Properties of Capital Allocation

The following properties are considered desirable for an Allocation Method:

- Gives stable results
- Capable of ready communication
- Passes common sense tests
- Allows for differences between lines of business (e.g., long / short)
- Reflects management view of risks
- Coherent in mathematical sense

What Capital to Allocate?

Possible choices

- Total Shareholder Funds
- ICA (Adj usted for Risk Tolerance?)
- ICG
- Rating Agency target capital
- Combined Risk of Underlying Distributions
- Diversification benefits?

Choice is not vital. Hurdle rates can be adjusted so that all capital is serviced at required rate.

Investment Risk

- Arguably Investment Risk is fully diversifiable by Shareholders and so taking Investment Risks adds no value.
- Create benchmark portfolio — matched to liabilities, surplus held in cash.
- Assess capital needed for Investment portfolio against this benchmark.
- Deduct Investment capital from total. Plays no further part in this analysis.
How to Allocate Capital

- PURPOSE
  - One Size does not fit all
  - Traditional allocation methods focus on tail of distributions – policyholder perspective.
  - Shareholders more concerned with Franchise Value, i.e. care about all losses over short term.

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How to Allocate Capital (continued)

- Allowing for profitability in allocation can mean:
  - unstable allocations through rating cycle;
  - very low allocations to (temporarily) very profitable business.
  - So make adjustments to traditional allocation methods.

Let $X$ be simulated one-year profit / loss

1. Adjustment 1: Use statistic $Y = X - E(X)$ (eliminates profitability)
2. Adjustment 2: Use TVAR (60%) on $Y$ to allocate capital to lines (allows for all losses, not just tail)

Two Broad Approaches

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<tr>
<th>Method</th>
<th>Description</th>
<th>Comments</th>
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<tr>
<td>Top Down</td>
<td>Each line is allocated its contribution to aggregate loss.</td>
<td>All capital is allocated. Small diverse lines receive very low allocations. Allocations to line can be unstable.</td>
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<tr>
<td>Bottom Up</td>
<td>Each line is treated independently. Allocation is in proportion to each line’s loss.</td>
<td>Scaling is needed to allocate all capital. Stable ‘common sense’ allocations.</td>
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Pricing, Business Performance and Reserves

- In pricing allow for capital charge.
- One method:
  \[ \text{Capital charge} = \sum v^t J(t) \text{C}(t) \]
  where
  - \( C(t) \) is capital held at time \( t \)
  - \( v^t \) is a risk free discount rate
  - \( J(t) \) is frictional cost of holding capital
- As capital is needed for many years, wrong to release all of capital change at end of year 1.
- Implies reserve margin at end of year 1 should be \( \frac{1}{1+v} J(t) \)
- Note if reserves were held like this, discontinued business would generate a return on capital.

Business Performance

- Ideally would like to restate reserves as above. Difficult to implement in practice. Remains to be developed.
- But we do make two adjustments to pure accounting numbers:
  - Discount reserves
  - Eliminate any movements in reserve margins.
- Return on capital calculated (ROCA) post these adjustments.

\[ \text{ROCA} = \frac{\text{accounting profit} \pm \text{adjustment} + \text{notional investment return}}{\text{capital allocated}} \]

Strategic Planning

- For strategic planning impact of diversification is critical.
- Use combination of bottom up and top down views in the analysis.
- Must allow for any goodwill involved in any transaction.
- Must allow for non-economic capital measures.
Implementation Challenge

- The hard bit!
- Communication is key. Message will need to be relayed many times.
- Depth of communication within the organisation needs to be determined.
- Avoid Big Bangs! Gradual implementation, parallel reporting, work through issues.

Summary

- There is no right or wrong way to allocate capital. Need system that works for you and gives common sense results.
- Communication of results likely to benefit from consistent and regular messages.
- Implement carefully.