

Institute and Faculty of Actuaries

Business Value from Capital Models Demonstrating the Use Test

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30 November 2015



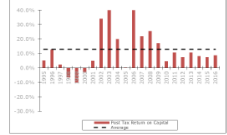
Agenda for today's talk

- Use Test Grid – the 3 levels
- Setting economic capital
- Annual Capital Monitoring Process
- Risk appetite setting
- Assessment of business plan proposals
- RI purchase evaluation
- Some big ad hoc projects

articulate
 sponsorship
 thought leadership
 progress
 community
 seasonal Meetings
 Education
 Working parties
 Volunteering
 Research
 Shaping the future
 Networking
 Professional support
 Enterprise and risk
 Learned society
 Opportunity
 International profile
 Journals
 Support

Introduction: Kiln's risk profile

- 5 syndicates: £2bn of capital under management
- Short tail speciality commercial GI business:
 - no retail customers, no long-tail casualty business
 - 80% outside the UK
- Risk tolerance very much at the high end of the spectrum:
 - expect high volatility (20% chance break-even or worse)
 - target a high return (target: 8% after tax excess risk-free) (actual average 1995-2016: 12%)
- owned by Tokio Marine Group, who have S&P "strong" rating for ERM
- part of Lloyd's, but not refer to that today: "as if" stand alone



Use Test Grid – the 3 levels

Level	Type of usage	Supporting documentation
Level 1	formal / strategic decisions	formal reports and meeting minutes
Level 2	medium size projects / investigations	Special interest papers
Level 3	day-to-day ad hoc calculations	calculation results and emails

Many examples of real-life uses
→ strong evidence of embedding of the model

**Overall documentation in the Use Test Report:
- many uses of the model (1/2)**

Level 1 (formal, strategic)
Setting regulatory Capital
Assessing economic capital
Capital buffer
Raising capital from capital providers
Approval of business plans
Capital management
Three year mid-term business plans
ORSA
Evaluation of risk appetite
Capital allocation framework
Reinsurance decisions
Six-monthly reporting to Head Office

**Overall documentation in the Use Test Report:
- many uses of the model (2/2)**

Level 2 (ad hoc, projects)
New reinsurance programme for SXXX
Testing efficacy of reinsurance programmes
Model changes
Writing extra business
LOB acquisition
Syndicate merger
\$100m xs \$120m layer for EQ risk
New classes of business
New class of business: Space
New business: big new group scheme for SXXX
Underwriting pricing cycle
Setting up a transfer pricing structure/transfer of business to overseas location

Setting economic capital: How much capital to hold - 3 views of capital (actually 7 flavours!)

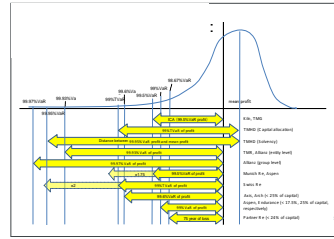
3 views	6 flavours – existing basis, pre SII	New basis – post SII
Regulatory	(1) ICA: 99.5% VaR DFB [~ BBB] Risks to ultimate GAAP reserves	(7) SCR: 99.5% VaR DFB 1-year emergence Tech provs: disc, RM
Rating agency	(2) ECA: 99.5% VaR DFB * 1.35 (3) 99.9% VaR DFB [~ single A]	No change
Economic	(4) Buffer: ECA + 80% TVaR DFM (5) HO carry: AA + 1/10 buffer (6) HO allocation: 99% TVaR DFM	No change

Comment:

- All of these results calculated by the same underlying model
- rationale for (4): capital providers expect rights issue every 5 years
- consistent with risk appetite

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Why are there so many risk measures - which ones to use?

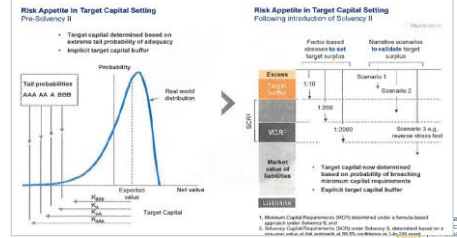


- We need different measures for two different purposes:
- (1) For solvency & capital management
 - (2) For allocation and business management

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How much capital buffer to hold?

Market practices in setting Risk Appetite and calibrating target capital levels have been evolving – Solvency II is a key catalyst for the recent evolution



Workshop Session A - 14 May 2015

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BAU Process: Annual Capital Monitoring Process
 - Capital Setting and Risk Monitoring Process: annual timetable

Regular Quarterly Cycle			
	During 2015	During 2016	During 2017
	Monitor 2015: Audit & Risk Comm	Plan 2016: RJK Board	Monitor 2016: Audit & Risk Comm
			Plan 2017: RJK Board
March	2015 update: • Data 1/1/15 • F/c 6 months		2016 update: • Data 1/1/16 • F/c 6 months
June / July	2015 update: • Data 1/4/15 • F/c 3 months	2016 initial SCR/ECA: • Initial SBF • Data 1/4/15 • F/c 15 months (scaling factor)	2016 update: • Data 1/4/16 • F/c 3 months
September	2015 update: • Data 1/7/15 • Actual posn.	2016 final SCR/ECA: • Final SBF • Data 1/7/15 • F/c 12 months (scaling factor)	2017 initial SCR/ECA: • Initial SBF • Data 1/4/16 • F/c 15 months (scaling factor)
November		2016 update: • Data 1/7/16 • Actual posn. • Coming into line 2016 • Review risk limits 2016	2017 final SCR/ECA: • Final SBF • Data 1/7/16 • F/c 12 months (scaling factor) • Coming into line 2017 • Review risk limits 2017

Risk Appetite Framework - extract

3. Risk Appetite Enablers for 2015

Annual Risk Appetite Plan (RAP) and quarterly risk reports (RAP) for 2015

The business sets out a range of risk tolerance measures designed to cover the whole risk-covered portfolio.

The quarterly risk is set across the risk appetite level financial results.

Key metrics include:

- Return on Capital (ROC) ratio
- Return on Assets (ROA) ratio
- Return on Equity (ROE) ratio
- Return on Investment (ROI) ratio
- Return on Risk (ROR) ratio
- Return on Risk (ROR) ratio
- Return on Risk (ROR) ratio

3.4. Target ROC for 2015

The annual return on capital is determined as a key metric. Business targets return on capital to be achieved by 2015. The target is set across the whole risk-covered portfolio.

3.5. Target ROC for 2016

The annual return on capital is determined as a key metric. Business targets return on capital to be achieved by 2016. The target is set across the whole risk-covered portfolio.

3.5. Target ROC for 2016

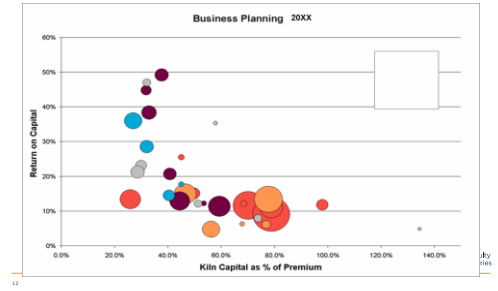
The annual return on capital is determined as a key metric. Business targets return on capital to be achieved by 2016. The target is set across the whole risk-covered portfolio.

3.6. Target ROC for 2017

The annual return on capital is determined as a key metric. Business targets return on capital to be achieved by 2017. The target is set across the whole risk-covered portfolio.

← Many points of PDR → ← Full EP curve →

Assessment of business plan proposals against return on capital targets



Reinsurance evaluation

- Reinsurance evaluation compares the net cost of the reinsurance with the amount of the capital saved
- Net cost means premiums less expected recoveries
- This gives a "return on capital paid away"
- The lower this is the better
- If it is below the current return on capital, it enhances the return on capital
- For many layers it is higher as it is not bought purely on a capital basis
- Next slide shows the results for core layers for syndicate XXX



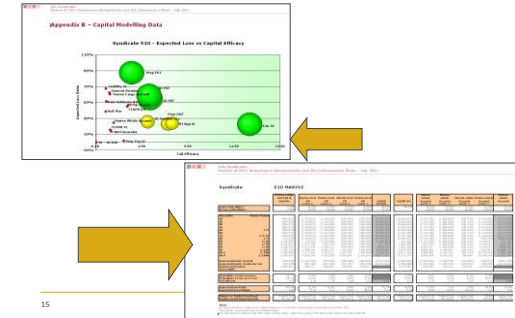
XL reinsurance evaluation for Syndicate XXX

Layer #	Prog. #	Layer #	Prog. #	Layer #	Prog. #	Layer #	Prog. #
10	(3,992,602	(1,100,263)	(1,513,249)	(1,193,879)	(778,061)	(1,205,357)	(506,122)
20	(3,992,602	(1,100,263)	(1,513,249)	(1,193,879)	(778,061)	(1,205,357)	(506,122)
30	(3,992,602	(1,100,263)	(1,513,249)	(1,193,879)	(778,061)	(1,205,357)	(506,122)
40	(3,992,602	(1,100,263)	(1,513,249)	(1,193,879)	(778,061)	(1,205,357)	(506,122)
50	(3,992,602	(1,100,263)	(1,513,249)	(1,193,879)	(778,061)	(1,205,357)	(506,122)
60	(3,992,602	(1,100,263)	(1,513,249)	(1,193,879)	(778,061)	(1,205,357)	(506,122)
70	(3,992,602	(1,100,263)	(1,513,249)	(1,193,879)	(778,061)	(1,205,357)	(506,122)
80	(3,992,602	(1,100,263)	(1,513,249)	(1,193,879)	(778,061)	(1,205,357)	(506,122)
90	(3,992,602	(1,100,263)	(1,513,249)	(1,193,879)	(778,061)	(1,205,357)	(506,122)
95	(730,567	243,490	955,102	1,010,022	1,379,958	(1,205,357)	(506,122)
96	6,785,704	4,000,000	854,102	1,581,837	1,379,958	1,751,431	(286,120)
99	6,785,704	4,000,000	854,102	1,581,837	1,379,958	1,751,431	(286,120)
99.5	6,785,704	4,000,000	854,102	1,581,837	1,379,958	1,751,431	(286,120)
99.9	11,861,926	4,000,000	4,834,634	5,671,424	1,379,958	2,846,429	918,367
Mean	(7,369,636)	(896,363)	(1,249,510)	(1,041,482)	(695,120)	(1,164,233)	(245,260)
Average in syndicate tail (renew)	1,626,618	1,413,439	620,434	569,485	464,426	189,921	(82,839)
Recovery (1M credit)	626,634	2,400,000	1,919,100	1,658,961	1,361,056	1,804,261	2,696,913
Return on capital (1M measure)	61.5%	40.6%	65.1%	63.7%	47.2%	84.6%	126.5%
Loss Ratio	17%	19%	17%	14%	26%	8%	7%
Probability net recovery	4.6%	9.3%	9.9%	8.8%	7.4%	9.7%	1.3%
Probability net recovery in tail	42.0%	45.3%	57.8%	47.7%	49.5%	29.2%	35.2%

ROC lost is from the point of view of the syndicate



Reinsurance Strategy Document – helps AOR



**Significant specific case studies in recent years:
- examples of ad hoc capital modelling projects**

Serious numbers!

<p>-\$100m acquisition 2011</p> <ul style="list-style-type: none"> An opportunity to write significantly more US Force placed business <ul style="list-style-type: none"> mainly Wind & Flood Decision required on whether to write into Synd AAA or Synd BBB <ul style="list-style-type: none"> and an understanding of additional ROE and Capital required +/-3 week exercise to adjust models and to apply as/if analysis
<p>Syndicate Merger 2012 -£800m</p> <ul style="list-style-type: none"> A project to understand the likely effect of merging Synd CCC into Synd DDD Needed to persuade both sets of capital providers
<p>Syndicate 1880 – risk mitigation 2013</p> <ul style="list-style-type: none"> An initiative to bring the risk profile of Synd EEE closer to that of the other Kiln syndicates A proposed XL RI programme -£300m has been modelled and its effect on ROE and Capital analysed



Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.
The views expressed in this presentation are those of the presenter.
