Risk Based Capital : Issues

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Agenda

- Introduction
- Goals of RBCs/Solvency II (Pillar 1)
- Approaches to RBC
- Issues with regard to RBC
  - Valuation of Liabilities
  - Capital requirements

Introduction

- 1993 – birth of VAR. JP Morgan introduces RiskMetrics. Basel 1 adopts VAR models in 1996 for market risk.
- 1993 – US NAIC adopts RBC in detailed factor based approach – idea 95% VAR over the full run-off
- 2000 – EU embarks on the path of Solvency II
- 2004 – Singapore implements RBC – similar to US
- Why RBC? - closer to Economic Capital
- Economic Capital is the amount of surplus required so that the company is solvent at a given tolerance over a specified time horizon

Goals of RBC

- Establish a standard capital requirement approach

- Utilize quantitative analysis of capital and surplus requirements that reflect each insurer's inherent risks

- Provide regulators with authority to enforce compliance with capital requirements

- Supervisory Intervention would be required if:
  - RBC Ratio > 200% : No Action
  - Company Action Level (RBC ratio 150-200%): Insurer files financial and business plan
  - Regulatory Action Level (RBC ratio 100-150%): Above plus, regulator must examine and require corrective action
  - Authorized Control Level (RBC ratio 70-100%): Above plus, regulator may take control of insurer
  - Mandatory Control Level (RBC ratio < 70%): Regulator required to take control unless corrected within 90 days

Goals of Solvency II

- Common framework for the whole EU
- Similar to Basel II – 3 pillar approach – go beyond the measurement
- Principle based approach in place of rule based .... (though the standard model turns out to be more rule based…)
- Compel insurance companies to develop the ability to understand, measure and manage risks effectively
- Regulators have challenging role in approving and monitoring internal models

Two fundamental approaches

- Factor based approach
- Capital required = factor * amount

- Stress / Scenario based approach
- Capital required = Base Surplus – Stressed surplus
  - Where stressed surplus is excess free assets under the applied stress

Mortality Risk: Life

- Factor based approach (US)

- Capital required = factor * amount

NAAR layer	Individual	Group/credit
$0-500 mil	2.3‰	1.8‰
$500 mil – 5 bil	1.5‰	1.2‰
$5-25 bil	1.2‰	0.9‰
$25 bil+	0.9‰	0.8‰

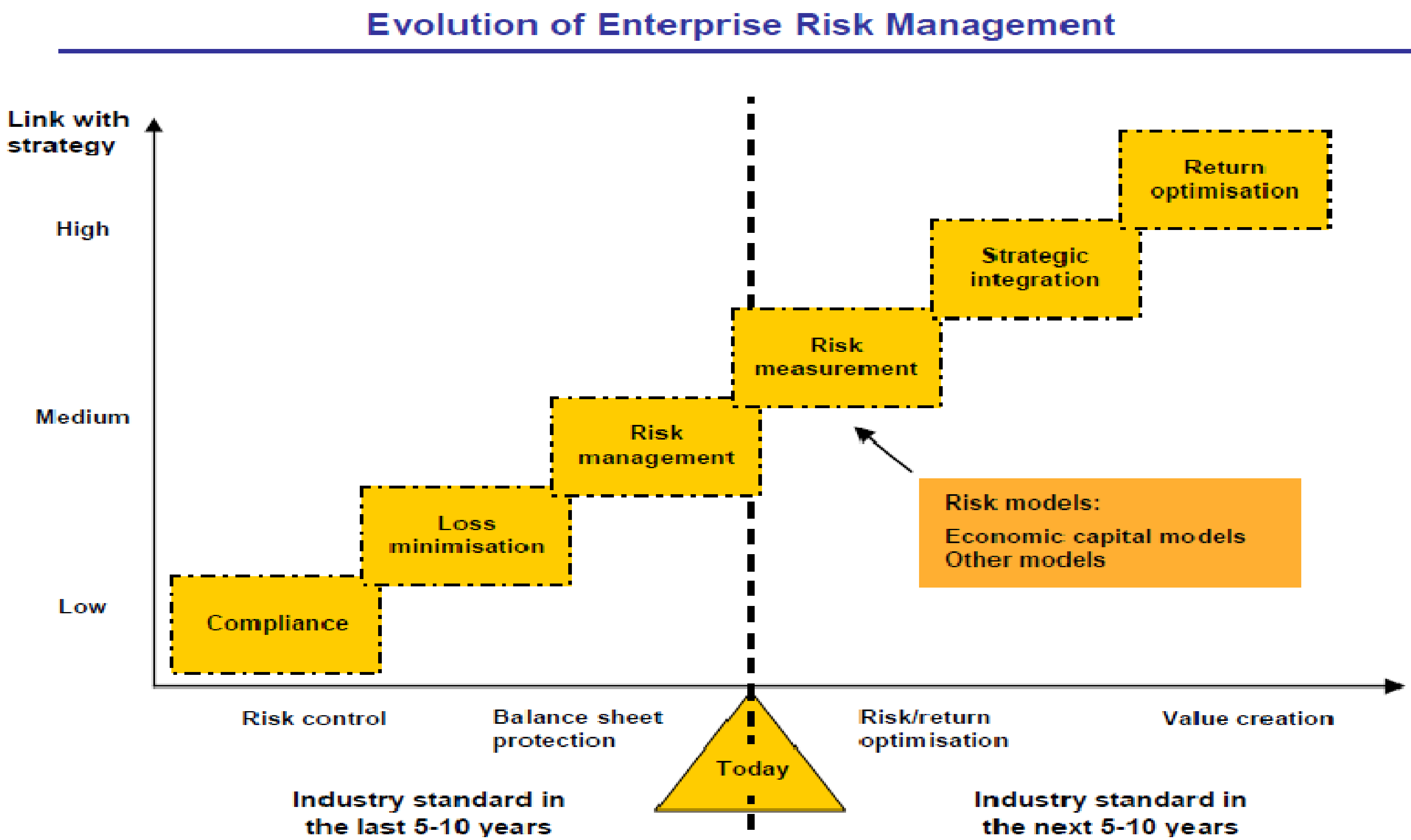
- Stress / Scenario based approach

- Capital required = Base Surplus – Stressed surplus (permanent x% increase)

- Depending on the composition of asset/liabilities this may differ substantially from the above

Market	Statutory Reserve	Accounting Reserve	Solvency Requirement
Australia	Best Estimate + risk margin (75%tile)	Similar to IFRS Phase II first draft	US Style RBC – modifications in line with EU style
China	Adjusted NP method	GPV with risk/residual margin, close to IFRS 4 Phase II ED	EU Solvency I Style
Hong Kong	Adjusted NP method	IFRS 4 phase I requirement, the reserve method is usually statutory or US GAAP	EU Solvency I Style
Indonesia	Adjusted NP method	Statutory	Between EU Solvency I Style and US-style RBC
India	GPV method with MAD	Statutory	EU Solvency I Style
Korea	Net level premium method with DAC	Statutory	US-Style RBC requirement
Malaysia	GPV method with PAD	Statutory	US-Style RBC requirement
Philippines	Adjusted NP method	Statutory	EU Solvency I Style
Singapore	RBC reserve requirement, in Virtue a GPV method, with risk margin	Statutory	Between US-Style RBC and EU solvency II style
Taiwan	Adjusted NP method	IFRS 4 phase I requirement, the reserve method is statutory	US-Style RBC requirement
Thailand	GPV method with PAD	Statutory	US-Style RBC requirement
Vietnam	Adjusted NP method	Statutory	EU Solvency I Style

Indian Insurance Industry



Risk Categories to be Stress Tested

- Insurance risk – Underwriting / Claims risk
- Market risk
- Credit risk
- Liquidity risk
- Operational risk

Issues : Liabilities

- Contract Boundary
  - What should be the boundary?
  - Does renewability option implies boundary is extended?
  - Which cash flows to recognize inside the boundary?
  - beyond the boundary??

Issues : Liabilities

- risk free interest rates
  - Which risk free?
  - Sovereign risk? Illiquidity?
  - Extrapolation or non hedgeable terms

Issues : Liabilities

- risk free interest rates
  - Cyclicality ? (counter cyclical premium)
  - Annuities ? (matching premium)

Issues : Liabilities

- Market Value – Risk Margin
  - SII – CoC approach – requires future SC
    - Full calculation
    - Approx indiv risk used for sc
    - Approx whole scr in future years (proportional approach)
    - Duration approach
    - % of best estimate

Issues : Liabilities

- Market Value – Risk Margin
  - SII – CoC approach – cost of capital / diversification
    - Line of business/entity/group
    - Own-fund cost or the market fund cost…

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- Market Value – Risk Margin
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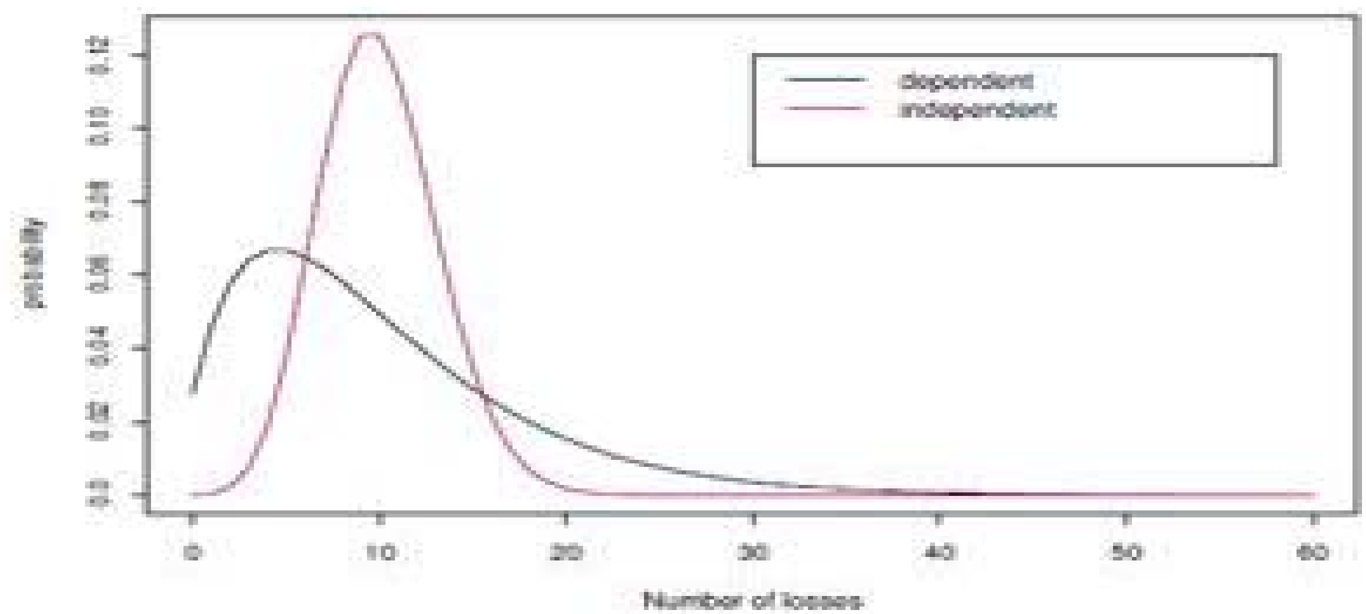
    - Line of business/entity/group
    - Own-cost or the market cost or the regulator specified

Issues : Aggregation

- Aggregation – diversification benefit
  - SII – modular (correlation based)
    - Non linearity
    - Within category/Geographical zero correlation



Issues : Loss absorbency

- Loss absorbency of TP / Future mgmt actions
  - SII – modular (correlation based)
    - Risk of double counting
      - Scenario based
      - W/o and with – the difference limited to value of mgmt action
      - Also applicable for deferred tax assets

Issues : Miscellaneous

- Assets switch out from high capital required investments
- Taxation impact (specially indian context)
- Fungibility of par surplus
- Segregated fund – complete match
- Cat risk
- Capital add-on possibility
- Regulatory arbitrage – financial sector
- Social sector inclusion issues

THANK YOU

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