

Solvency II – QIS4 Life



FINANCIAL REGULATOR
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Presenter:
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Recap

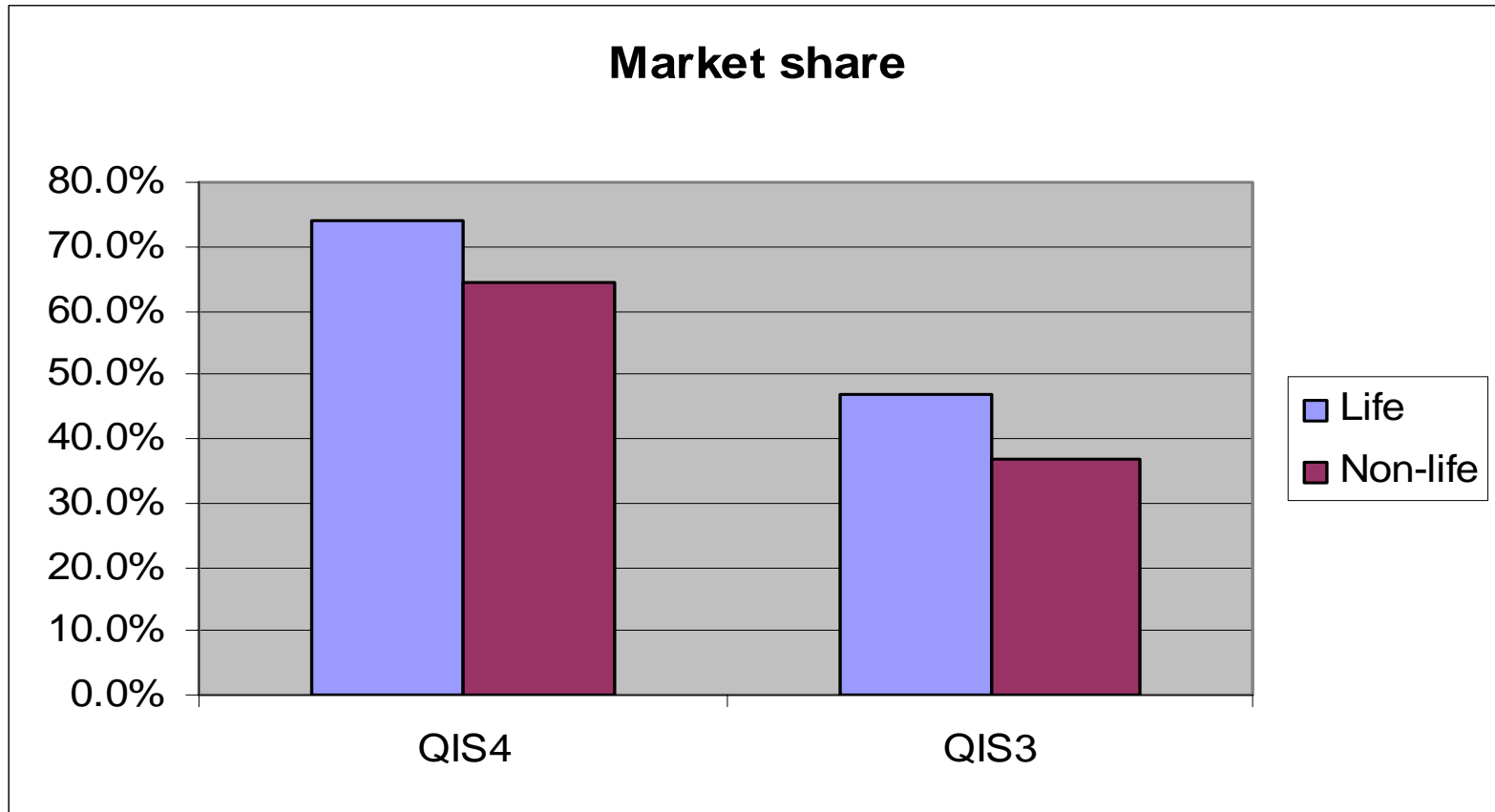
- QIS4 objectives – call for advice
 - Quantitative impact on solvency balance sheets
 - Check that TS aligned with draft Directive
 - Collect data to support analysis of options for level 2 measures
 - Encourage preparation for Solvency II
- Particular attention
 - Suitability & practicability of TS especially simplified methods / entity-specific parameters
 - MCR
 - Additional Data on Own Funds
 - Internal models
 - Insurance groups

Number of respondents

■ Total respondents

Category	QIS4	QIS3	Irish growth	European growth
Life	26	18	44.4%	
Non-Life	39	21	85.7%	
Total	65	39	66.7%	37.5%
Pure reinsurers (included above)	13	7	85.7%	

Total market share



Based on CEIOPS criteria:
Premium income – Non-Life
Technical provisions - Life

Resources – QIS 4

Person months	Ire Overall	Life	Non-Life	Europe
Completing overall QIS4	1.9	1.5	2.2	3.2
Getting acquainted to the Technical Specifications	0.5	0.4	0.6	1.0
Assessment of best estimate provisions	0.4	0.3	0.4	0.9
Calculation of the risk margin	0.2	0.2	0.2	0.4
Valuation of assets and other non-insurance liabilities	0.2	0.2	0.2	0.5
Calculation of the MCR	0.2	0.1	0.2	0.4
Calculation of the SCR	0.6	0.4	0.8	1.0

In general smaller undertakings indicated it took less time to complete QIS 4 than larger ones

Resources – Solvency II

	Overall	Life	Non-Life
One-off development of appropriate systems and controls, of which	12.9	11.7	14.1
Establishment of risk management systems	3.3	4.4	2.4
Staff training	2.8	3.9	1.9
Model development	8.5	13.0	5.1
Establishment of appropriate data collection and IT systems	2.5	1.2	3.3
Any other Solvency II related issues	2.0	2.1	1.9
Yearly valuation of provisions (standard approach)	1.1	1.3	1.0
Yearly valuation of MCR (standard approach)	0.6	0.6	0.6
Yearly valuation of SCR (standard approach)	1.3	1.8	0.9

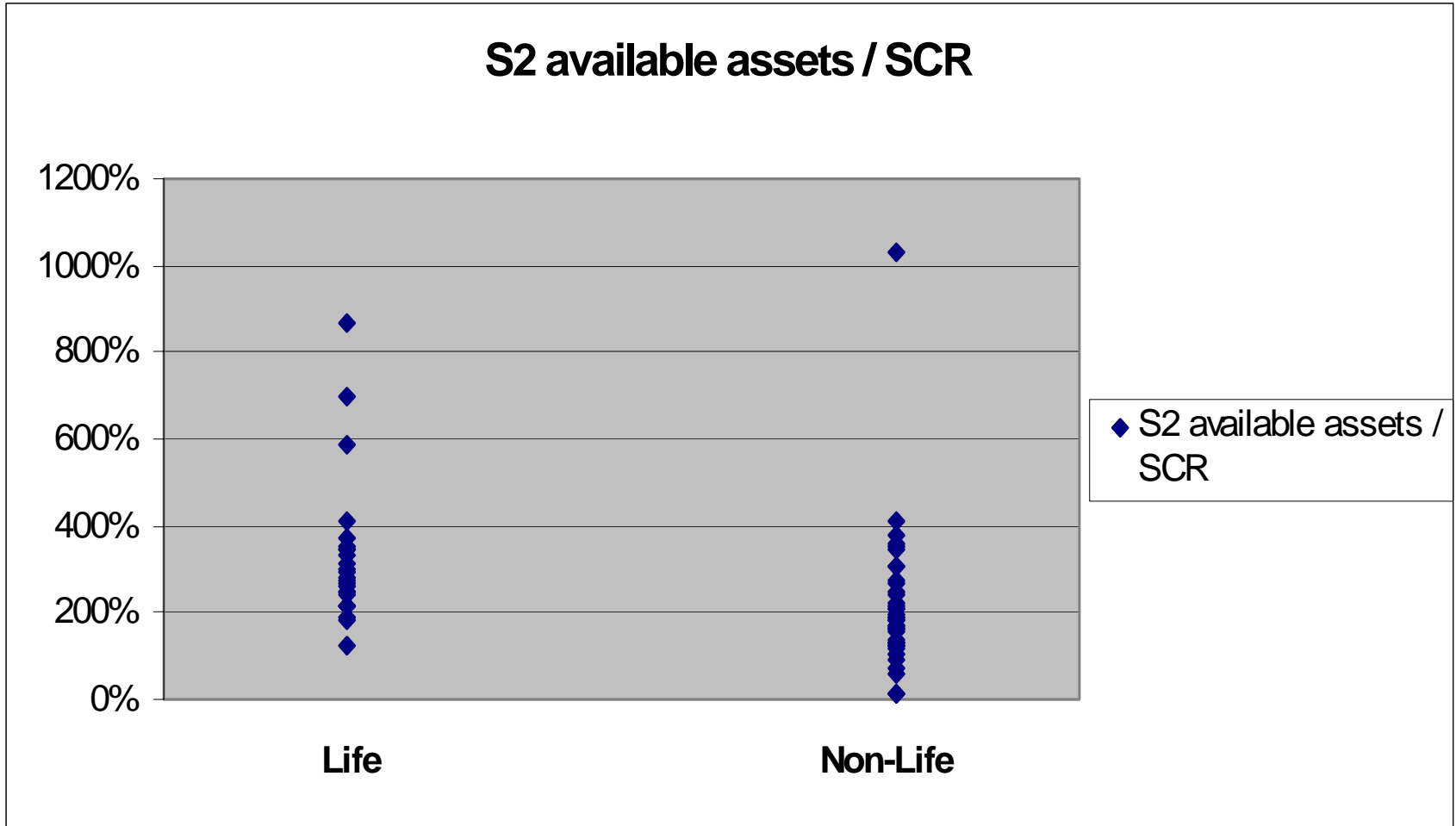
Coverage ratios

	Min	25th	Med	75th	Max
Life - Available capital to SCR	127%	224%	279%	346%	869%
Life - Available SI capital to 150%*RMSM		118%	167%	237%	
Non-Life - Available capital to SCR	12%	130%	181%	257%	1031%
Non-Life - Available SI capital to 150%*RMSM		171%	274%	418%	

Change in solvency coverage reflects:

- (1) Change in eligible funds
- (2) Different solvency requirements

SCR coverage



Eligible Capital

	Min	25th	50th	75th	Max
Non-life					
QIS4 eligible funds to S1 eligible funds	2.3%	103.2%	119.4%	161.4%	362.1%
SCR to S1 RMSM*150%	50.1%	125.9%	215.6%	299.2%	923.6%

	Min	25th	50th	75th	Max
Life					
QIS4 eligible funds to S1 eligible funds	96.2%	201.7%	280.3%	367.4%	1906.3%
SCR to S1 RMSM*150%	47.9%	75.8%	164.2%	260.4%	978.5%

Surplus capital

	Decrease more than 25%	Decrease more than 50%	Increase more than 25%	Increase more than 50%
Life	0	0	21	21
Non-Life	20	13	10	7
Total	20	13	31	28

- Overall Life companies clearly benefit more
- 5 companies need to raise capital to meet SCR (7.7% / Eur 10.9%)
- 2 companies need to raise capital to meet MCR (3.0% / Eur 1.2%)
- all 'small' captives

Assets and Liabilities (other than Technical Provisions)

- Broad support for general design and methodology
- IFRS deemed to be a suitable approximation of the economic valuation – clear need for SII valuation approach and IFRS phase II to develop consistently
- Generally no major practical difficulties in the valuation
- Specific issues:
 - Deferred taxes – major issue
 - unclear treatment
 - clearer framework sought to avoid inconsistency
 - Participations (non-listed assets)
- Biggest movement – reinsurance asset fell vs current BS
 - Non-Life (median) – 85%
 - Life (median) – 60%

Technical Provisions

- Generally accepted that approach appropriate and practicable – including Cost of Capital Approach
- Criticism that 6% factor overstates the true cost of capital – reference to CRO forum and 2.5% to 4.5%
- Criticism of lack of diversification benefit in the Risk Margin calculation
 - + assumption about receiving company
 - + remove a line of business – insolvency due to removal of diversification
 - - not an economic view

Technical Provisions - Life

- Reduction in Technical Provisions – I.e. Solvency I TP < Solvency II + Risk Margin
- Now valued at best estimate, lapses, not floored at zero
- Discount rates:
 - Some arguments for swap rates – liquidity, less affected by supply and demand

Technical Provisions - Life

Life	Min	25th	Med	75th	Max
Ratio of QIS4 TP to S1 TP	35.4%	86.7%	94.6%	98.1%	104.9%
CoC RM / QIS4 TP	0.1%	0.4%	0.9%	4.6%	21.6%

Line of business	25th	Med	75th
Linked policies	93.5%	96.0%	98.1%
Without-profit policies	31.6%	64.7%	85.2%

Technical Provisions - Life

Comments:

- ❑ Expenses for start-up companies – no allowance for unrealised economies of scale other than TPA costs
- ❑ Technical spec offers alternative approaches to valuing inherent options / guarantees. Further analysis to determine possible differences in values based on chosen methodology
- ❑ Model inflexibility
- ❑ Cost of Capital – complex calculation, run-times, auditable standard
- ❑ Setting 'best estimate' assumptions with limited data, turbulent markets
- ❑ Sufficient data on composition of UL funds on look-through basis to value market shock implications (TP's and SCR)
- ❑ Use of Proxy most prevalent for Risk Margin calc.
- ❑ Lack of guidance on yield curve for cross border business

Own Funds

- Majority deemed proposals sensible
- Comments that 'grandfathering' an important instrument in transition

	Tier 1	Tier 2	Tier 3
QIS4 Own Funds	93.3%	6.6%	0.1%

Figures for all submissions – Life & Non-Life

Own Funds

Composition of Tier 1 Eligible Elements	
Common equity capital	27.6%
Other issued capital instruments	3.5%
Valuation adjustments (assets less liabilities)	31.0%
Other items	37.8%

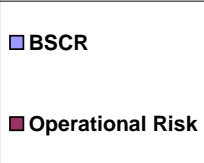
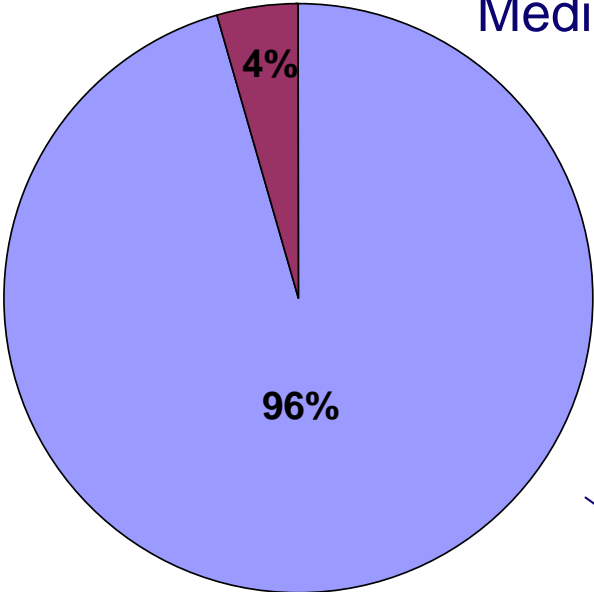
Some caution – some submissions included ‘valuation adjustments’ in ‘common equity capital’.

SCR

- General consensus that approach is suitable and appropriate
- Still limited comment that 'Free Assets' are subject to Market Risk

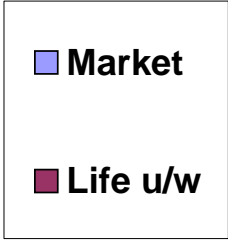
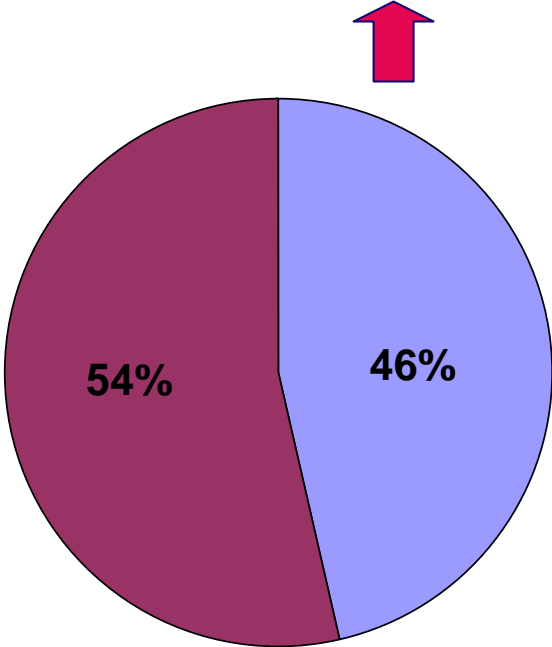
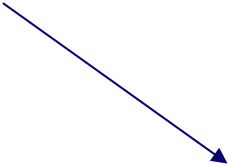
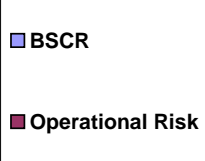
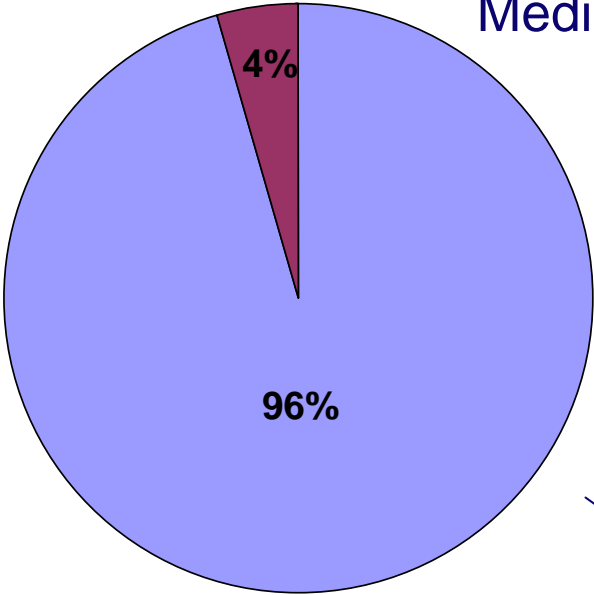
SCR – Life Composition

Median Results



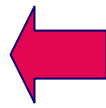
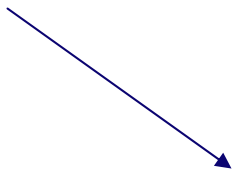
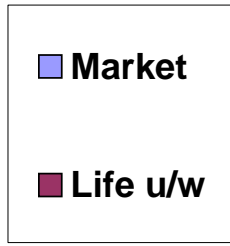
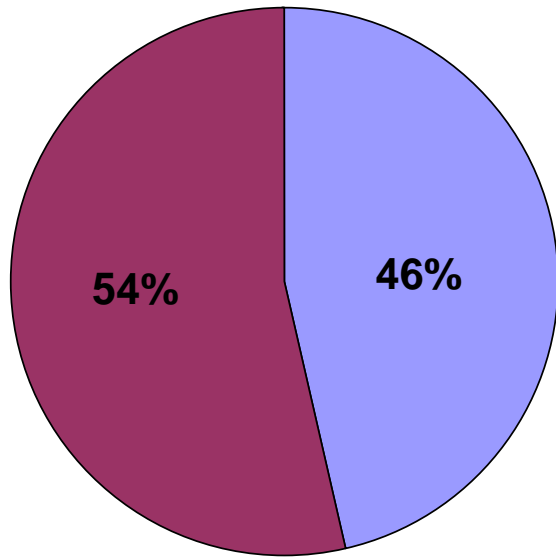
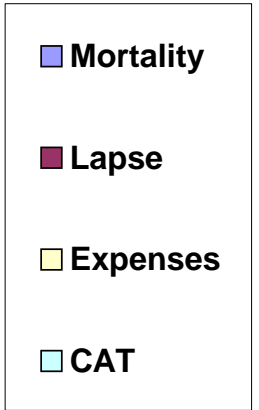
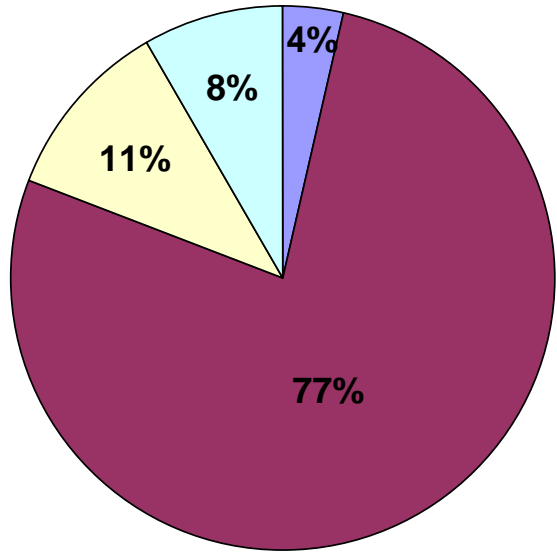
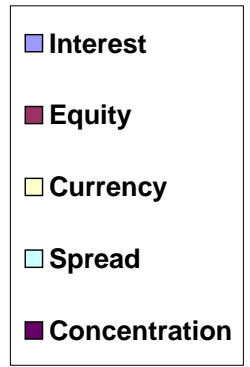
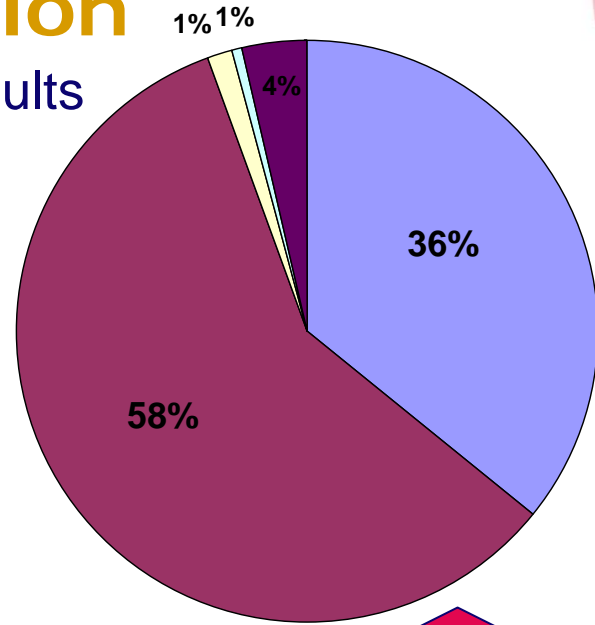
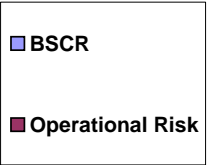
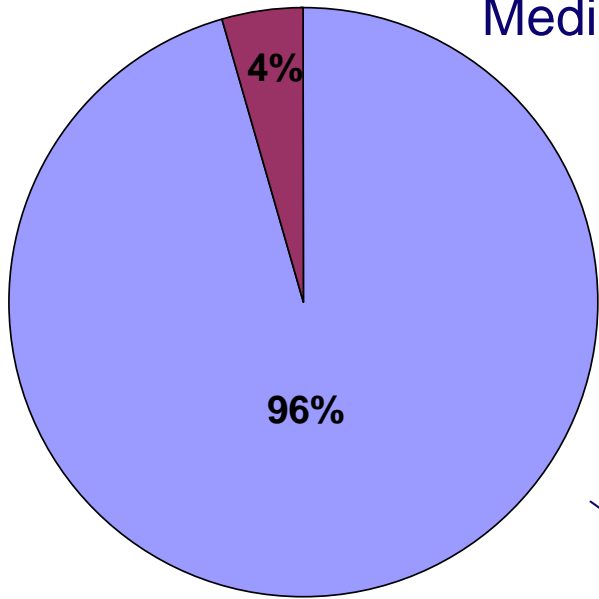
SCR – Life Composition

Median Results



SCR – Life Composition

Median Results



BSCR – Life Composition

BSCR - Life composition	Min	25th	Median	75th	Max
Market	13.7%	48.7%	57.8%	79.4%	100.0%
Default	0.0%	0.0%	0.0%	1.1%	62.2%
Life u/w	24.1%	41.9%	66.6%	75.7%	95.0%

Distribution of results on any line refers to all life companies submissions

Life Market Risk composition

Life market risk composition	Min	25th	Median	75th	Max
Interest	0.0%	6.7%	18.9%	34.9%	55.8%
Equity	0.0%	12.4%	30.7%	48.4%	75.4%
Property	0.0%	0.0%	0.0%	3.9%	52.2%
Currency	0.0%	0.0%	0.8%	9.0%	60.1%
Spread	0.0%	0.0%	0.3%	4.6%	67.9%
Concentration	0.0%	0.0%	1.9%	7.7%	75.3%

Distribution of results on any line refers to all life companies submissions

Life Underwriting Risk

Life underwriting risk	Min	25th	Median	75th	Max
Mortality	0.0%	0.4%	2.2%	6.6%	23.4%
Longevity	0.0%	0.0%	0.0%	0.0%	13.1%
Disability	0.0%	0.0%	0.0%	9.9%	56.5%
Lapse	0.0%	28.4%	46.4%	63.9%	80.9%
Expenses	0.0%	4.8%	6.5%	9.6%	33.2%
CAT	0.0%	1.1%	5.0%	12.9%	68.0%

Distribution of results on any line refers to all life companies submissions

SCR – Market Risk

- Comments received:
 - 32% equity too low for 99.5% - 40% more appropriate
 - Suggestion to introduce sensitivity to changes in shape of the yield curve
 - Request for further work on the correlation between equity risk and interest rate risk
 - Dampener approach – (a) premise that market falls likely to be less severe when markets depressed (b) dampener linked to duration of liabilities
 - Universal disapproval of link to duration of liabilities
 - Limited support for principle of dampening

SCR – Market Risk

- Comments received:
 - Currency risk – additional work required to capture true risk on a ‘look-through’ basis
 - Equity and Interest Rate volatility missing from the formula – important for companies with embedded options in their liabilities
 - Path required for market shocks – link to dynamic hedging strategies
 - Liquidity a missing element?

SCR – Counterparty Risk

- Comments received:
 - Some comments that welcomed improvements - LGD
 - Criticism that overly complicated and time consuming
 - E.g. large reinsurance programme
 - Vasicek-Herfindahl formula provided inappropriate factors
 - Unrated / lower rated debt
 - Bi-modal results
 - Inconsistent with spread risk
 - Use of Commercial rating agency ratings
 - Reins compelled to acquire
 - Fallibility / Reliance
 - Simplified approach in Q&A / CEIOPS website more practical

SCR – Life

- Comments received:
 - Life Lapse risk –
 - Max 50% up / down in future or 30% one off lapse
 - perception that the lapse shock was overly harsh in absolute terms and duration (*does include some element of Life CAT!!*)
 - Lapse 'shock' e.g. due to miss-selling scandal – higher for a couple of years then revert to previous (lower?)
 - different product types behave differently to 'up' and 'down' shocks – how is shock applied in this case?
 - Life CAT risk
 - Further justification for parameterisation
 - "Policy-by-policy" calculation for the assessment of shocks burdensome – in some cases assessment made at higher levels
 - What are appropriate homogeneous groups?
 - What is the impact on SCR derived?

SCR – Life

- Comments received:
 - Expense Risk
 - couple of responses suggested less prudent than 99.5% VaR
 - Currency risk
 - Stressing balance sheet with reference to euro, doesn't necessarily reflect true risk
 - Mortality / Disability
 - less prudent than 99.5% VaR
 - too harsh for a large well-diversified book (reinsurance)
 - no allowance for common exclusions in reinsurance treaties e.g. pandemic exclusions
 - Varying calculation by duration of contract more appropriate

SCR - Life

- Comments received:
 - With Profits – approach appropriate????
 - With Profits – current approach requiring two sets of bonus rate assumptions felt to be impractical in a stochastic environment
 - Correlations
 - mortality and disability – accelerated benefits, negative correlation
 - further justification of correlations
 - Guidance on Tax

SCR – Operational Risk

- General Response
 - approach inadequate, arbitrary, not 'risk based'
 - No incentive to actively manage operational risk with this approach
 - inappropriate to assume 100% correlated to other risks
 - generally understates relative to own models
 - Arbitrary cap of 30% of SCR – understate true risk?
 - Some appreciation of need for factor based approach

Operational risk as a % of SCR	Min	10th	25th	Median	75th	90th	Max
Ireland overall	0.3%	1.9%	3.3%	5.7%	10.2%	19.2%	30.0%
Life	0.9%	1.4%	2.3%	4.5%	12.0%	23.7%	30.0%
Non-Life	0.3%	2.4%	4.5%	6.7%	9.8%	16.1%	21.4%

SCR – Operational Risk

- No suggested alternative
 - Some comments regarding nascent literature on modelling CAT risk but not yet robust enough for public domain
- QIS 4 also attempted to gather information about company records of operational risk and first assessment of quality
 - Some companies indicate that they are gathering data
 - Historical data generally doesn't extend back beyond 3 yrs

Operational Risk

All firms	Features of operational risk management		
	Yes	No	Planned
	No.	No.	No.
All business segments			
capture operational risk events and near misses in day-to-day management in practice?	21	4	5
capture the interrelations between the various risks identified?	10	13	7
quantify and keep a record of events and near misses?	18	5	7
categorise events and near misses?	15	8	2
introduced new mitigation techniques after events?	8	4	2
considering operational risk charge adequately designed?	3	21	

MCR

- Reminder
 - $MCR\ NL = f(TP's, Premiums)$
 - $MCR\ Life = f(TP's, Cap\ @\ Risk, Exps\ UL)$
- Industry criticised Linear approach, whilst acknowledging that the corridor was an improvement
- Industry strongly in favour of MCR as a percentage of SCR
 - MCR less risk sensitive than SCR, deviating from Solvency II principles of risk sensitivity
 - Behave inconsistently, giving wrong / misleading messages
- Calculation caused little practical difficulty

MCR

- European results suggest underlying calculation met the calibration target for Non-Life better than for Life
 - Table showing the percentage of companies whose MCR Linear / SCR ratio fell within the 20% to 50% corridor

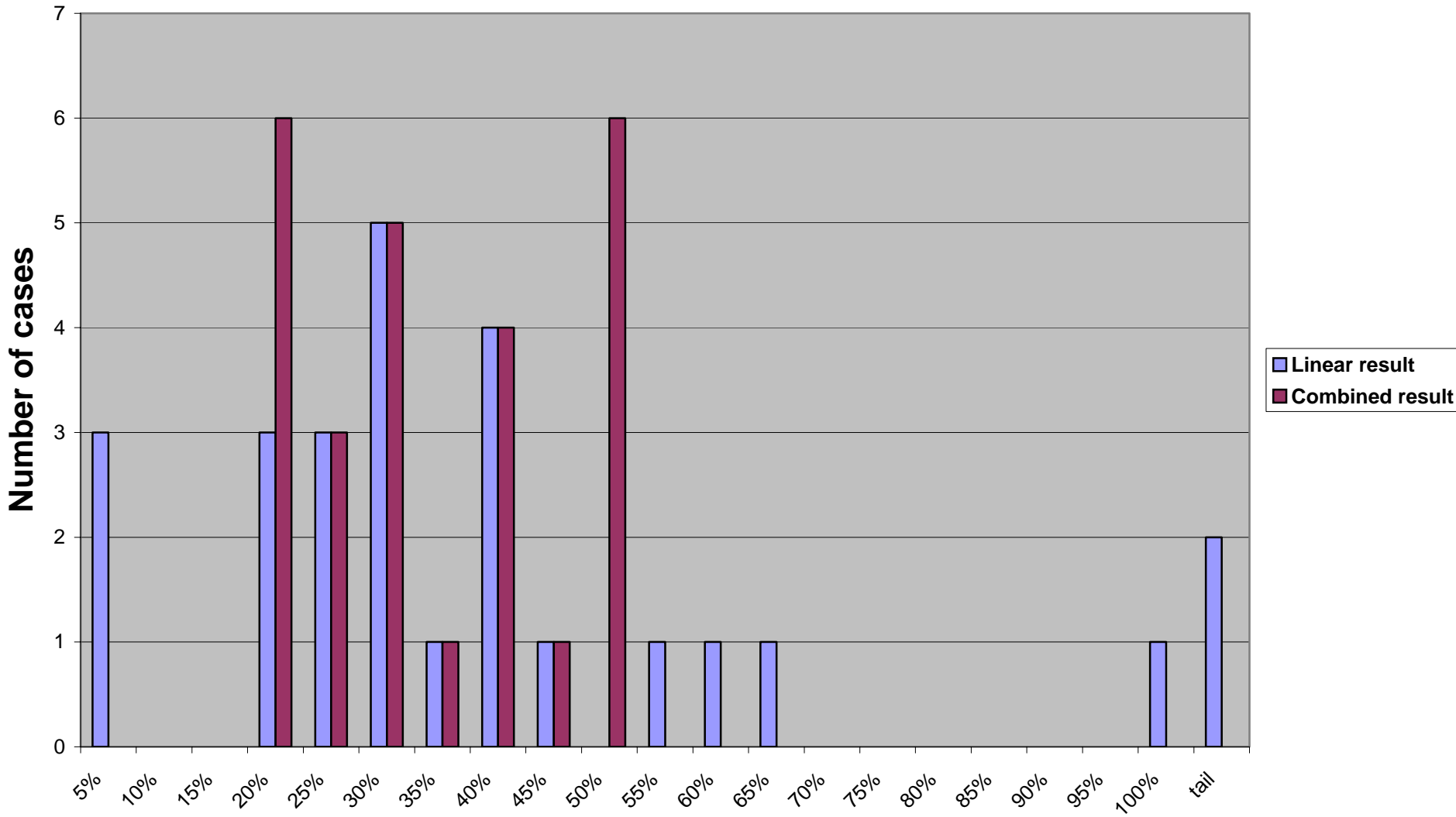
	Europe	Ireland
Life	44%	65%
Non-Life	66%	72%

MCR

- For Irish submissions smaller companies tended to have a 'CAP'
- Floor most likely for Non-Life
 - Generally driven by relative size of CAT charge
 - Distorted somewhat by 'captives' – where SCR dominated by CAT risk, not included in MCR formula
- Cap and Floor equally likely for Life
 - Extreme values all relate to companies writing only unit-linked business
 - Extreme ratios more likely for Life
- Median MCR Linear / SCR
 - Life = 27%
 - Non-Life = 29%

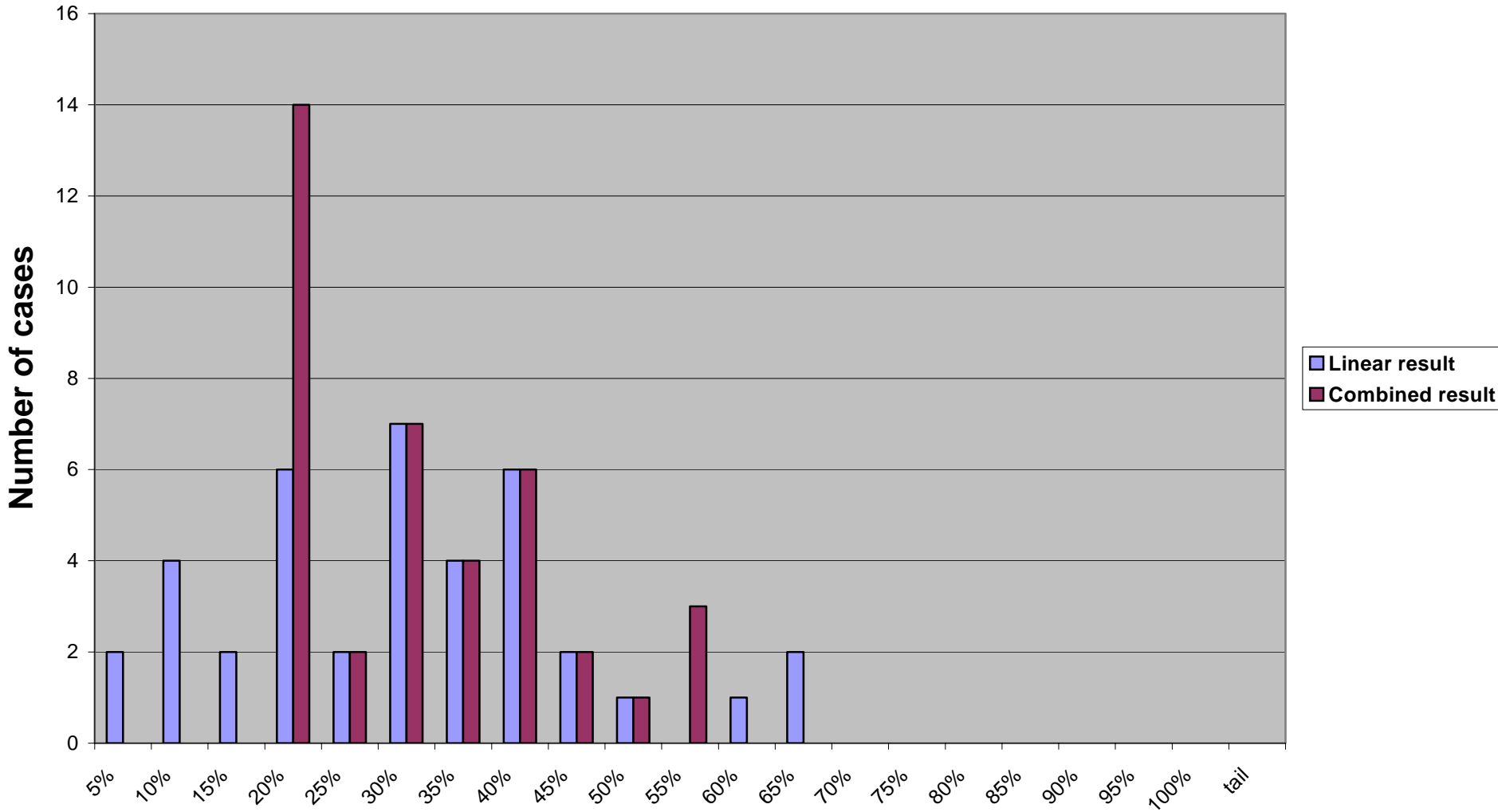
MCR

MCR linear and combined (Life)



MCR

MCR linear and combined (Non-life)



Other

- Internal Models:
 - Too few submissions to form strong conclusions or illustrate results
 - Clear from comments made that a number of companies are actively using internal models, at least partially, for economic purposes

Internal models	Life	Non-Life
Already using internal models for some aspects of your business?	7	8
Actively developing and managing internal models for use in your business?	8	8
Do you have plans to use an internal model in the future at least partially?	6	13

Other



- Group Solvency

- No submissions made on a group basis
- Majority of participants are members of groups and many contributed to group submissions to other supervisors

- Simplifications

General consensus is:

- appreciate the concept of simplifications
- however approach should reflect complexity and risk of business

To end

- Good news?
 - QIS 5 will not take place before April 2010
- Bad news?
 - QIS 5

- Thank you for your contributions to QIS 4!!

Thank You



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