

### The 2004 Healthcare Conference 25-27 April 2004, Scarman House, University of Warwic

# PMI – Risk Based Capital

- Institute working party
- Members from PMI insurers, reinsurers and consultancies.
  Objectives
  - Development of outline principles for factors to be considered when calculating a RBC requirement on PMI business.
- This is still a work in progress

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## **Executive Summary**

- ECR is typically less than the MCR.
- RBC / ICA may support a slightly lower level of Capital.
- There is still a lot of work to be done.

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## Outline

- Overview of Market
- Capital Requirements
- Basic Process of Defining RBC
- Consideration of Key Factors affecting the ICA
- Basics of a Model

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#### Summary of Key features of PMI Business

- Very short tail business.
- Pre-notification of claims reduces IBNR further.
- Both group and individual business is written.
- Premium rates revised annually.
- There is initial underwriting / exclusions.A range of products is available.
- A range of products is available.
   On group business, may switch between products from time to time
- Only Acute (non A&E) conditions are covered the NHS provides a safety net.

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### Capital - An Overview

- There is a regulatory requirement to hold a minimum amount of capital, based on EC directives and UK specific regulation.
- Management have their own expectation of the Risk Based Capital required to support current and future business. This takes into account the obligation of management to ensure policyholder claims are paid.
- The link between the regulatory capital and management's capital assessment is via an Individual Capital Assessment (ICA).

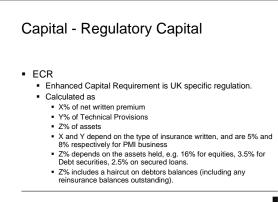
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## Capital - Regulatory Capital

MCR

- EC directive minimum capital requirement.
- Greater of
  - Fixed amount (€2m).
  - 18%/16% of gross premiums \* reinsurance ratio.
  - 26%/23% of gross claims \* reinsurance ratio.
  - Reinsurance ratio is higher of 50% and (net claims over last 3 years)/(gross claims over last 3 years).
- Informally, capital of 2\*MCR has been required.

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# Capital - Risk Based Capital / ICA

- Insurance risk
- Market risk
- Credit risk
- Liquidity risk
- Operational risk
- Strategic considerations

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### The Basic Process of Defining RBC

- Build a basic deterministic cashflow model for a PMI company.
- Define the realistic level of solvency that the company will require in suitable terms.
  - For example, a 2% probability of insolvency over the next 5 years
- Consider likely risks that the business will face.
- Define the possible values that these risks will take, and their interaction with one another.

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### The Basic Process of Defining RBC ctd.

- Model these risks, allowing for the uncertainty attached to them.
- Test and refine the model against any relevant information available.
- Calculated the capital required so that the desired level of solvency is achieved.
- Maintain the model via ongoing review.

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## RBC - Issues for Consideration

- Due to the short term nature of the business, investments are typically short-dated and liquid.
- Reinsurance is not widely used.
- Reserves are not discounted.
- Any guarantees and options offered are not market related but rather insurance risk related.
- The key drivers of risk are therefore insurance risks, operational risks and strategic considerations.

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Risk	Impact	Duration	Likelihood	Correlation
Volatility of Claims	Up to 5% of claims	Ongoing	Probable	Core
Claims will vary from These variances may may therefore possib premium rate increas in the market.	affect the whole le to recover son	ne of the varia	ance in future y	ears through
In addition, a proport vary as the claims in	crease or decrea	se.		these are likely to
	ended to include	ciaims inflatio	n variances.	



<u>Risk</u>	Impact	Duration	Likelihood	Correlation
Pricing errors	Up to 5% of claims	Ongoing	Possible	Core, but also correlated to clain volatility
due to the uncerta Incomplete / Changes in t	separate from the c inties resulting for e inadequate data being the exposed population are unlikely to affect	example from: g available n and incomplet	e rating factors	
recouped in future	premium increases	S.		
be higher than not	lume of business w rmal, and similarly v mainly affect group	vith the volum		

Reserving errors				1
Reserving errors	Up to ½ months worth of claims incurred	Ongoing	Possible	Independent? Correlated with claims variances
This reflects the unce extent Claims Report				BNR and to a lesse



Risk	Impact	Duration	Likelihood	Correlation
Expense variance	5%-10% of expenses	Ongoing	Possible	Independent? Correlated with claims variances?
This reflects the unce	rtainty associate	d with setting	expenses.	
Variances relating to to the changes in the		is and new bi	usiness volume	s are linked directly
0		er fixed expe	nses can also l	be linked to new
business volumes wri	tten and lapse ra	ates.		
Variance relating to th	e inability to cov tten and lapse ra	ates.		



<u>Risk</u>	Impact	Duration	Likelihood	Correlation
Failure of reinsurance treaty	3.5% of net reinsurance balance	Once off	Unlikely	
Reinsurance failure unlikely to occur dur			MI claims dete	rioration – so it is
Partial non- performance of reinsurance treaty	5% of expected recoveries * 1/2 year	1 year	Unlikely	

<u>Risk</u>	Impact	Duration	Likelihood	Correlation
Single event catastrophe	20 lives * £10,000 claim	Once off	Possible – more likely if large group business written	Independent of other events
	be limited to psyc			



Risk	Impact	Duration	Likelihood	Correlation
Epidemic	1 in 50 policyholders *£500 claim	1-2 years	Unlikely	Independent
Again, the NHS is ex cost impact is likely to pricing pressure and	be across the in	ndustry, prem	ium increases	will not be subject to
Change in NHS drug	Limited cost	1 year	Possible	Independent



<u>Risk</u>	Impact	Duration	Likelihood	Correlation
NHS doctors strike	20% * 1/12 * claims	1 month	Unlikely	Unlikely during an epidemic – so same capital may be able to cover both events
Assume a 20% incre This will depend on t linked to NHS waiting	he product, with s		0	

<u>Risk</u>	Impact	Duration	Likelihood	Correlation
Value of underwriting option	1% of premiums on individual business over 5 years old	½ year	Possible	
Individual PMI busine Healthy lives will be a behind.				
Products may be re-p and more relatively h business.				



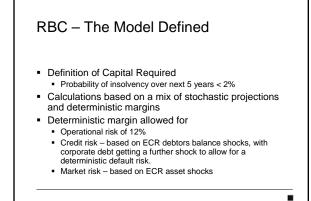
Risk	Impact	Duration	Likelihood	Correlation
Competitive pricing capital	Estimated losses over coming years	1-2 years	Possible / Pre-defined	
If there is an expectation the future for busines not already reflected	s reasons, capita	al will be requ		
Insurance Cycle Adjustment	-2% to 2% of premiums	Cycle over time		
Further to the first po insurance cycle. How		pecialised na	ature of PMI bu	



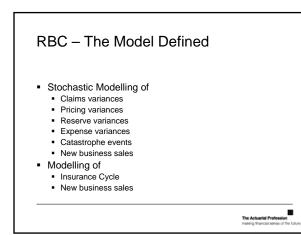
<u>Risk</u>	Impact	Duration	Likelihood	Correlation
New business capital requirement	25%-35% of NB premiums		High	Correlated with pricing rates, expenses and claims ratios
Capital will be require This allowance should expected future busin Relevant expenses sh	l also take into c ess volumes and	onsideration the expecte	managements d variability of s	expectation of sales volumes.

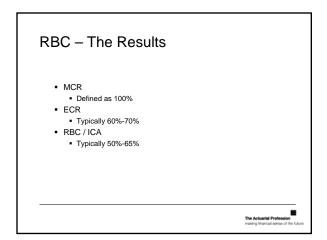
<u>Risk</u>	Impact	Duration	Likelihood	Correlation
Operational risk loading	10%-15% of the risk capital requirement			
This is an area whi Operational risks a structure of the cor	re likely to depend	on strategic of		as well as the





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# RBC – Big BUT

- Only a framework for discussion purposes
- Can be made more complicated / accurate
- Needs to be made company specific
- Needs back-testing
- We welcome any comments

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