

A person is silhouetted against a vibrant sunset sky, juggling several balls. The scene is set on a beach with waves in the background. The sky is filled with orange and yellow clouds, and a rainbow is visible in the upper left. The person is in the foreground, looking up at the balls. The overall mood is serene and contemplative.

The Actuarial Profession
making financial sense of the future

GIRO Conference and Exhibition 2012
Juggling uncertainty the actuary's part to play

20th September 2012

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GIRO Conference and Exhibition 2012

**Economic Capital Modelling In
Emerging Market**
Cynthia Yuan, Michael Fung,
Lawrence Cheng

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Working Party Member

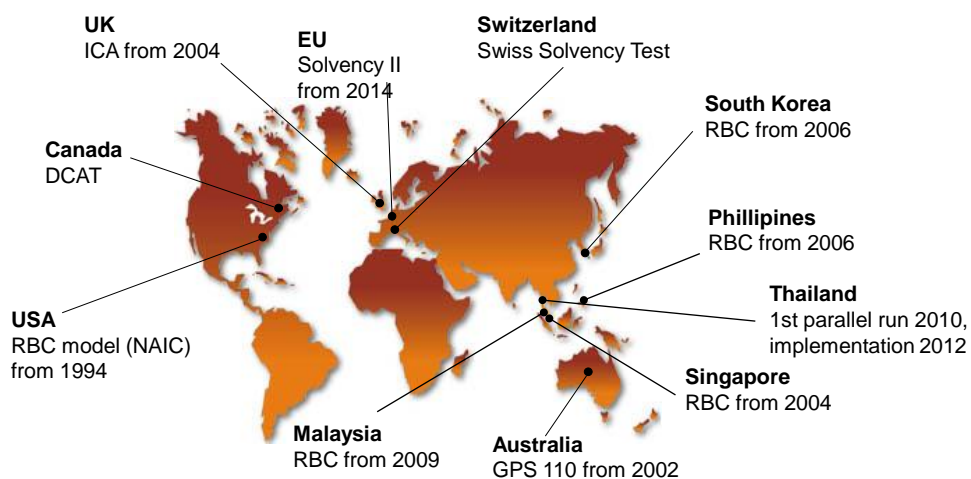
- | | |
|-----------------------|-----------------|
| • Cynthia Yuan, Chair | • Ayana Waswate |
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| • Lawrence Cheng | • Helen Lau |
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Solvency Regime in Asia

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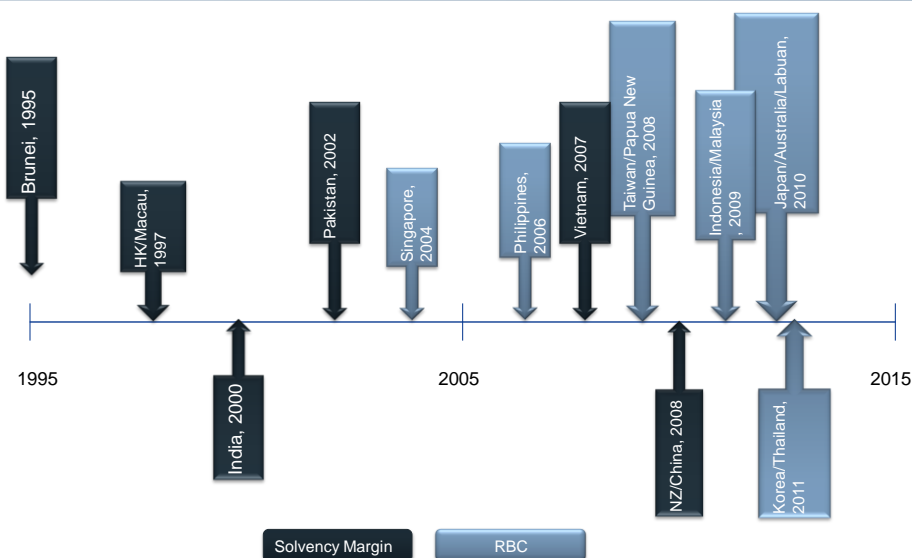
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Solvency Requirement around the World



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APAC Regulatory Timeline

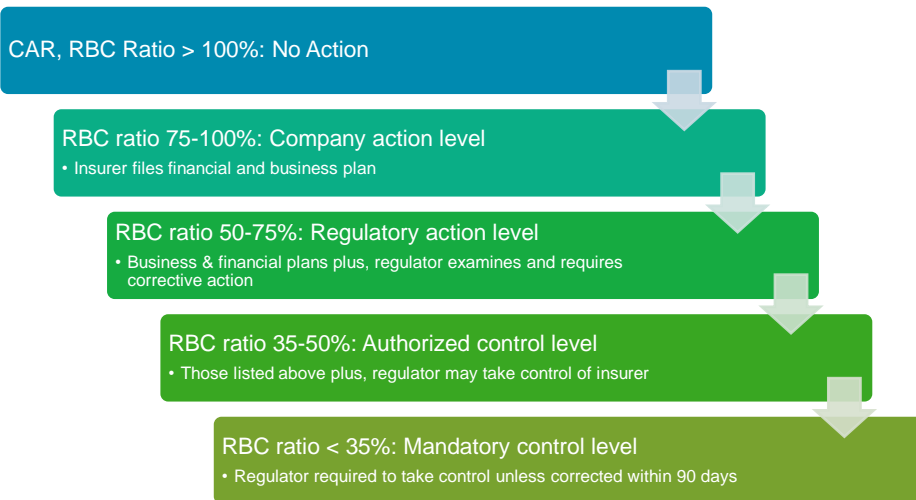


RBC Regimes

- Most common modern day regulatory regime
- Calculation differs slightly by country by concept the same
- Capital Adequacy Ratio (CAR) =
$$\frac{\text{Available Capital}}{\text{Required Capital}}$$
- If CAR or RBC ratio < pre-defined %, regulatory action taken

RBC Regimes

Regulatory Intervention Action - Example



Practical Illustration

- How does the capital requirement differ between various regimes?
 - Hong Kong
 - China
 - Thailand
 - Singapore
 - Indonesia
 - Malaysia
 - Korea
 - India

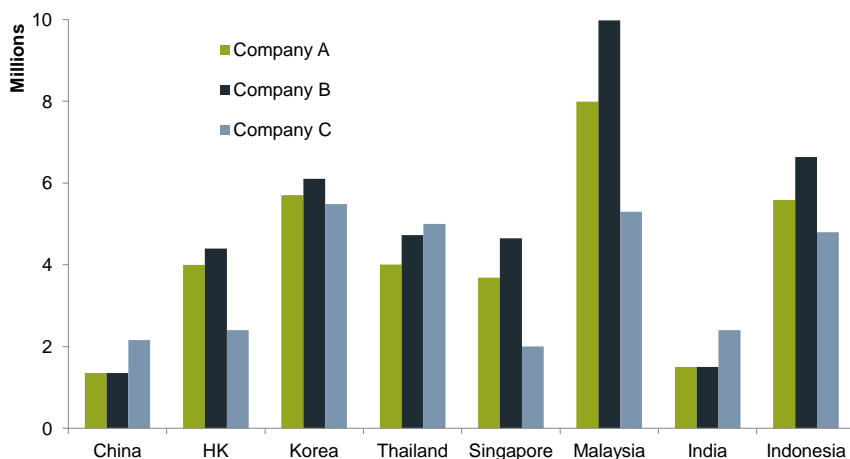
Introducing Insurance Company A, B & C

Balance Sheet as at 31/12/2011			
	Company 1 USD	Company 2 USD	Company 3 USD
Asset Profile			
Cash	5,000,000	5,000,000	5,000,000
AAA Bond 5-Year	10,000,000	2,500,000	-
AA Bond 3-Year	5,000,000	2,500,000	-
BB Bond 2-Year	5,000,000	20,000,000	-
Equity	5,000,000	-	25,000,000
Reinsurance Recoverables	5,000,000	9,000,000	-
Total Asset	35,000,000	39,000,000	30,000,000
Effective duration of asset (Years)	3.5	2.0	-
Liability Profile			
Loss Reserve	20,000,000	22,000,000	-
Unearned Premium Reserve	5,000,000	5,000,000	-
Total Liability	25,000,000	27,000,000	-
Effective duration of Liability (Years)	2.5	3.5	-
Net Asset Value	10,000,000	12,000,000	30,000,000

Introducing Insurance Company A, B & C

Breakdown of Liability Profile			
	Company 1	Company 2	Company 3
Motor	50%	0%	0%
Household	50%	0%	50%
Third Party Liability	0%	50%	0%
Commercial Property	0%	50%	50%
Reinsurer Distribution			
AAA	30%	30%	30%
A	50%	50%	50%
BBB	20%	20%	20%
Business Plan 2012			
	USD	USD	USD
Gross Written Premium	10,000,000	10,000,000	15,000,000
Gross Earned Premium	10,000,000	10,000,000	7,500,000
Gross Ceded Premium	2,500,000	2,500,000	3,000,000
Ceded Earned Premium	2,500,000	2,500,000	3,000,000
Gross LR	50%	50%	50%
Ceded LR	45%	45%	45%

Minimum Capital Required



Drivers of Capital Requirement – Observations

- Outcomes differ significantly between regimes
 - Different countries having different focus
- The key in this comparison though should be if the calculated requirement reflects the company's true risk exposure
 - Wrong incentives
 - Both company and regulator not aware of true degree of risk and failure in regulatory action

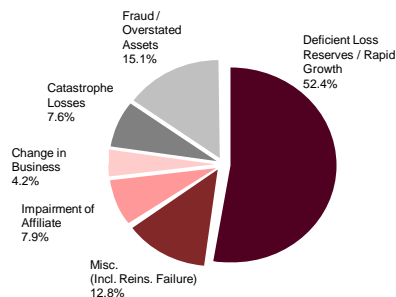
AM Best Impairment Study (1968-2008) Cause

Cause (1969-2008)	Pct Total
Deficient Loss Reserves	38.1%
Rapid Growth	14.3%
Alleged Fraud	8.1%
Catastrophe Losses	7.6%
Impairment of Affiliate	7.9%
Overstated Assets	7.0%
Significant Change	4.2%
Reinsurance Failure	3.7%
Miscellaneous	9.1%

Source: A. M. Best Impairment Study, 2009

* A. M. Best defines impairment as any type of restrictive regulatory action

Primary Causes of P/C Impairments
(1969 - 2008)



Insurance risk is the main killer of P&C companies based on 40 year track record

Upcoming Changes

Regulatory Plan – China (1)

- China Insurance Regulatory Commission (CIRC) officially published a roadmap for the Chinese 2nd generation solvency standard
- The plan is for full implementation in the next 3 – 5 years time, with an overall objective of developing a more robust solvency regime

Regulatory Plan – China (2)

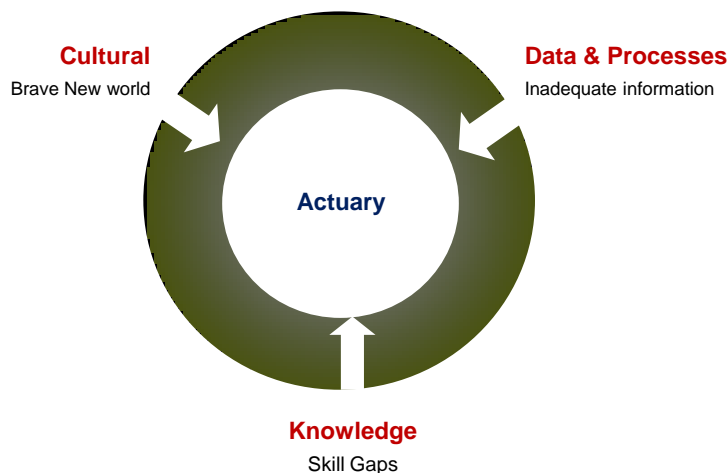
- The roadmap is designed to compose with the following five stages:
 - Stage 1: Review current Chinese solvency regime
 - Stage 2: Perform fundamental research on various insurance risk and solvency topics
 - Stage 3: Issue draft regulation
 - Stage 4: Perform QIS studies
 - Stage 5: Launch the final implementation

Regulatory Plan – India

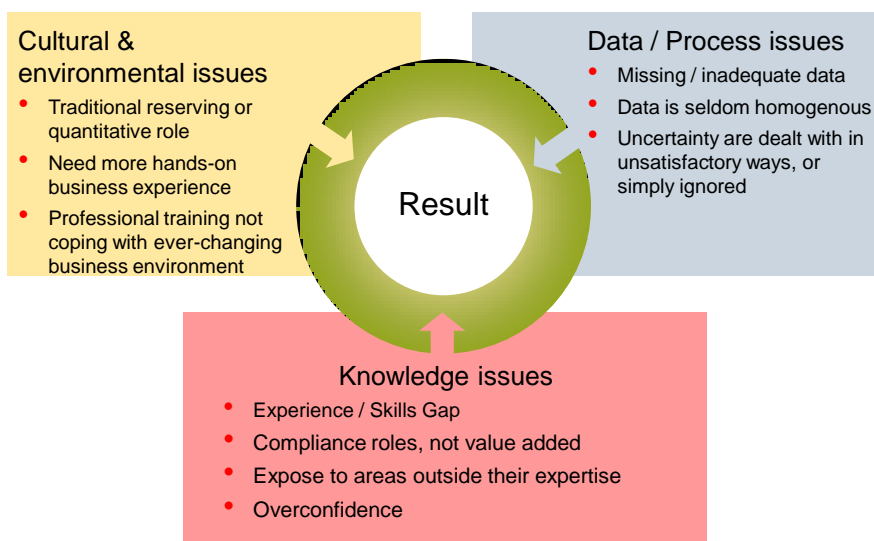
- India Regulatory Development Authority (IRDA) has setup a committee to draft a roadmap for risk based solvency approach in insurance sector
- The committee is carefully studying risk based solvency approach around the world – the US, the UK, Europe, Singapore/ Malaysia
- The aim is to recommend a suitable approach in Indian context and design a system to fit within the Indian regulatory environment

Opportunities And Challenges To Actuaries in Asia

Emerging markets actuaries are faced with multitude of issues



Emerging markets actuaries are faced with multitude of issues



Emerging markets actuaries are faced with multitude of issues



SWOT of Asia capital modelling actuaries

Strengths

- Qualitative skills
- Traditionally involved in quantitative roles
- Activities bounded by professional standards

Weaknesses

- Lack of overall understanding of business arena
- Few are confined in mathematical theories
- Professional training may not offer the right skills to deal with real business environment

Opportunities

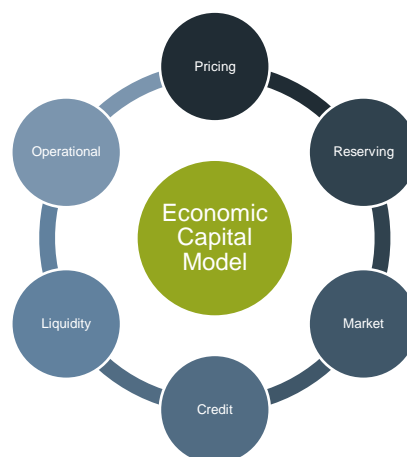
- Play important advisory role in wide aspect than mature market
- Simple market with less technical demanding
- Innovation and creativity can be valuable
- Provide more value added assistance

Threats

- Insufficient / seldom homogeneous data, uncertainty and limitations dealt unsatisfactorily
- Expose to inappropriate areas, lack of experience and skills or being overconfident
- Lack of professional standard

Actuaries are more involved in company operations

- Economic Capital Model attempts to capture all key risks of a company and the characteristic of risk inherent within the business processes
- Actuaries involved in capital works are required to understand all the business processes and the nature of different operations
- Few actuaries have in-depth knowledge of all the activities mentioned above
- Usually actuaries will need to tap into the knowledge of other professionals, in order to create a realistic Economic Capital Model



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Prospect for Asia actuaries

Fast growing market

- Premium volume has increased significantly
- A lot start ups
- Fewer experienced actuaries

More requirement of risk management

- Thailand flood
- Japanese earthquake
- Insurance company has become more mature

More requirement on using capital efficiently

- Fast growing economy--Opportunity costs
- More sophisticated investor

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Thank you!

Questions or comments?

Expressions of individual views by
members of The Actuarial Profession
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The views expressed in this presentation
are those of the presenter.

