

# **Life Forum**

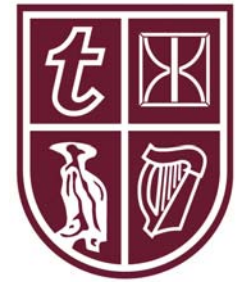
**Society of Actuaries in Ireland – Life Committee  
30 January 2008**

# Agenda

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- **Update on Committees & Activities - Richard O’Sullivan**
- **Requirements for Statements of Reasonable Projection, Defined Contribution Schemes - Brendan Johnston, Pensions DC Sub-Committee**
- **A “Review of the Irish Annuity Market”, prepared by Indecon and Life Strategies for the Partnership Pensions Review Group – Dermot Corry**
- **Solvency 2 – the outcome of QIS3, and initial comments on QIS4 - Mike Frazer & Gareth Colgan**
- **Compliance monitoring – update from a Working Party set up recently by Council – David O’Connor**



# **Update on Committees**

**Richard O'Sullivan**



# Update on Committees

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- **Life Committee has 12 members and 8 sub-committees**
  - **Richard O’Sullivan – Chairman**
  - **Tony Jeffery – Insurance Risks**
  - **Michael Culligan – International**
  - **Peter Gough – Valuation Regulations Working Party**
  - **Bill Hannan – Governance and Regulation**
  - **Brian Morrissey – Accounting Issues**
  - **Mike Frazer**
  - **Brona Magee – Communications**
  - **Dermot Corry – Cross Border**
  - **Colin Murray – Market Conduct**
  - **Linda Kerrigan – PRSA**
  - **John Feely**

# Update on Committees – Insurance Risks



- **Reported on Critical Illness in 2007**
- **Insurance Risks merged into broader “Demographics Committee”**
  - TJ representing Life Committee on this committee
- **Annuitant mortality survey completed in 2007**
  - Reported in November newsletter (available at [www.actuaries.ie](http://www.actuaries.ie))
  - **Headline results: Males: 80% PNMA00, Females: 86% PNFA00**
    - Mortality lightest (relative to table) at ages 60-70
  - Intend to repeat study in 2008 (including revisit to previous data to check for “IBNR”)

# Update on Committees – Valuation Regulations



- **New Working Party established to review valuation regulations**
- **Set up to consider whether changes to regulations or ASPs are appropriate in light of:**
  - Recent changes in UK regarding “regulatory peak” valuation rules
  - New products/Risks that have emerged since the last WP
    - For example: Variable Annuity Products
- **Chaired by Peter Gough**
- **If you have any views please email Peter Gough**
  - [Peter.Gough@eaglestarlife.ie](mailto:Peter.Gough@eaglestarlife.ie)

# Update on Committees – International



- **Remains principally focused on Solvency II**
  - Made submissions to Groupe Consultatif and other parties on draft Solvency II Directive
  - Met this morning to discuss QIS4
- **Solvency II likely to continue to dominate agenda in short/medium term**
  - QIS4 exercise & results
  - Evolution of Solvency II Directive text
  - Risk management
  - Role of actuary in Solvency II world
  - Will also need to link in with Accounting Issues Committee re IFRS Phase 2
  - Link also with corresponding Non-Life group

# Update on Committees – Cross Border



- **Survey of reserving methodologies used for Italian Substitute Tax**
  - Quite a range of approaches
  - Some companies treat tax as not a policyholder liabilities
  - Others treat full 0.3% payment as an expense
  - Range of methods in between
  - Approach depends on type of business, parental buyback, cashflow of the company, actuary's philosophy



# Update on Committees – Market Conduct, PRSA

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- **Market Conduct:**
  - Disclosure for CPPI products
  - Disclosure for variable annuity products
  - Policyholder information regimes around the world
  - Issues on the Consumer Protection Code
- **PRSA:**
  - Practising Certificate system came into force on 1 November

# Update on Committees – Governance , Accounting

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- **Governance:**
  - Completed revamp of ASP LA-3 effective July 2008
    - Final change in a suite of work to review life ASPs
  - Will be operating on a care and maintenance basis for 2008
- **Accounting:**
  - Not active during 2007
  - Plans for 2008
    - Review IFRS for life business
    - Review CFO Forum EEV principles

## Other Matters

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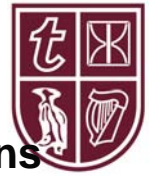


- **Working party will be set up by Anthony Brennan to review market practice in relation to unit pricing**
  - Arises from commitment at last life forum
- **Committee has reviewed Life Reinsurance Practising Certificate Scheme and ASPs**
  - Effective from end 2007
- **Committee has input to drafting of ASP for DC SORPs**
  - On agenda today



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**Statement of Reasonable Projection,  
Defined Contribution Schemes  
Brendan Johnston**



## **Information to be given in SORP - per Pensions Board indications**

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- **Current rates of contribution**
- **Value of Fund**
- **Pension in today's terms e.g. €20,000 p a (may also add % of salary and tax free cash and residual pension) assuming contributions continue**
- **Pension in today's terms if contributions stopped**



## Information to be given in SORP - per Pensions Board indications

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- **Guide to life expectancy e g 19 years**
- **RIY due to charges**
- **Not much more**



## **Aims of Pensions Board - as deduced by B Johnston**

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- **Primary aim- give members an idea of income in retirement.**
- **Secondary aim- give members an idea of effect of charges.**
- **Be a clear communication by reducing content.**
- **Have regard to the cost of production by allowing approximations that, for example, can underestimate the projection.**
- **No requirement for actuarial input. Trustees have to produce SORPs in line with the Guidance Note.**



## Problems for SAI

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- **How to write a Guidance note that Trustees will follow rather than Actuaries**
- **Written into legislation, trustees are required to make sure they comply. SAI will not supervise trustees.**
  
- **How to allow for approximate methods**
- **Proposal is that this will be allowed by legislation**
  
- **How to allow for risk deductions**
- **Current rates to apply, making allowance for rates changing with age**





## Problems for SAI

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- Investment- notional or actual investment mix?
- **Actual**
- **Consistency with other Guidance**
- **Consistent but taking the opportunity to look at annuity assumptions coming close to retirement**



# Problems for Trustees

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- **Do they need an actuary?**
- **No but a lot of trustees will look for actuarial advice. Standard programs might be developed.**
  
- **What are the investment charges within the funds?**
- **Talk to the fund manager and ensure the fund manager is told what has to be counted.**
  
- **When do they need to produce the first SORP?**
- **Regulations will come into effect at 1<sup>st</sup> January 2009.**

# Where are we now?

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- **Extensive work done on the draft guidance note ASP PEN12**
- **Concern over use by Trustees**
- **The issue to be referred to Actuarial Matters Committee (technical sub-committee of Council)**
- **Waiting on draft wording of legislation from Pensions Board**



# **Independent Analysis of the Operation of the Irish Annuity Market Dermot Corry**



# Background

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- **Arises from commitments given in *Towards 2016* negotiations:**  
*“An independent analysis of the current state of the Irish annuity market is required, to evaluate its efficiency and effectiveness”*
- **RFT issued in December 2006**
- **Awarded to consultancy team comprising:**
  - **Life Strategies (actuarial consultants)**
  - **Indecon (economic consultants)**
- **Report finalised in July 2007**
  - **Published alongside Pensions Green Paper in October 2007**
  - **<http://www.pensionsgreenpaper.ie/publications.html>**



# Terms of reference

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**Asked to provide information on:**

- **How annuity prices are set**
- **The factors determining annuity prices**
- **The size and scope of the annuity market**
- **The availability of products to match consumer needs**
- **How efficient is the market**
- **Market capacity**
- **Comparison against UK market**
- **Likely future of market**

# Today's presentation

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- **Our report is lengthy with lots of detailed analysis**
- **Chapters on:**
  - Demand for annuities
  - Supply of annuities
  - Pricing of annuities
  - Review of market characteristics
  - Review of market conduct
- **In short time available today, want to give brief summary of**
  - Some key conclusions and findings
  - Our recommendations for policy options to be considered



# Conclusions and findings (1)

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## Market Issues:

- **Market for annuities in Ireland is small**
  - **Most demand is due to those with no option but to buy an annuity**
- **ARFs becoming more attractive and reducing annuity demand**
- **Basic annuity products account for most of sales (little innovation)**
- **Concentrated market**
  - **Dominated by small number of players**
  - **But no material barriers to entry**
- **No market capacity issues**
- **Demand likely to increase significantly**
  - **But depends on policy developments**



# Conclusions and findings (2)

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## Pricing Issues:

- **Pricing is determined by long-term bond yields and mortality assumptions**
- **Using reasonable assumptions, our own model predicts prices broadly in line with market prices**
- **Our “Money’s Worth Analysis” suggests returns not excessive**
- **Reduction in Yield ranging from 0.9% to 1.25%**



# Market prices versus our model

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- **Table below shows comparative prices for a level annuity of €10,000 for a 65 year old man (5 year guarantee)**
- **Prices are all at January 15, 2007**

<b>Company</b>	<b>Cost of level annuity</b>
A	151,000
B	149,935
C	154,823
D	153,500
E	152,137
LS Model	145,449

- **Best price in the market is 1.7% higher than model**
- **Median price is 4.6% higher than model for this case (range from 3.9% to 7.5% depending on age/gender/escalation)**
- **4.7% range from highest to lowest price**



## Assumptions used for our model price

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- **Yield Curve**      **Bond yield as at January 15, 2007 (approx. 4%)**
- **Mortality**      **75% of CSO reported population mortality**
- **Improvements**      **As used by CSO (average 2.5% pa)**
- **Commission**      **2% of premium**
- **Expenses**      **1% of each annuity payment**
- **Reserving**      **Prudent assumptions for all of above**
- **Solvency Margin**      **4% of reserve (150% required)**
- **Cost of Capital**      **2.75% over bond yield**
- **Margin**      **3% to cover profit and risk**



## “Money’s Worth” – an example

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- **65-year old pays €100,000 to insurance company**
- **Insurer contracts to pay €6,573 p.a. to the client (no increases)**
- **Assume that**
  - **Interest rate is government bond yield**
  - **Life expectancy is in line with average expected for annuitants**
- **Then, present value of all payments to the client is €85,000**
- **We describe this as a Money’s Worth Ratio of 0.85**
  - **i.e. present value of payments received equates to 85% of price paid**
- **Our calculations show Money’s Worth Ratios ranging from 0.81 to 0.87**
  - **Depends on age/sex and annuity type (level/escalating)**



# Our analysis of MWR findings

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- For 65-year old male, level annuity, we found an average Money's Worth Ratio of 0.85
- This implies 15% for costs, expenses & profit/risk margin
- We break down this 15% as follows
  - Expenses and commission 2.6%
  - Cost of regulatory capital 5.2%
  - Margin for risk/profit 7.2%
  - Total 15.0%
- Most recent studies in the UK also show Money's Worth Ratios of approx. 0.85



# Policy considerations (1)

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- **Should consider some easing of rules regarding DC members**
  - Currently obliged to buy annuity at retirement
  - Inconsistent with treatment of PRSA retirees
- **Various options to address this inconsistency**
  - Remove ARF option from PRSAs
  - Remove requirement for DC members to buy annuity
  - Something in between
- **We recommended that consideration be given to the third option**
  - Some minimum level of annuitisation required for all; and/or
  - Some flexibility regarding timing of annuity purchase



## Policy considerations (2)

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- **Should consider issuing government bonds linked to CPI**
  - **Would enable a better match between assets and liabilities for CPI-linked annuities (leading to less need for risk margins)**
  - **An issue to be discussed with the NTMA**
- **Also potential question of the issuance of longevity bonds**
  - **We were less convinced of the need for this**
  - **But could be considered by the NTMA**



## Policy considerations (3)

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- **Need for enhanced information to be supplied to consumers as part of overall set of measures to improve market transparency**
- **Could include provision of information booklet on the retirement options available (i.e. annuities versus ARFs)**
- **May also involve requiring insurers to provide more comprehensive pre-sale information on their annuity products**
  - **Similar to what they are obliged to provide for most other products, including information on charges (reduction in yield)**
- **Greater transparency required on comparative annuity prices**
  - **Consider publishing a price survey on a regular basis**
  - **Similar to what is currently done for other “commodity” products such as motor & house insurance)**

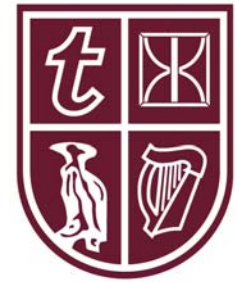




## Policy considerations (4)

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- **Clarification required in the application of the taxation legislation**
  - To ensure that tax treatment of annuity from an overseas provider is same as domestic
- **Consideration could be given to examining some of the current Revenue rules governing the types of annuities that may be provided**
  - For example: may be merit in allowing “capital protection” annuities (which provide a capital payment on death)
  - Also emerging “hybrid” products which combine features of annuities and ARFs

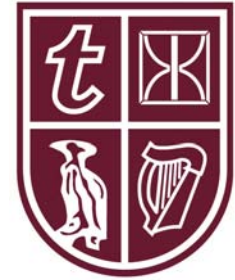


**Solvency II:  
Irish QIS3 results &  
Initial comments on QIS4**

**Mike Frazer & Gareth Colgan**

# Outline

- **Brief background**
- **Irish QIS3 results**
  - **Resources & participation**
  - **Financial results**
    - Overall solvency coverage
    - Technical provisions
    - SCR
    - MCR
  - **Issues arising**
- **QIS4**





# Brief background

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- **QIS1**
  - End 2005
  - Technical provisions only
  - Percentiles basis
- **QIS2**
  - Summer 2006
  - Full balance sheet
  - SCR & MCR
  - Design & achievability rather than calibration
  - 99% TailVaR
  - Alternative methods tested
- **CEIOPS Consultation Paper CP20**
  - Nov 2006 – Mar 2007



- **Objectives**

- **Practicability and suitability**
- **Quantitative information**
- **Test SCR & MCR calibrations**
- **Insurance groups**

- **Changes**

- **99.5% VaR**
- **Cost of Capital for risk margin**
- **Module changes**
- **Calibration and correlation changes**
- **Revised treatment of with profits business**

# QIS3 - timetable

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- **Jan –Mar 2007:** **consultation**
- **April – June 2007:** **company submissions**
- **August 2007:** **National reports**
- **November 2007:** **CEIOPS report**

# Participation



	EEA-wide					Ireland			
	Total	Life	NL	Reins	Comp	Total	Life	NL	Reins
QIS1	<b>272</b>	122	170			<b>6</b>	4	2	
QIS2	<b>514</b>	183	237	13	81	<b>5</b>	4	1	
QIS3	<b>1027</b>	330	511	28	158	<b>39</b>	16	16	7



# Participation – market share

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- **Life – 47% (based on TPs)**
  - Rank 23 out of 28 countries
  - Total QIS3 participation 69%
- **Non-life – 37% (based on premium income)**
  - Rank 22 out of 27 countries
  - Total QIS3 participation 63%





## Resources needed

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- **Range 0.5-4 person months**
- **Average 2 months**
  
- **Some used external consultants**
- **Others had some group support**

# Difficulties & reliability

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- **No insurmountable difficulties, but ...**
  - **Cost of Capital**
  - **Yield curve**
  - **Lack of detail in guidance**
  - **With profits**
  - **Non-life LoBs**
  - **Ratings**
- **Confident in results**
  - **Reliable existing reporting and modelling systems**
  - **Many elements cross-checked to audited or internal results**

# Errors ?

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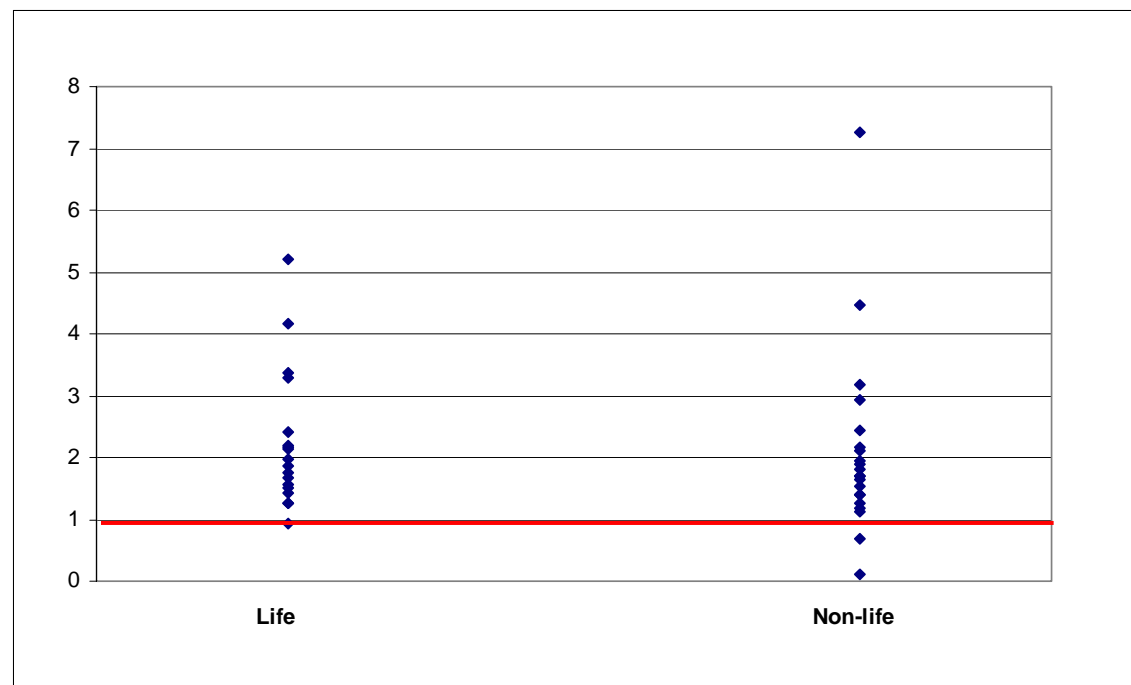


- **Technical provisions net of reinsurance only**
- **Assets at mid value**
- **Reporting different Solvency 1 numbers in QIS3 to those submitted as regulatory return**
- **Breakdown of technical provisions, especially CoC**
- **Internally inconsistent**

# Overall results



- **N.B. All references to Solvency 1 coverage or free assets assume required solvency margin of 150% of underlying directive calculation.**
- **Solvency II SCR coverage**



# Overall results



## Comparison of solvency coverage ratios

	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.
Life SII	93%	158%	192%	307%	522%
Life SI	*	132%	189%	277%	*
Non-life SII	10%	139%	171%	217%	726%
Non-life SI	*	182%	350%	663%	*

# Free assets



## Comparison of surplus assets (in excess of solvency margin requirement)

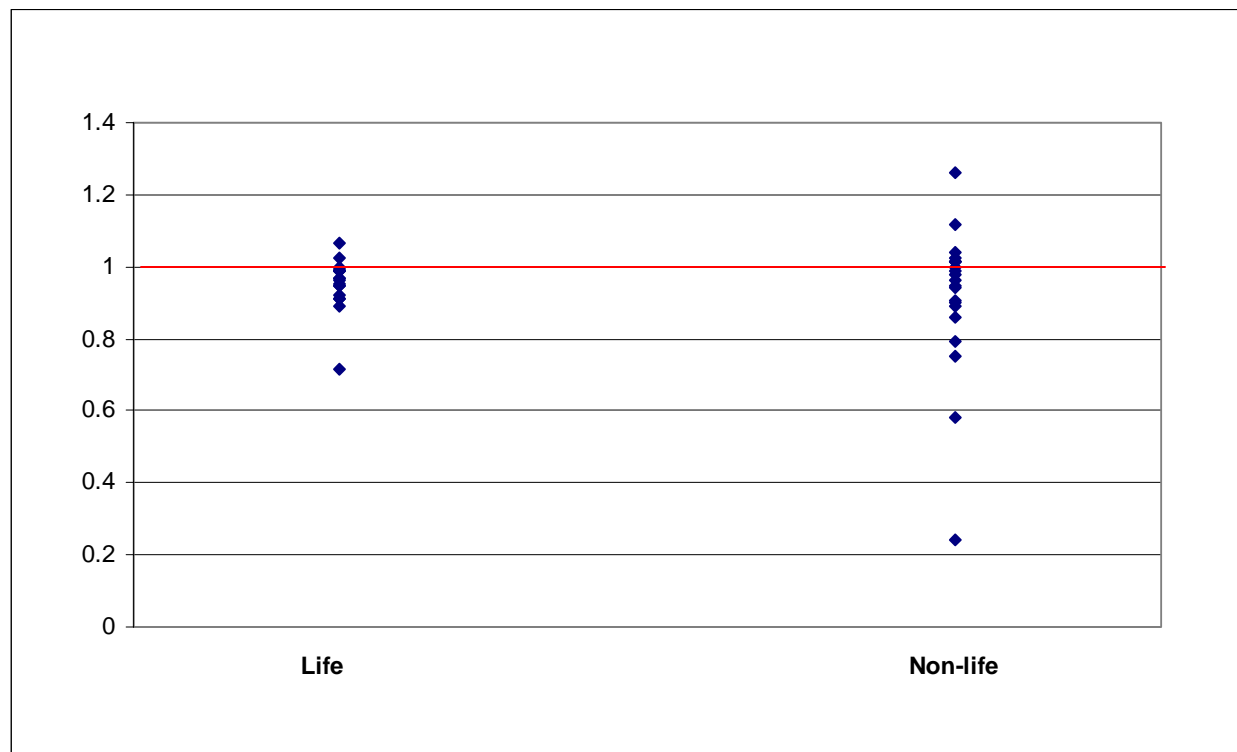
Ratio = QIS3 surplus / Solvency 1 surplus

	<50%	50-100%	100-150%	>150%	Median ratio
Life	1	5	2	10	172%
Non-life	6	7	5	3	70%

# Technical provisions



## Ratio of (net) QIS3 TPs to Solvency I provisions



# Technical provisions



## Ratio of (net) QIS3 TPs to S1 provisions

	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.
Life	72%	93%	97%	99%	106%
Non-life	24%	89%	96%	101%	126%

## Cost of capital vs. best estimate liabilities

Life	0.3%	0.7%	2.5%	7.1%	25.8%
Non-life	2.7%	5.3%	9.7%	13.7%	30.6%



# SCR



## Ratio of SCR to (net) Technical Provisions

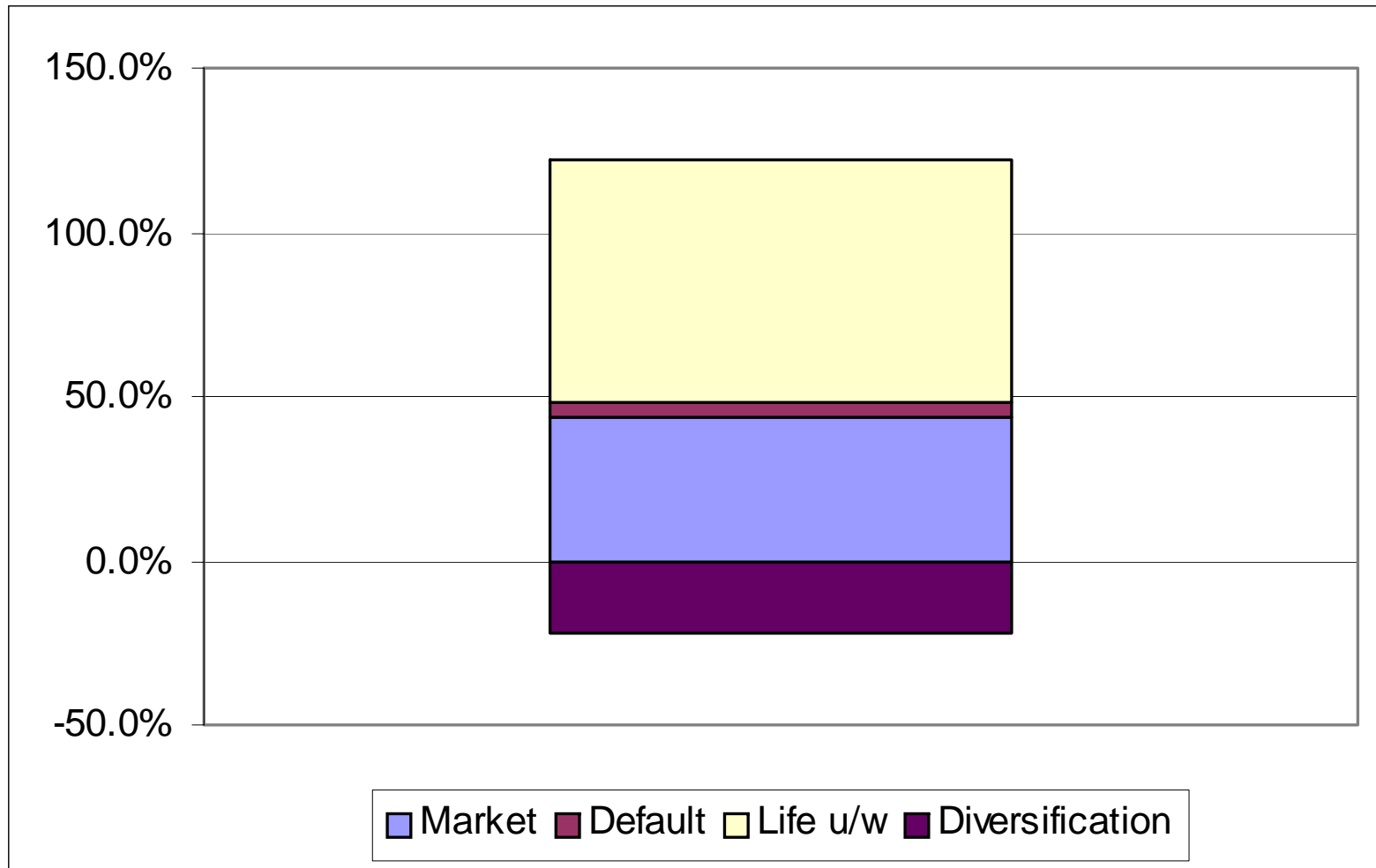
	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.
Life	1.0%	2.9%	5.1%	13%	192%
Non-life	24%	43%	67%	154%	914%

# Basic SCR: life



	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.
Market	13%	34%	39%	57%	86%
Counterparty	0%	0%	1%	2%	42%
Life u/w	33%	59%	80%	86%	95%
D'fication	9%	20%	22%	26%	39%

# Basic SCR: Life

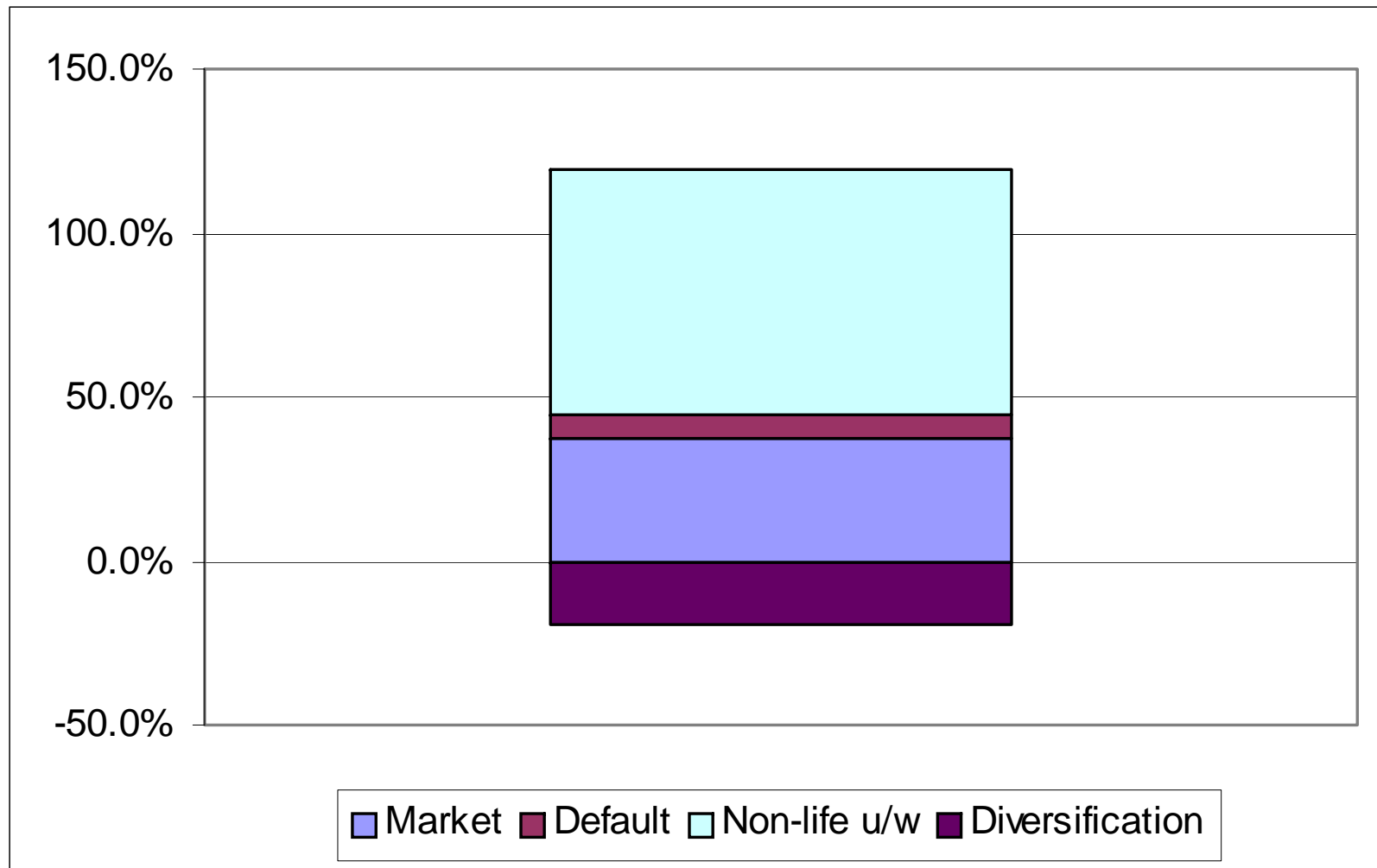


# Basic SCR: Non-life



	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.
Market	4%	14%	25%	60%	95%
Counterparty	0%	2%	4%	10%	45%
Non-life U/W	13%	56%	85%	93%	98%
D'fication	4%	12%	17%	26%	33%

# Basic SCR: non-life



# SCR: Operational Risk



## Ratio of Operational Risk to Basic SCR

	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.
Life	1.7%	7.5%	17.0%	30%	30%
Non-life	0.3%	3.1%	5.5%	10.3%	30%

**7 life companies had OR result capped at 30% BSCR but only 2 non-life companies did.**



## Market risk: life (as % BSCR)

	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.	#
Interest	0%	3%	9%	21%	52%	18
Equity	0%	22%	31%	40%	71%	15
Property	1%	3%	5%	6%	14%	8
Spread	0%	1%	1%	7%	25%	9
Conc.	2%	11%	18%	22%	30%	11
Currency	7%	8%	11%	35%	70%	7
D'fication	2%	11%	17%	24%	46%	18

# BSCR - Market risk: life



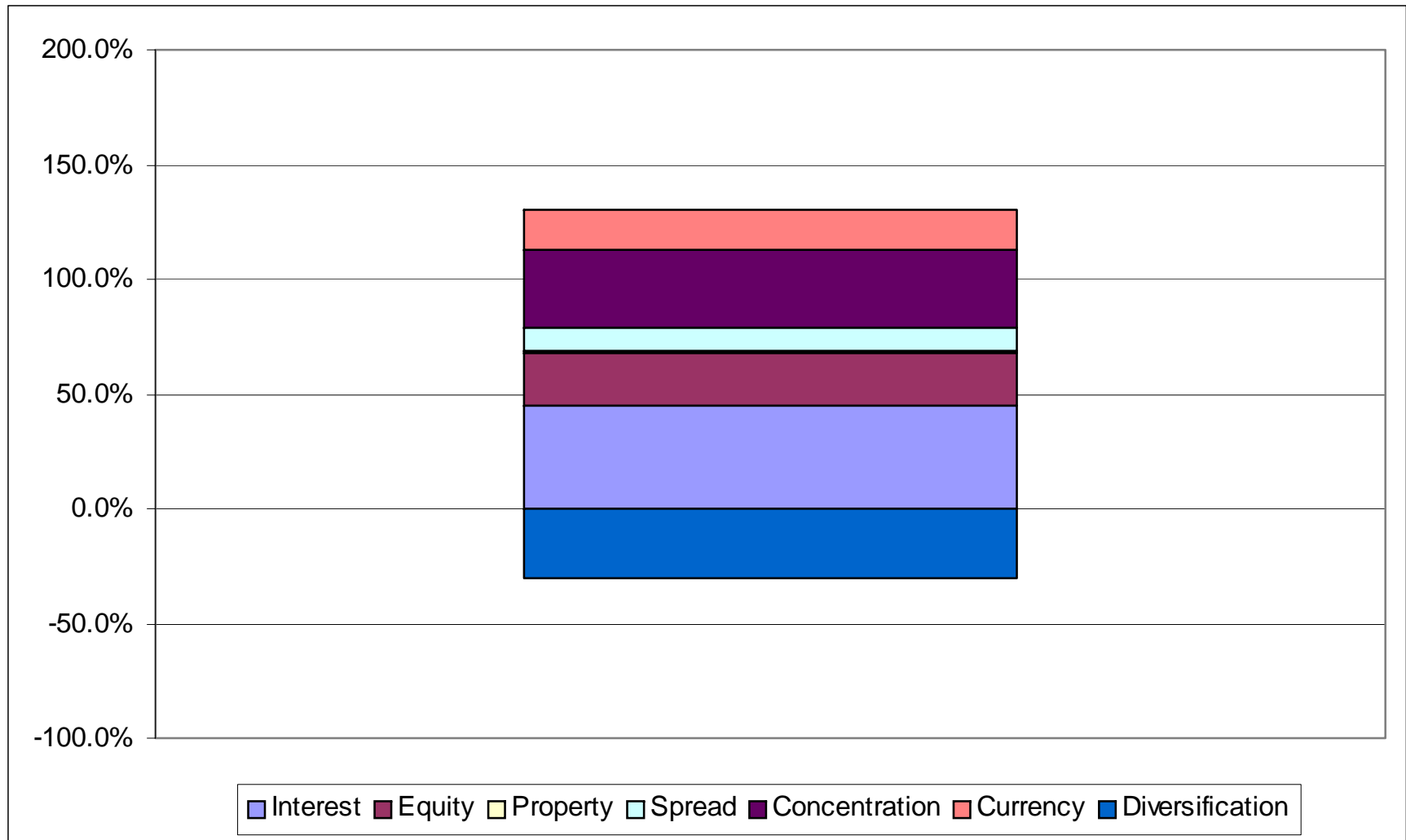




## Market risk: Non-Life (as % BSCR)

	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.	#
Interest	0%	3%	8%	15%	61%	20
Equity	9%	11%	14%	17%	47%	6
Property	0%	1%	2%	2%	3%	3
Spread	0%	1%	4%	6%	7%	12
Conc.	1%	6%	19%	51%	67%	11
Currency	1%	2%	4%	15%	72%	13
D'fication	2%	5%	6%	12%	32%	20

# BSCR - Market risk: non-life

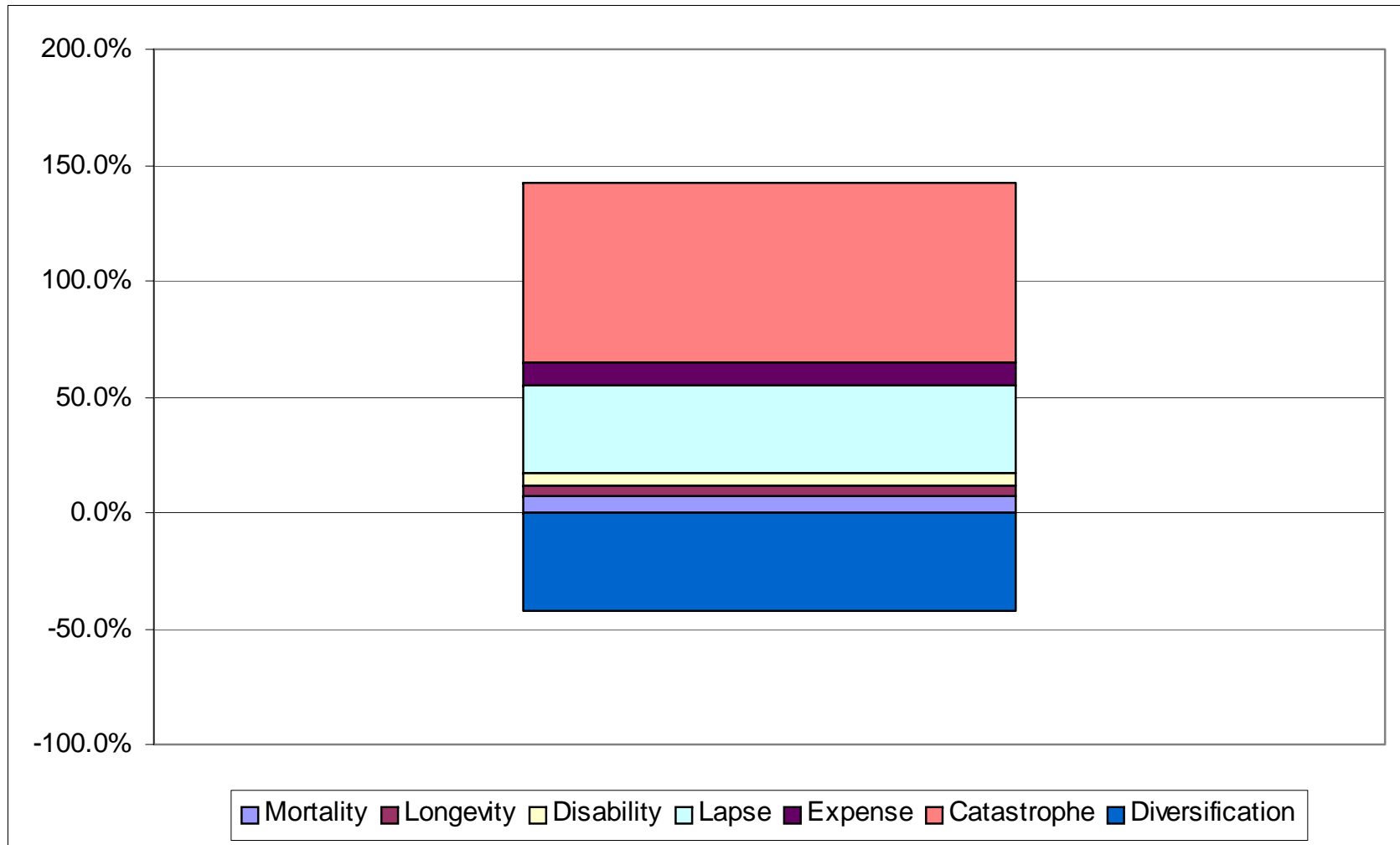




## Life underwriting (as % BSCR)

	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.	#
Mortality	0%	2%	3%	10%	28%	16
Longevity	2%	3%	4%	12%	35%	4
Disability	0%	3%	8%	42%	54%	6
Lapse	6%	19%	27%	37%	57%	16
Expense	1%	2%	4%	10%	23%	17
Catast.	6%	35%	61%	76%	95%	18
D'fication	5%	19%	29%	41%	65%	18

# BSCR - Life underwriting

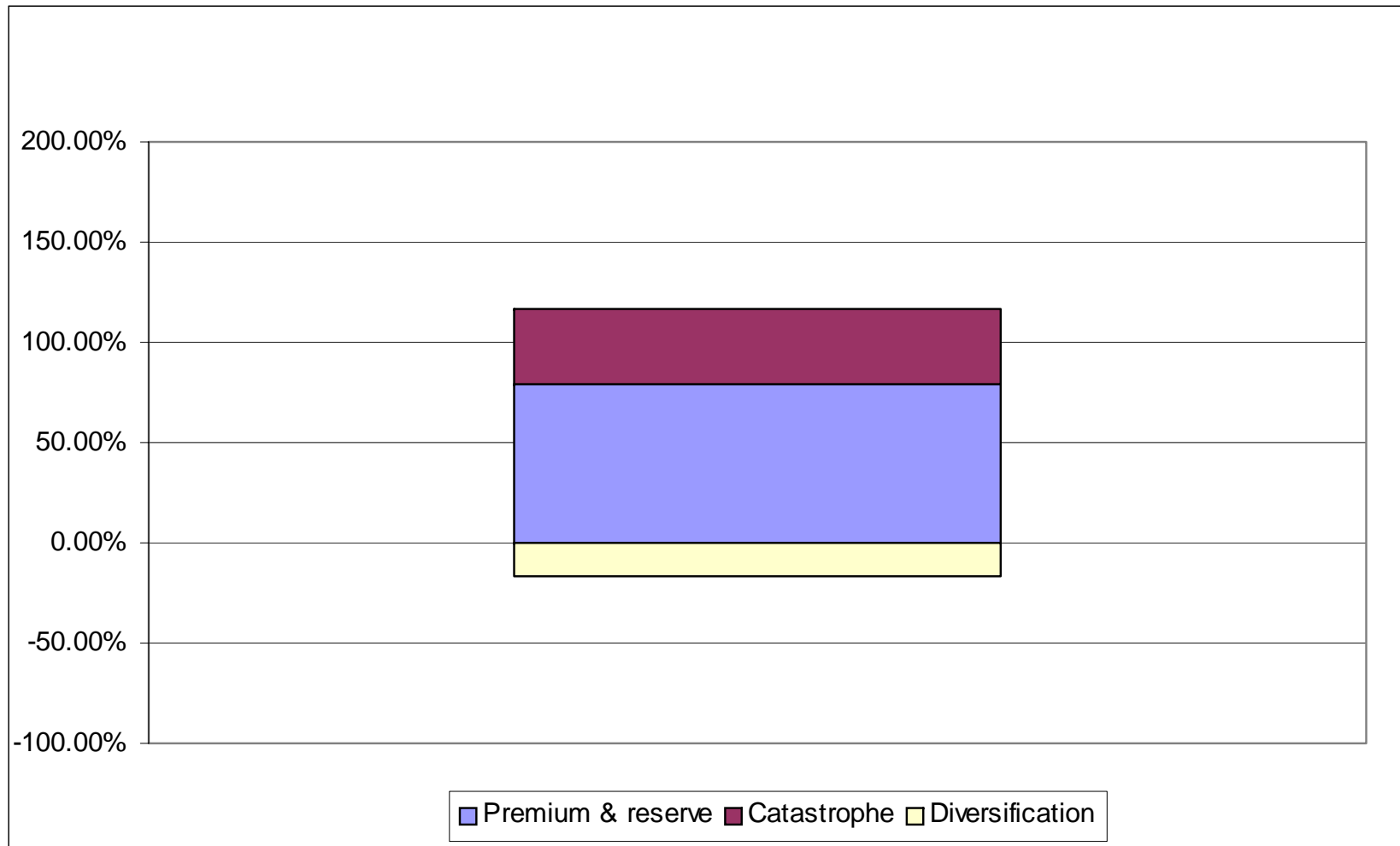




## Non-life underwriting (as % BSCR)

	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.	#
Premium & reserve	6%	29%	68%	87%	96%	21
Catast.	1%	7%	27%	50%	98%	17
D'ification	1%	6%	10%	18%	37%	17

# BSCR: Non-life underwriting



# MCR: Comparison of 2 methods



## Ratio of MCR1 / MCR2

	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.
Life	80%	102%	125%	139%	220%
Non-life	50%	100%	102%	105%	109%

**Among life companies, MCR1 is greater than MCR2 in 12 companies and smaller in 2.**

**Among non-life companies, MCR1 is greater than MCR2 in 15 companies and smaller in 6.**

# MCR: Comparison of 2 methods



## Ratio of MCR / SCR

	Min.	25 <sup>th</sup> % ile	Median	75 <sup>th</sup> % ile	Max.
MCR1 - life	1%*	3%	10%	17%	85%
MCR1 – non-life	2%	14%	32%	36%	46%
MCR2 - life	1%*	3%	9%	16%	85%
MCR2 – non-life	2%	14%	30%	36%	72%

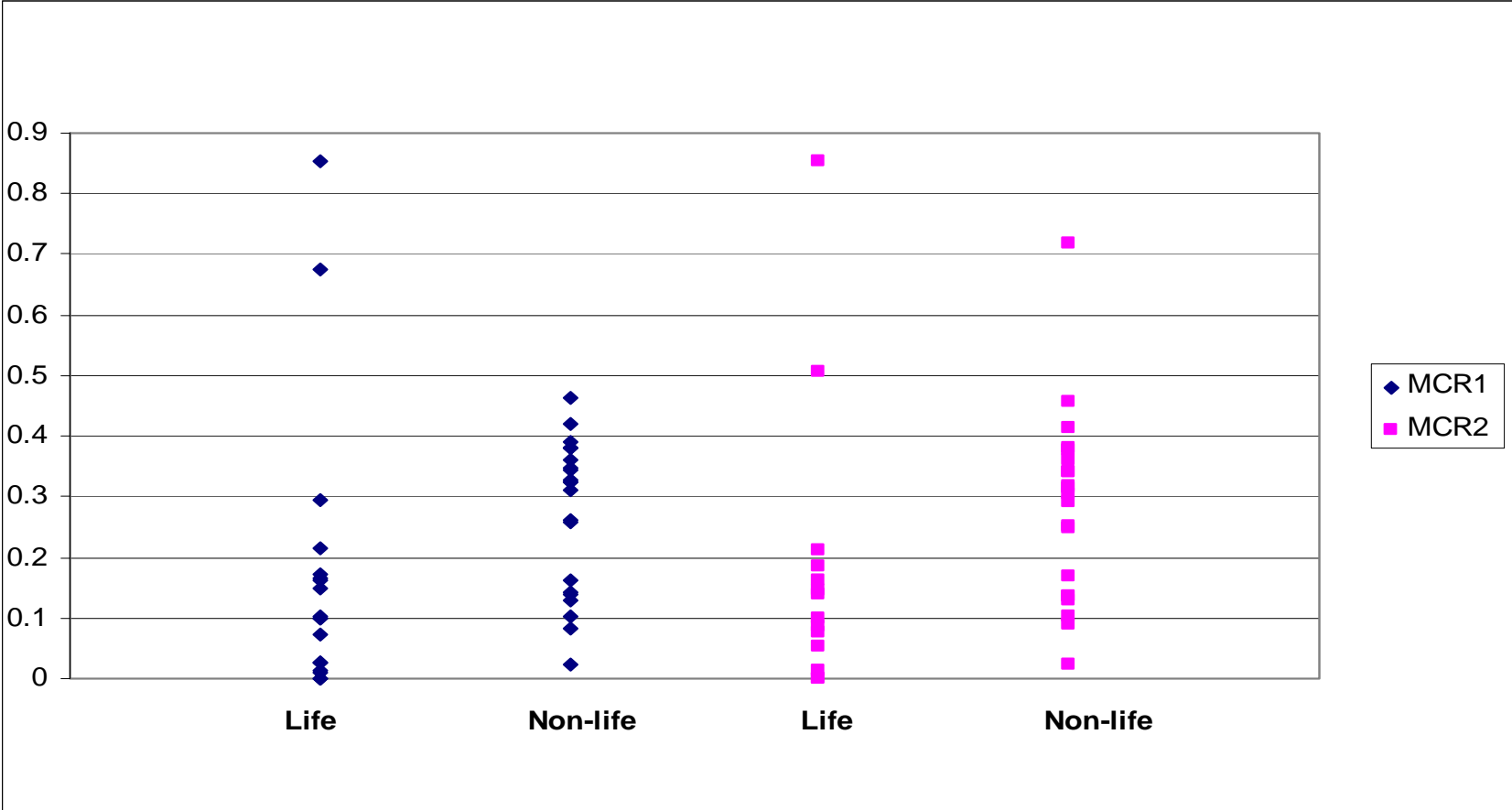
**\* 2 life companies have negative MCRs (shown as zero in following chart) but are omitted here**



# MCR



## Ratio of MCR / SCR





## Other items

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- **Own funds**
  - Almost all Tier 1
  - Almost all shareholders funds or revaluation reserves
- **Groups**
  - No submissions
- **Internal models**
  - One company submitted alternative SCR results



# Issues arising – Financial Regulator

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- **MCR**
  - **Negatives from profit sharing**
  - **Lack of sensitivity**
- **Operational risk**
  - **Inadequate**
  - **Ignores risk management practices**
- **Life underwriting**
  - **75% lapse catastrophe assumption**
  - **Lapse results high**
  - **Expense risk charge low**
  - **Objected to factor-based alternatives**



# Issues arising – Financial Regulator

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- **With profits**
- **Concentration risk**
  - **Thresholds**
  - **“Funds withheld”**
- **Non-life catastrophe**
- **Various calibrations and correlations**
  - **Mortality / disability**
  - **Mortality / longevity**
  - **Interest / equity**
  - **Equity / property**
  - **Counterparty treatment of unrateds**

# Issues arising - companies

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- **Not always a united industry view..**
  - Company A      *“factors used for equity risk seem to be rather low”*
  - Company B      *“the 32% equity shock .. seems quite onerous and extreme ”*
- **MCR**
  - Clear preference for compact approach
- **Operational risk**
  - Correlation of 1 (as well as earlier issues)
- **Free assets included for market risk**



# Issues arising - companies

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- **Many of the same points raised by FR**
- **Granularity of some market risk stresses**
- **Non-life**
  - **Underwriting risk parameters**
  - **Own factors for reserve risk**
  - **Credibility factors**
  - **Inconsistent catastrophe risk tests**
- **Technical provisions**
  - **Definition of hedgeable**
  - **Cost of capital**
    - **Diversification**
    - **Market risk inclusion**

# QIS4: The Basics

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- **QIS 4 will take place from April to July 2008**
  - Individual results to Financial Regulator by July 7<sup>th</sup>
  - Group results to CEIOPS by July 31<sup>st</sup>
- **Draft specifications were published by the European Commission on 21/12/2007 – open to public consultation until 15<sup>th</sup> February next**
- **Final specifications to be published on March 31<sup>st</sup>.**
- **CEIOPS QIS4 report to be published end of November 2008.**
- **Target participation rate of 25% (by number, not market share) of insurance / reinsurance companies – with emphasis on small & medium-sized**
  - **Translates to at least 75 Irish companies**

# QIS4 Specifications – The Context

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- **Developed to a very aggressive timetable**
  - **Initial QIS3 results emerging in early September, draft completed early December**
- **Strict instruction to be in full accord with the Draft directive text as published in July 2007**
- **Acceptance of Commission's priorities**



# The Commission's Priorities for QIS 4

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- **Simplified methods for Technical Provisions and SCR, along with entity-specific parameters**
- **The Group (rather than solo) perspective, including eligibility and transferability of Own Funds**
- **Internal model results, and comparability with standard formula SCR**
- **Design and calibration of MCR**
- **The measurement of Equity Risk**
- **The assessment of Own Funds**



## QIS4: Some Key Features

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- **MCR: “Modular” approaches dropped and replaced with a “linear” approach, i.e. a simple factor based model applied to technical provisions, capital-at-risk and non-life premiums**
- **75% catastrophe mass lapse on unit-linked removed;**
  - replaced by 30% mass lapse in the lapse risk sub-module;
  - take worse outcome of lapse shock vs. sustained lapse change at a granular level
- **Operational Risk introduces 25% of unit-linked expenses element (uncapped) – otherwise unchanged**
- **Free assets must be subject to market risk stresses**
- **Risk-free rate must be based on gilts, not swap curve**
- **Can’t use planned management actions to avoid effects of stresses**



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# **Compliance monitoring**

## **David O'Connor**