



Institute of Actuaries of Australia

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Evolution of the Industry

Target Capital for General Insurers

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Capital plays a critical role for general insurers in offering security to policyholders...

- Provides a “*buffer against losses that have not been anticipated and, in the event of problems enables the insurer to continue operating whilst those problems are addressed or resolved*”
(GPS 110)



Current regulatory framework has focused on insurers meeting minimum capital requirements...

- **Minimum capital requirement (MCR) for insurers is clearly and prescriptively defined in GPS 110**
- **The MCR represents a “hard” capital threshold which insurers are required to maintain their capital base above at all times**
- **APRA has also enforced a “soft” capital threshold of $1.2 \times \text{MCR}$ (higher for some insurers) to ensure protections against breaches of the MCR due to short term fluctuations**



Current market solvency coverage levels suggest most insurers are maintaining a very comfortable buffer over MCR...

	Solvency coverage ratio as at 30 Sept 2004
Weighted average	2.2
25 th percentile	1.6
Median	2.0
75 th percentile	2.8

Source : APRA Insight, 1st Quarter 2005

- Out of 88 active direct insurers, 66 are above a solvency coverage ratio of 1.6
- As at 30 June 2005, the solvency coverage ratios for the larger listed insurers (IAG, Promina, QBE and Suncorp) were observed to be relatively close (1.8-2.0) and broadly in line with the overall market



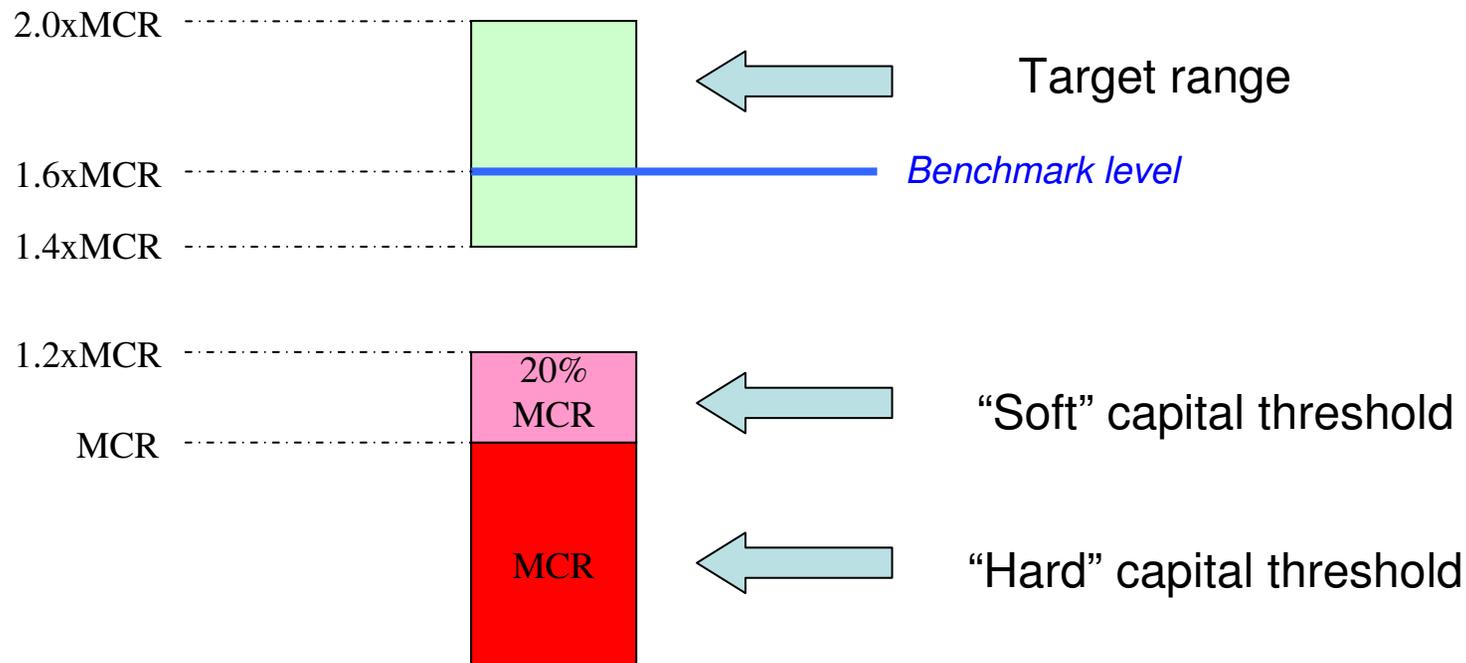
However, pending regulatory change is likely to require development of capital management strategies which go beyond minimum capital...

- **Draft guidance notes associated with stage 2 reforms require insurers to detail their capital management strategy, including trigger ratios and associated management actions**
- **Insurers required to consider a wide range of factors in setting their trigger ratios – including asset and liability profile, forecast business growth and risks (incl. quantitative and qualitative stress testing)**



It may be useful for insurers to think of their capital targets in terms of a target range. The benchmark level represents the preferred level within the range...

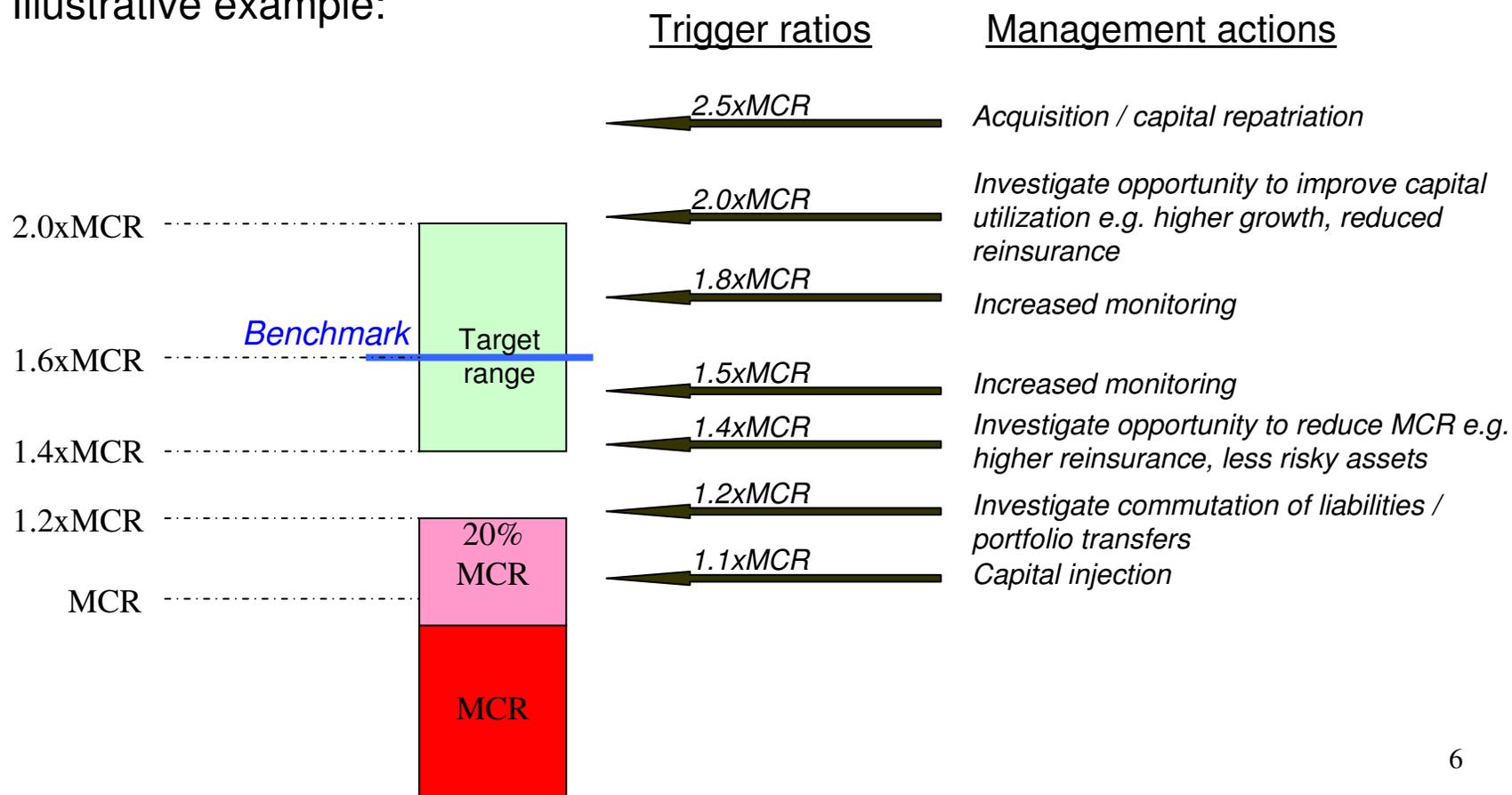
Illustrative example:





Trigger ratios and associated management actions are selected to ensure the insurer stays within the target range...

Illustrative example:





In setting the target capital strategy, the selected risk measure needs to be carefully considered...

- **Two key alternative measures of risk:**
 - a) **Risk of insolvency**
 - b) **Risk of breaching MCR**

- **Breach of MCR will in most cases provide a more “stable” risk measure**
 - **Small changes in risk of insolvency can result in large changes in benchmark capital level**
 - **Risk of insolvency under internal risk model may not “reconcile” with MCR**



Formulation of the target capital strategy (including supporting analyses) may represent a significant work commitment for many insurers...

- **Need to show have considered all relevant factors - including quantitative stress testing**
- **Ideally, trigger ratios and associated management actions should be set with reference to the risk associated with those trigger levels**
- **Insurers who have not undertaken internal risk modeling previously (possibly smaller insurers) may need to start from ‘scratch’**



In some instances it may be possible to reduce this work commitment through the use of simplified models...

- **Deterministic models (e.g. stress testing) may be difficult to equate to a particular risk tolerance level**
- **However, may use simplified stochastic model to measure risk considerations**
 - Need to separately allow for strategic considerations and combine these with risk considerations to ensure each are met



Example of simplified stochastic model for measurement of risk...

- **L = true value of liabilities, A = true value of assets (as realized in order to meet liabilities) at point in time**
- **A, L considered random variables**
- **Risk margin on L (at 75% sufficiency)= r% (assumed constant)**
- **MCR is a function of A,L and r%**

• **Then probability of MCR being breached (eventually) equals:**

$$\Pr (A-Lx(1+r\%) < \text{MCR})$$

For defined distributions for A and L and an assumed correlation between A and L, this formula is easily evaluated using simulation techniques



Illustrative results under simplified stochastic model...

- Assumptions as to asset and liability split and variability selected in order to be broadly representative of a medium to large, active diversified insurer (refer paper for detail)
- Then, evaluation of formula on previous slide results in the following values for the probability of the MCR being breached:

	Buffer over MCR			
Correlation (A,L)	20%	30%	40%	50%
50%	31%	24%	18%	13%
0%	33%	26%	21%	16%



Care needs to be taken when interpreting results under the simplified modeling...

- **Formula for breach of MCR entails a statistical analysis of the distribution of possible outcomes. It does NOT involve any form of projection simulation and resulting output does NOT provide an annualized probability of the MCR being breached (for which need DFA or similar)**
- **Nevertheless, may be useful when examining the relative risk associated with various possible trigger ratios**
- **Can also use this type of modeling as a relatively simple means of exploring estimated risk impacts associated with various possible management actions (including potential growth scenarios)**