FINANCIAL REGULATOR
Rialtóir Airgeadais

Irish Solvency II
QIS4 Country Report

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Contents

Executive summary

The Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS) conducted its fourth Quantitative Impact Study (QIS4) under the Solvency II project in April – July 2008. Results collated at a National level were shared within CEIOPS, which produced an overall CEIOPS QIS 4 report in November 2008. This report is available on the CEIOPS' website: http://www.ceiops.eu/media/files/consultations/QIS/CEIOPS-SEC-82-08%20QIS4%20Report.pdf

The main purpose of this report is to present summary findings from the Irish markets contribution to the QIS 4 study. The report aims to be factual, reporting the feedback received from Irish participants to QIS 4.

We had strong participation, with 65 full quantitative submissions (a 66.7% increase from QIS3), which provided very useful data on the likely impact of the Solvency II proposals on the Irish insurance and reinsurance markets.

While the level of resources and time required to complete QIS4 varied considerably, companies reported no insurmountable difficulties in carrying out the calculations to acceptable standards of accuracy.
The vast majority of companies met the Solvency Capital Requirement (SCR) from existing resources with just over half of all participants seeing an increase in surplus assets in comparison with the current Solvency I basis.

The vast majority of life companies tend to see an increase in their surplus capital under QIS 4 relative to Solvency I, with other undertakings tending to see a fall in surplus capital. The results illustrate that life companies benefit more under the QIS 4 standard approach than then other types of undertakings. This result is consistent with the QIS 3 exercise.

There were some difficulties with the proposals. The main areas that received criticism from industry were:

- SCR
    - Market risk (in particular currency risk) not reflecting the true underlying risk and the calibration of some individual shocks
    - Counterparty default risk being overly complicated with overly harsh treatment of unrated debt (in particular Intermediary debt)
    - Operational risk not reflecting risk management

- Non-life Premium risk not reflecting the underwriting cycle
- Lack of transparency in the correlations, with some need for recalibration
- Calibration generally considered too high
  - Parameters for non-life reserve and premium risk
  - Parameters for life lapse risk
- Calibration generally considered too low
  - Equity shock factor
  - Expense shock factor

- MCR
  - Results suggest that the underlying calculations meet the calibration target better for non-life than for life
  - Strong preference for the MCR as a percentage of SCR, whilst acknowledging that the application of a corridor to the linear approach was an improvement.

- Technical Provisions
  - No allowance for diversification benefit in the risk margin
  - Treatment of per policy expenses for start up companies overly harsh
  - Cost-of-capital of 6% for risk margin generally considered to be too high

Also there was a clear message that more guidance on the treatment of tax is required.

We are very grateful for the strong participation, which has assisted both the Financial Regulator and CEIOPS in further developing proposals for Solvency II. The likelihood is that QIS5 will take place in mid 2010 and we hope that this level of participation continues and indeed increases.

Introduction

The Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS) is advising the EU Commission on the development of the Solvency II framework.

CEIOPS conducted its fourth Quantitative Impact Study (QIS4) in April – July 2008. The goals of QIS4 were:

1. To collect quantitative information about the possible impact on the balance sheets, and the amount of capital that might be needed, if the approach and the calibration set out in the QIS4 specification were to be adopted as the Solvency II standard
2. Check that the Technical Specification is aligned with the draft Directive
3. Collect data to support analysis of options for Level 2 measures
4. Encourage preparation for Solvency II

Particular areas of attention were:

- Suitability and practicability of the Technical Specification, especially simplified methods and entity-specific parameters
- The design and results of the MCR
- The collection of more granular data on Own Funds
- The collection of Internal Model results
- The impact of applying the QIS 4 specification to insurance groups

The Financial Regulator conducted a number of workshops and liaised with industry during April-July to assist with queries regarding implementation of the detailed specifications. It then collated responses from firms and shared these, via a confidential Country report, with CEIOPS at the end of August 2008. CEIOPS in turn collated the national responses and published its own report during November 2008. It is available on the CEIOPS website. http://www.ceiops.eu/media/files/consultations/QIS/CEIOPS-SEC-82-08%20QIS4%20Report.pdf

The purpose of this report is to present the results and feedback received from Irish firms who participated in QIS4. This report is anonymous and by necessity contains only a snapshot of all comments received. Some topics received attention from significant numbers of participants and in some cases there was a clear convergence of views, whereas in other cases there were divergent views. Some comments received related to issues that were unique to individual companies or not identified as issues by other participants. The Financial Regulator did feed-back the majority of the companies' detailed submissions on almost every topic.

Participation

Response levels

The response from Irish firms was significantly higher than in previous QIS exercises. We received 65 completed spreadsheets from individual companies. This participation represented 74% and 64% by volume for the life and non-life Markets respectively.

Table 1 - Numbers of respondents

Type of undertaking	Total (QIS4)	Total (QIS3)	% increase
Life undertakings	26	18	44.4%
Non-life undertakings	39	21	85.7%
Pure reinsurers (included above)	13	7	85.7%
Composites	0	0	0%
All respondents	65	39	66.7%
of which Mutual undertakings	0	0	0%

These companies represented a mix of companies of all sizes, small, medium and large (according to the criteria CEIOPS used in QIS2, QIS3 and QIS4)[1]. However, due to possible identification issues, we do not provide any analyses by size of company in this report.

Table 2 - Total market (Direct writers and reinsurers)

Type of company	Total number of respondents		Total market share
	No:	%	%
Life	26	22%	74.1%
Non-life	39	19%	64.4%

1 Life companies with gross technical provisions greater than €10bn are large, those with less than €1bn are small. Undertakings with provisions between these bounds are medium.
Non-life companies with annual gross written premiums greater than €1bn are large, those with less than €100m are small. Any value in between is considered medium-sized.

The market share statistics are based on the CEIOPS criteria i.e., by reference to premium income for non-life business, and by reference to current provisions for life business. Reinsurance market data relies in part on estimates. Ireland has a large number of small captive insurers and reinsurers, most of which did not contribute directly to the QIS4 exercise. Nevertheless we feel that the general features of such companies in the Irish market are well represented by those companies that did make submissions.

Other information submitted

Of the 65 companies that submitted spreadsheets, 28 also completed the qualitative questionnaire. An additional 12 companies provided other qualitative information to support the spreadsheet submissions.

Resources and reliability

The number of person months that was required to complete QIS4 ranged from 0.2 months to 8.7 months, with an average of around 1.9 months. On average, getting acquainted with the Technical Specifications was ranked equally with the actual calculation of the SCR as the most time consuming aspect of the QIS 4 process. Additional data collected illustrates that companies understand that substantial resources will be required for the implementation of Solvency II.

Most companies said the input data was reliable, accurate and traceable from their balance sheets and financial statements. Similarly, they were reasonably satisfied with the reliability and accuracy of the results that emerged. The significant areas where concern about reliability was expressed were in relation to the calculations for the risk margin on Technical Provisions, Counterparty default risk, Operational risk and companies clearly indicated they would have liked more guidance in this area.

Overall financial results

The vast majority of companies can meet the SCR requirements. Five companies would have to raise additional capital to meet the SCR. Of those five two companies would have to raise additional capital to meet the MCR. The five companies are all categorised as small Captive companies[2]. For these companies the key driver is the non-life catastrophe risk.

Solvency coverage

(i.e. available assets divided by solvency requirement)

In all the work that follows, any reference to the Solvency I required margin should be taken to mean 150% of the underlying legislative requirement. This is the standard requirement applied to all direct writers by the Financial Regulator and is therefore regarded as the most appropriate measure against which to draw comparisons.

We have decided not to show mean results in most of the analyses. Weighted averages tend to be dominated by the biggest companies and un-weighted averages are too easily distorted by an outlying result from a small company. We believe that the median result shown in most of the tables included in this report is a satisfactory measure of centrality.

Table 3 - Change in solvency margin coverage from Solvency I to QIS4

Type of company	Increase	Decrease	Total
Life	19	7	26
Non-life	9	30	39
Total	28	37	65

The Solvency I basis underlying the above table is Available Solvency Margin / 150% * Required Minimum Solvency Margin; the QIS4 basis is Eligible Capital / SCR.

2 This assumes all submissions under the standard approach, not under the National Guidance issued to captive companies.

To a certain extent it is difficult to interpret much from this comparison. Under Solvency I you have prudent technical provisions and a solvency requirement that has deficiencies in risk sensitivity. Under Solvency II you have technical provisions at best estimate, an additional risk margin and a capital requirement that is risk sensitive. In general the capital requirements for Solvency II are greater than for Solvency I but this is balanced by an increase in available assets to cover solvency.

Chart 1 – SCR coverage

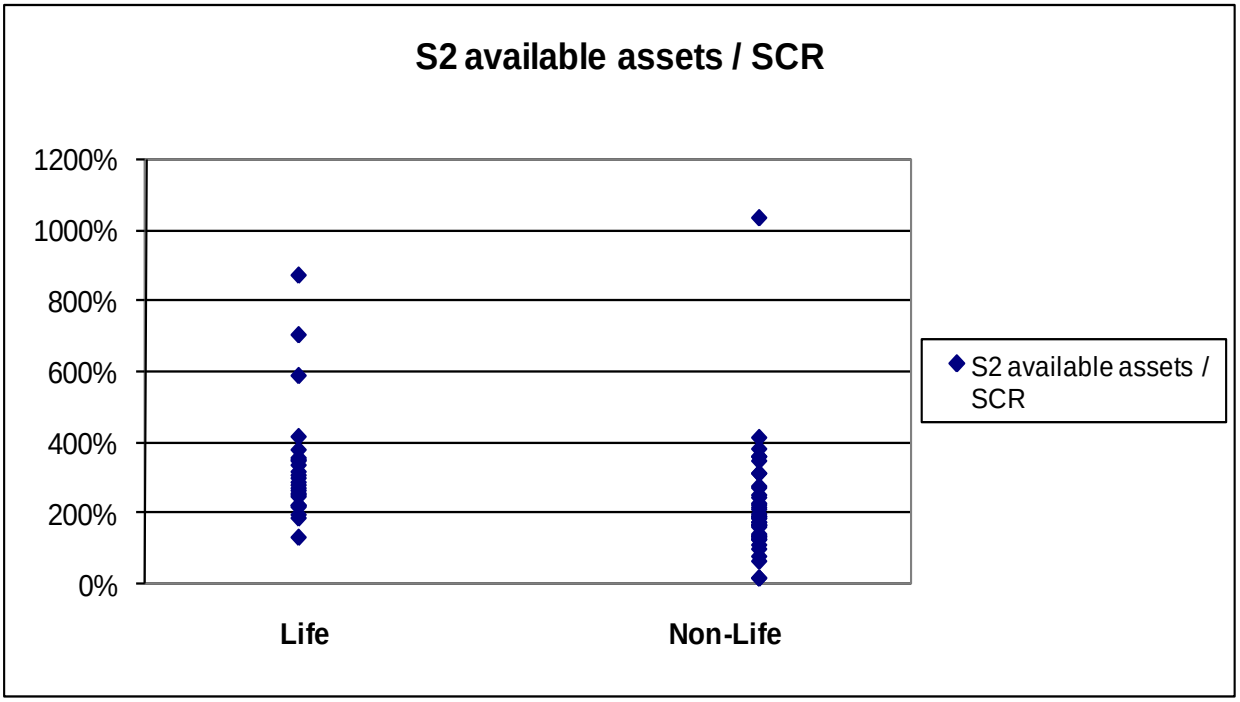

Table 4 - Summary of distribution of coverage ratios – Life

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Life – Available capital to SCR	127%	224%	279%	346%	869%
Life – Available S1 capital to 150%*RMSM	*	118%	167%	237%	*

*not shown for confidentiality reasons

Table 5 - Summary of distribution of coverage ratios – Non-life

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Non-life – Available capital to SCR	12%	130%	181%	257%	1031%
Non-life – Available S1 capital to 150%*RMSM	*	171%	274%	418%	*

*not shown for confidentiality reasons

These changes reflect the fact that, of the companies participating in QIS4, typically non-life companies have higher coverage under Solvency I than life companies. Under Solvency II life companies have a greater coverage.

Surplus capital

An alternative measure of the difference between Solvency I and Solvency II is a comparison of the surplus capital (where surplus capital refers to the excess of eligible capital after the solvency requirement has been met). Allowing for the fact that Ireland currently requires all direct-writing undertakings to meet 150% of the Solvency I required solvency margin, life companies see a significant increase in capital surpluses, non-life companies tend to have similar surplus capital amounts. As a group, Captives have significantly less surplus capital. In number terms just over half the companies see an increase in surplus capital, with nearly all life companies seeing an increase. This result is clearly illustrated in table 6.

Change in Surplus Capital from Solvency I to QIS 4

Table 6 – QIS4 surplus capital / Solvency 1 surplus capital

Type of company	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

Comparison of total capital requirement

(i.e. net technical provisions plus solvency requirement)

Although the application of some differences in asset valuation and admissibility rules has contributed to some of the change in surplus capital, most of the difference arises from changes in the sum of technical provisions and solvency requirements.

Table 7 – QIS4 to Solvency I total capital requirement

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Life	38.2%	94%	98.5%	99.9%	133.1%
Non-life	38.0%	100%	112.8%	132.1%	464.9%

Detailed financial results

Technical provisions

There is general consensus that the proposed design for the calculation of technical provisions is the correct approach. Companies also agree that the Cost-of-Capital approach is the correct way to derive the Risk Margin. However, a common theme in the qualitative replies related to the lack of allowance for any diversification benefit when the individual components of the risk margin are brought together, with the essential argument being that this does not represent an economic view. There was also some criticism that the 6% factor overstates the true cost of capital with figures suggested of between 2.5% to 4.5% as being more appropriate.

Chart 2 - Ratio of QIS4 technical provisions to Solvency I provisions (net)

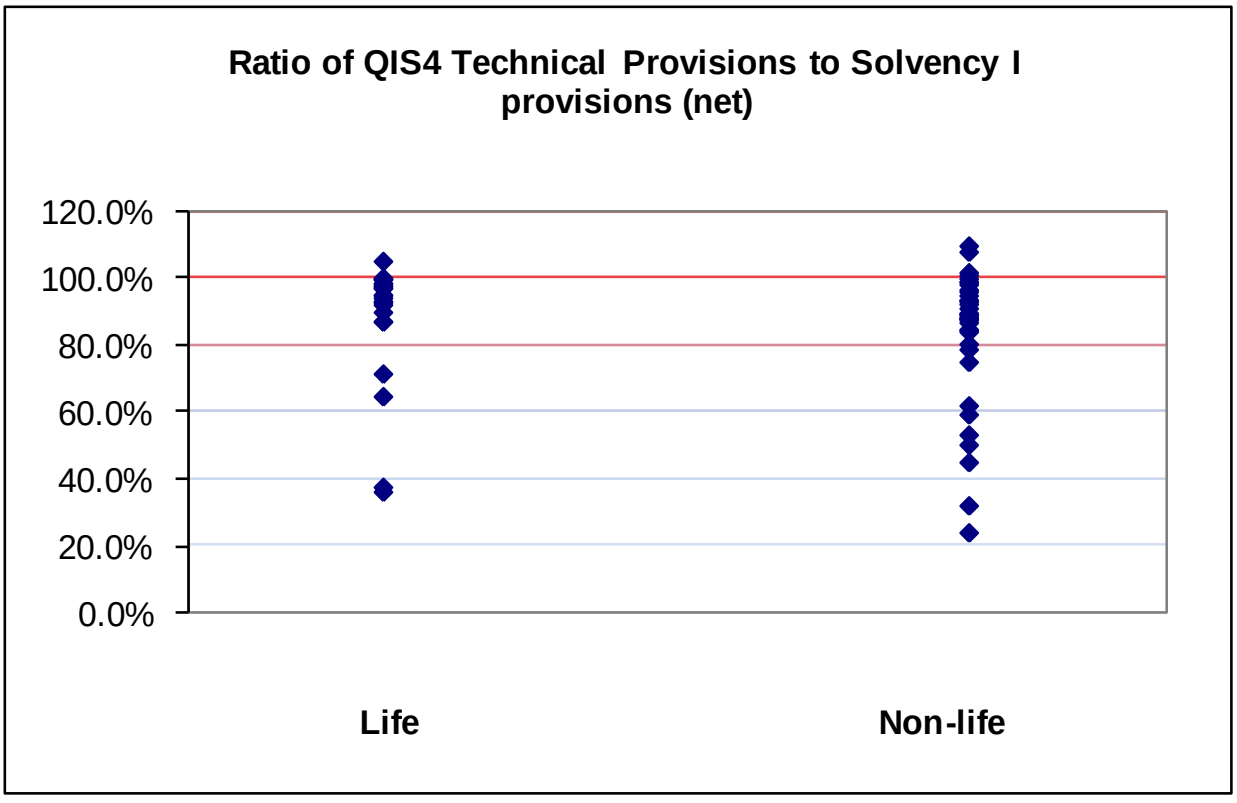

Table 8 - Ratio of QIS4 technical provisions to Solvency I Provisions

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Life	35.4%	86.7%	94.6%	98.1%	104.9%
Non-life	23.1%	82.7%	88.6%	95.1%	109.5%

For the vast majority of companies the fall in Solvency I technical provisions to QIS4 best estimate tends to be greater than the risk margin. The main drivers behind the fall in technical provisions are:

Life Companies

Technical provisions not floored at zero (allowing full recognition of future profit) and assumptions at best estimate.

Non-life

Recognition of surplus in UPR, removal of explicit surplus in the 'booked' Solvency I figure, discounting of UPR and Technical Provisions and removal of equalisation provisions (very few Irish non-life companies hold explicit equalisation provisions).

Table 9 - Cost of Capital risk margin to best estimate liabilities

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Life	0.1%	0.4%	0.9%	4.6%	21.6%
Non-life	1.0%	3.9%	5.8%	10.3%	29.7%

The life ratios are typically much lower than non-life because of large unit-linked provisions with small capital requirements.

Other concerns and practicability issues raised by life participants included:

- No allowance for unrealised economies of scale for start-up companies other than allowing for the likely level of costs that would be incurred if the administration of existing policies were outsourced to a third party. This was considered to be punitive and a barrier to entry, given the significant minimum floors applied by third party administrator costs.
- The Cost-of-Capital approach did cause some practical issues, with reference to complex calculations, model run-times and concerns over results being to an auditable standard.
- Technical specifications offered alternative approaches to valuing inherent options and guarantees, which could give rise to significant differences in answers based on methodology chosen.
- Lack of sufficient data on the composition of Unit Linked funds on a look-through basis to value market implications (link between Technical Provisions and the SCR).

The use of Proxies was most prevalent for the Risk Margin calculation.

Other concerns and practicability issues raised by non-life participants included:

- Some companies faced difficulties in changing the segmentation by which provisions were reported.
- Allocating premiums and provisions to different geographical regions also caused some practical difficulties.
- The Cost-of-Capital approach may not be appropriate for credit insurance, given the ability to cancel exposures with no subsequent run-off.
- The differences between sound actuarial techniques, proxies and simplifications were not always clear. For example, was QIS 4 prescribing stochastic reserving techniques (which have significant flaws)?

At a more fundamental level it can be argued that the most significant issue in determining the non-life best estimate reserves is a consistency around best estimate given the significant level of subjectivity and skill in arriving at the estimate.

A common theme for all participants was they would like more guidance on the treatment of tax.

Own Funds

The majority of participants deemed the proposals to be sensible and consistent with the Directive. 'Grandfathering' arrangements were mentioned by a number of participants as being an important instrument in transitioning to Solvency II rules. From the submissions received the vast majority of Own Funds are described as Tier 1.

Table 10 – Composition of own funds

	Tier 1	**Tier 2**	**Tier 3**
All companies	93.3%	6.6%	0.1%

The composition of Tier 1 Eligible Elements is outlined in table 11. A significant proportion of Tier 1 is described as 'Valuation Adjustment' (essentially an increase / decrease in own funds due the difference in valuation methodologies applied to asset and liabilities under Solvency I and QIS 4). Companies tended to have an increase in own funds under QIS 4, with most of the change attributable to changes in the calculation of technical provisions, rather than the value placed on assets and other liabilities.

Table 11 – Composition of Tier 1 eligible elements

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

SCR

The general consensus from participants was that the approach is both suitable and appropriate.

Table 12 – Solvency requirement compared to (net) provisions

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Life SI	0.2%	0.8%	3.1%	6.8%	33.2%
Life SII	0.4%	1.9%	3.5%	11.7%	63.5%
Non-life SI	5.8%	15.8%	38.8%	51.1%	416.6%
Non-life SII	24.2%	54.2%	67.9%	111.7%	826.9%

The increase in all ratios from Solvency I to QIS4 is to be expected with the general reduction in provisions and the wider scope of the SCR modules. The life ratios are typically much lower than non-life because of large unit-linked provisions with small capital requirements.

Constituent elements of SCR

Analysis of Basic SCR by main modules

Under the QIS4 specifications, the total SCR is the Basic SCR (BSCR) plus the charge for Operational Risk (with no diversification effects allowed between Operational and other risks).

Basic SCR

In all of the following tables and graphs, the contribution of a specific risk module is measured by its result divided by the Basic SCR (BSCR). As there are diversification effects from using the correlation matrices, these contributions within a company sum to greater than 100% of the BSCR. The excess of the sum of the results for individual risk modules over the BSCR (expressed as a percentage of the BSCR) is shown here as the reduction for diversification. For simplicity, where a life company does have with profit business included, all calculations shown here are before allowing for any mitigation effects of future profit sharing.

*The composition of the BSCR is illustrated in each instance through two tables. In the first table **(a – all results)** the distribution of results on any line refers to all results and in the second table **(b – non-zero results)** the distribution of results on any line refers to all non-zero results. Essentially they are two different 'cuts' of the same data.*

Table 13a - Composition of BSCR – Life (All Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Market	13.7%	48.7%	57.8%	79.4%	100%
Default	0.0%	0.0%	0.0%	1.1%	62.2%
Life underwriting	24.1%	41.9%	66.6%	75.7%	95.0%
Reduction for diversification	0.0%	21.3%	24.5%	26.1%	38.4%

Table 13b - Composition of BSCR – Life (Non-Zero Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Market	13.7%	48.7%	57.8%	79.4%	100%
Default	0.3%	1.2%	2.5%	11.9%	62.2%
Life underwriting	24.1%	41.9%	66.6%	75.7%	95.0%
Reduction for diversification	0.0%	21.3%	24.5%	26.1%	38.4%

Life underwriting risk is followed closely by market risk as the largest component of the BSCR. This reflects the business mix of Irish companies. Where default risk was quantified it is very small in proportion to the market and life underwriting risk.

Table 14a - Composition of BSCR – Non-life (All Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Market	0.0%	13.3%	30.0%	41.5%	97.2%
Default	0.0%	1.4%	4.9%	16.6%	81.4%
Health	0.0%	0.0%	0.0%	5.8%	79.5%
Non-life underwriting	0.0%	59.6%	76.1%	89.8%	100%
Reduction for diversification	0.0%	14.7%	22.8%	28.9%	39.5%

Table 14b - Composition of BSCR – Non-life (Non-Zero Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Market	2.7%	14.6%	30.3%	41.8%	97.2%
Default	0.1%	3.0%	6.6%	24.3%	81.4%
Health	0.1%	1.9%	13.3%	33.8%	79.5%
Non-life underwriting	9.0%	61.2%	76.4%	90.0%	100%
Reduction for diversification	0.0%	14.7%	22.8%	28.9%	39.5%

These results are much more similar to other European results than the life ones above. Underwriting risk dominates here and in Europe overall, where it averages approximately 75% of BSCR before diversification.

Operational risk

Table 15 - Operational risk as percentage of BSCR

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Life	0.9%	2.3%	5.7%	10.2%	30.0%
Non-life	0.3%	4.5%	6.7%	9.8%	21.4%

One life company had its operational risk result capped at 30% of the Basic SCR.

Analysis of SCR sub-modules

Table 16a - Market risk as % of BSCR – Life (All Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
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%
Reduction for diversification	8.4%	26.0%	41.9%	45.2%	66.6%

Table 16b - Market risk as % of BSCR – Life (Non-Zero Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Interest	1.5%	6.8%	20.0%	35.3%	55.8%
Equity	7.7%	26.0%	37.2%	49.0%	75.4%
Property	0.7%	3.1%	4.9%	6.2%	52.2%
Currency	1.5%	3.6%	9.3%	19.8%	60.1%
Spread	0.2%	1.1%	3.5%	8.1%	67.9%
Concentration	0.2%	1.3%	5.8%	16.0%	75.3%
Reduction for diversification	8.4%	26.0%	41.9%	45.2%	66.6%

Table 17a - Market risk as % of BSCR – Non-life (All Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Interest	0.0%	3.6%	7.4%	11.2%	34.6%
Equity	0.0%	0.0%	0.0%	1.8%	38.3%
Property	0.0%	0.0%	0.0%	3.9%	21.4%
Currency	0.0%	0.0%	2.3%	16.7%	64.4%
Spread	0.0%	0.0%	1.0%	5.2%	31.0%
Concentration	0.0%	1.4%	4.9%	16.6%	81.4%
Reduction for diversification	6.4%	20.4%	33.4%	45.9%	63.6%

Table 17b - Market risk as % of BSCR – Non-life (Non-Zero Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Interest	0.4%	4.4%	7.7%	11.4%	34.6%
Equity	1.6%	8.5%	10.3%	15.3%	38.3%
Property	0.3%	1.7%	5.5%	13.3%	21.4%
Currency	0.2%	2.3%	7.5%	28.5%	64.4%
Spread	0.1%	1.2%	4.6%	8.3%	31.0%
Concentration	0.1%	3.0%	6.6%	24.3%	81.4%
Reduction for diversification	6.4%	20.4%	33.4%	45.9%	63.6%

Where they exist, equity and interest rate risk are the 2 biggest contributors to the BSCR in both life and non-life business, but they are zero in a number of the companies also. Currency risk also represents a significant charge for some of the participants.

Table 18a - Life underwriting as % of BSCR (All Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
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%
Reduction for diversification	4.6%	18.6%	28.8%	47.8%	80.7%

Table 18b - Life underwriting risk as % of BSCR (Non-Zero Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Mortality	0.1%	1.3%	3.1%	6.7%	23.4%
Longevity	2.6%	3.4%	5.1%	5.6%	13.1%
Disability	0.7%	7.5%	12.2%	18.5%	56.5%
Lapse	10.9%	33.5%	48.9%	64.9%	80.9%
Expenses	1.3%	5.2%	6.7%	9.7%	33.2%
CAT	0.1%	1.4%	5.5%	14.3%	68.0%
Reduction for diversification	4.6%	18.6%	28.8%	47.8%	80.7%

Lapse risk dominates the life underwriting result.

Table 19a – Non-life underwriting risk as % of BSCR (All Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Premium & reserve	0.0%	27.1%	55.7%	78.2%	98.3%
CAT	0.0%	9.0%	21.5%	47.4%	98.0%
Reduction for diversification	0.9%	13.1%	24.8%	36.7%	41.4%

Table 19b – Non-life underwriting risk as % of BSCR (Non-Zero Results)

	Minimum	25th Percentile	Median	75th Percentile	Maximum
Premium & reserve	4.9%	28.7%	56.1%	78.3%	98.3%
CAT	0.7%	9.6%	23.8%	48.0%	98.0%
Reduction for diversification	0.9%	13.1%	24.8%	36.7%	41.4%

As expected premium & reserve risk dominate the non-life underwriting composition. As can be seen from the results a 1 in 200 catastrophic event (or events) dominates all other results in a small number of cases.

Other concerns and practicability issues raised by participants with relation to the SCR are listed below. These issues, while representing the more common or significant objections, should be taken in the context of general agreement with the SCR design.

Market Risk:

- Several participants commented that the equity shock of 32% represented a calibration that was too low with a more appropriate equity shock being a 40% fall in value.
- There was very strong resistance to the concept of the duration-linked equity dampener that was tested as an alternative approach in QIS 4. It was seen as inconsistent with the concept that a company should have sufficient resources to ensure that it would be solvent in one year's time (with a confidence of 99.5%) following a fall in equities. Additional comments also suggested that that it gave negative incentives to manage risks and indeed queried why equities should receive differential treatment to other asset classes.
- Flexing the yield curve should be considered as part of the SCR market risk module.
- Further work is required on the correlations of equity and interest rate risk.
- Some companies selling cross-border business felt that the Currency Risk module did not capture the true risk on a 'look-through basis' and that additional work was required here.
- Some comments suggested that stressing of Equity and Interest rate volatilities were missing, an element that would impact companies writing products that have embedded options and guarantees.
- There were a significant number of participants who referred to liquidity risk but there was no consensus as to whether (or how) this should be captured in a standard formula.
- One participant felt that consideration should be given to the path of the shocks for dynamically hedged business, also pointing out that the most adverse scenarios for dynamically hedged products are linked to the realised volatility of the markets within the period considered (i.e. how many "costly" re-balancings were necessary) and not the position of the market at the end of the period.

Counterparty Default Risk:

- There were some comments received that welcomed some improvements in the approach, in particular the addition of 'Loss Given Default', however there was general criticism that the calculation was not practicable, overly complicated and time consuming.
- In addition to practicability concerns there were also concerns that the underlying methodology can give anomalous results, with the treatment of unrated debt but creditworthy debt considered punitive. The treatment of unrated debt was seen as more severe and inconsistent than the treatment in spread risk.
- Related to this non-life companies levelled severe criticism at the treatment of Intermediary Debt for non-life companies which is deemed unrated. The point was made that no account was taken of bonded schemes, lack of recognition of diversification and that Intermediaries are subject to different risks than insurance companies.
- Some objections were also voiced about the use of commercial rating agency ratings in the approach from the perspective of fallibility and also the possible necessity for non-rated reinsurers to acquire a rating.

Non-life Underwriting Risk:

- There was a general consensus that companies should be allowed to use company specific parameters whilst acknowledging the need to recognize the credibility of the data and validation of the results. However several participants felt that own data should receive more credibility.

- In general participants felt that the calibration of Premium and Reserve risk factors was too conservative, particularly for reserve risk.

- A common criticism was that the standard formula approach does not appropriately allow for the underwriting cycle (which can be pronounced in the Irish Market). A tariff increase leads to a higher SCR disregarding the rationale for the increase. A greater element of sensitivity to volume was seen as a desirable future development.

- Many non-life firms also suggested that there should be an allowance within the underwriting risk module for expected future profits (or losses) over the projection period.

- There were requests for more justification of prior year estimates, which should reflect the undertakings size and geographical diversification.

- The restriction that 'own undertaking parameters' need to be derived from standardised methods, including distribution assumptions, received some

adverse comment. This restriction may result in parameters that do not reflect the true underlying risk.

- Allowance for geographical diversification was seen as an improvement although it was commented that the methodology / calculation could benefit from simplification.

- The 'Miscellaneous' category is likely to be a mix of long-tail and short tail business, which will understate or overstate the capital required depending on the mix and calibration.

- There was approximately a 50/50 split between companies using Method 1 (factor based approach) and Method 3 (entity specific scenarios) to measure Catastrophe Risk. The larger companies strongly support Method 3 with the argument being that it is a more risk-sensitive approach that takes account of the true underlying risk exposure and the related reinsurance cover in place. Method 1 does not reflect the structure and form of the reinsurance programme. Companies that tended to use Method 1 highlighted the difficulty in deriving a '1 in 200' year catastrophic event. In general Method 3 produced results that were on average 60% of those produced by Method 1. There were requests for further guidance on calibrating and deriving Cat risk scenarios.

Table 20 – Non-life CAT risk

	Minimum	**25th Percentile**	**Median**	**75th Percentile**	**Maximum**
Method 3 to Method 1	2.4%	34.5%	60.9%	100%	624%

- One company suggested that the grouping of lines was rather heterogeneous, for example Third Party Liability combining Employer and Public Liability, resulting in the loss of some diversification benefits.

Life Underwriting Risk:

- Several participants commented that gradual changes in biometric risks (i.e. mortality, longevity and sickness) or duration based shocks would be more appropriate.

- Some firms felt that the lapse shock was still unduly harsh in absolute terms and duration, whilst acknowledging that it was an improvement on QIS 3.

- From a practicability perspective 'policy-by-policy' calculation for the assessment of shock impacts was felt by some to been very burdensome. Indeed some companies made assessments at a less granular level.

- There were some comments that the calibration of the expense risk and mortality / disability risk is less prudent than 99.5% VaR. However, some reinsurers felt that the calibration of biometric risks was harsh for a large, well-diversified (reinsurance) book. Also no allowance was made for common exclusions in reinsurance treaties, for example pandemic exclusions.

- There were requests for further justification of correlations, with specific reference to the positive correlation between mortality and disability for accelerated benefits.

Operational Risk:

- This module came in for particular criticism, with the consensus being that the approach was inadequate, arbitrary and not risk-based. Participants felt that the approach offered no incentive (from a solvency capital requirement) to actively manage operational risk.

- The majority of companies also felt it was inappropriate to assume that operational risk was 100% correlated to the other SCR risks.

- Other comments suggested that the cap of 30% of the SCR was arbitrary and did not reflect the true risk.

- Through the qualitative submissions no companies volunteered an alternative approach.

MCR analysis

The majority of companies have no issues with the practicability of the design. Industry have strongly criticised the linear approach, whilst acknowledging that the addition of the corridor was an improvement. *The participants were overwhelmingly in favour of an approach where the MCR is a percentage of the SCR.* The respondents felt that, under the QIS 4 approach, the MCR was less risk sensitive than the SCR, deviating from Solvency II principles of risk sensitivity. It was also suggested that there is the risk that the MCR can behave inconsistently with the SCR, which may result in misleading / incorrect messages.

Chart 3 – Linear & Combined MCR (Life)

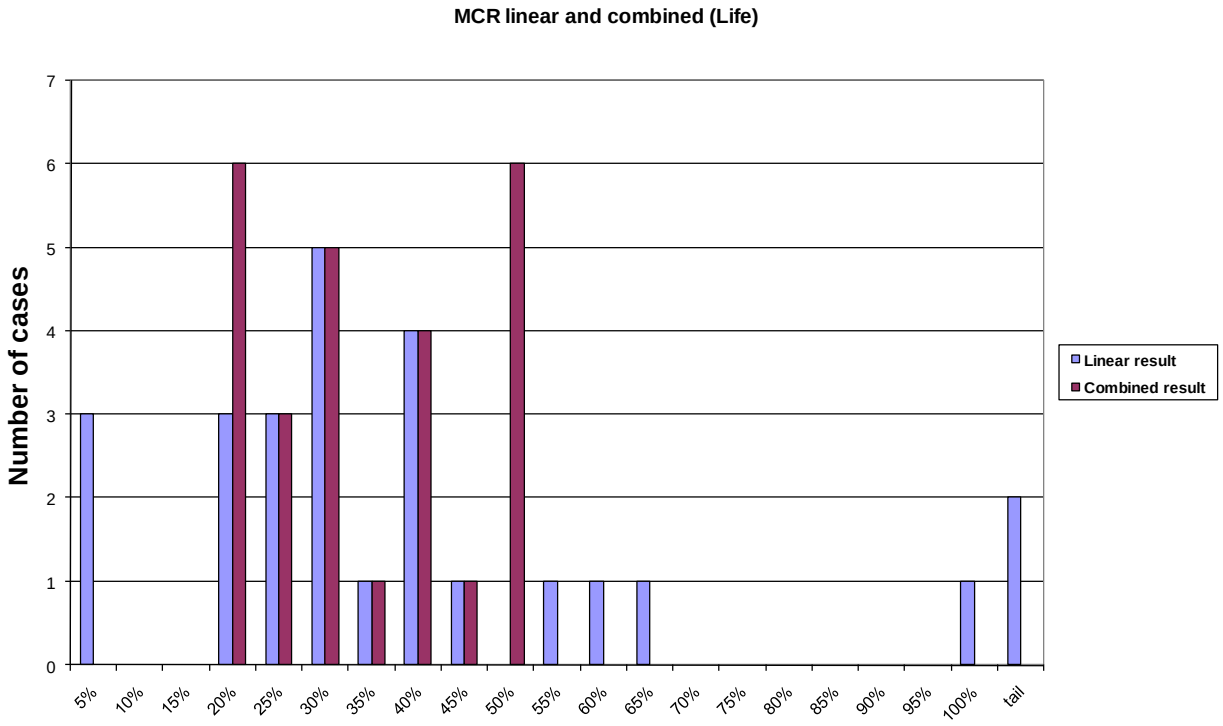

Table 21 – Comparison of Linear to Combined MCR (Life)

	Linear < 20%	20% < Linear < 50%	Linear > 50%	Total
Life	6	14	6	26

Chart 4 – Linear & Combined MCR (Non-life)

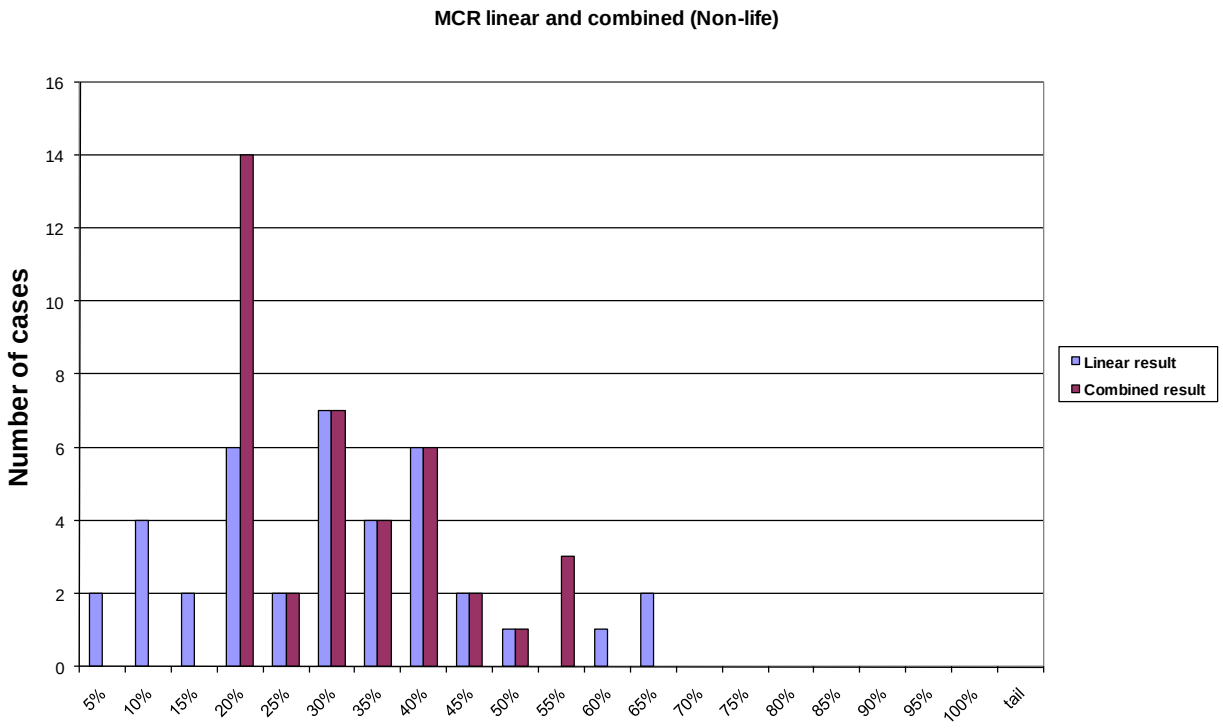

Table 22 – Comparison of Linear to Combined MCR (Non-life)

	Linear < 20%	20% < Linear < 50%	Linear > 50%	Total
Non-life	14	22	3	39

Two life companies had a MCR of greater than or equal to 100% of the SCR. They are shown as 100% in the table above.

The results tend to show that the underlying calculation met the calibration target better for non-life than life with non-life tending to have fewer very extreme results. The floor applied to several non-life Captive companies, essentially driven by the large relative size of the CAT component (Method 1) to the overall SCR. From the submissions received the floor and cap are equally likely to apply for life business.

The median ratio of the MCR to SCR is 27% for life companies and 29% for non-life Companies.

Numerical analysis of qualitative responses

Some qualitative questions were replied to in the spreadsheets using a numerical grading system.

The QIS4 spreadsheet asked participating firms to give an input on their expectations regarding CEIOPS future work. Insurers were asked to state on a scale of 1 to 5 (1 for less and 5 for more) whether they deem appropriate more or less prescriptive rules, guidance for calculation, or simplifications to the methodology proposed in the QIS4 Technical Specifications. The average Irish responses were:

Table 23 – Average grades – future guidance

	Technical provisions	Value of assets	Assessment of eligible capital	Calculation of SCR	Calculation of MCR
Prescriptive rules	2.9	3.8	3.1	3.0	3.1
Guidance for calculation	3.7	3.5	3.4	3.6	3.4
Simplification for methodology	2.8	2.8	2.8	3.0	2.8

Overall, these are broadly indicative that the quality of the specification for QIS4 was adequate, but line 2 indicates that more guidance on the actual calculations is desired. If the Irish table is compared to the CEIOPS overall result, Ireland is around average on line 1 and 3, but very slightly above average on Line 2. This suggests that, relative to their European counterparts, Irish companies are a little more comfortable with a "principles-based" approach and also have less need for simplified approaches, but at this stage do want clear instruction and guidance for the less familiar calculations needed for the Solvency II regime.

Also asked was the QIS4 approach for the calculation of each component of the SCR and MCR to be ranked for suitability, calibration and practicability using 1(poor) to 5(good).

Table 24 – Average grades – methodology

	Market risk	SCR	MCR	Life u/w risk	Non-life u/w risk	Risk margin
Suitability	3.5	3.6	3.1	3.4	3.4	2.8
Calibration	3.2	3.5	2.9	3.3	3.0	2.5
Practicability	3.8	3.8	3.6	3.9	4.0	3.5

Most marks are over mid-range. Most dissatisfaction is expressed for MCR calibration and risk margin.

Other matters

Internal models

We had too few submissions of results from internal models to form any strong conclusions or to illustrate Irish results. Companies with internal models recognise the need for a standard approach, but argue strongly for flexibility in the approach to allow for entity specific parameters / partial models prior to full internal models. It is also clear from comments received that a number of companies are actively using internal models, at least partially, for economic purposes.

Group solvency

No submissions were made to the Financial Regulator on a Group basis. The majority of our 65 companies are members of insurance "groups" and many of these did contribute to group submissions to other supervisors.

Captives

Ireland did offer National Guidance with respect to Captive companies. Companies were requested to submit results under the standard approach and also under two alternative approaches outlined in the National Guidance. All results referred to and illustrated throughout this report are all under the standard approach. Given the limited data received under National Guidance, the impact on Captive companies' capital requirements are not illustrated in this report. Aggregated results and comments were shared, via the confidential Country report with CEIOPS.

Specific comments from Captive participants included:

- Additional clarification on how the look-through principle can be applied for when the parent company is not a financial institution.

- Changes on the treatment of assets and investment thresholds between QIS3 and QIS4 were welcomed, but the defined €3m threshold per AA rated bank was felt to be too low.

- Catastrophe Method 1 is felt to be inappropriate for some companies.

- An allowance applied when the primary business currency is not denominated in Euros. This allowance should be applied for currencies both within and external to the EU member states.

Next steps

QIS4 has definitely been a success from the Financial Regulator's perspective in terms of both the participation levels and the general support of the company responses for the proposed Solvency II structure.
The QIS4 results have influenced both the Financial Regulator's inputs into ongoing Solvency II work and CEIOPS work.

Ireland has seen a very significant increase in participation since QIS3 and this has finally given us useful and significant data on the likely impact of the Solvency II proposals on the Irish insurance and reinsurance markets.
We hope to see this trend continue for QIS5 in 2010.

T +353 1 410 4000
Consumer help-line
lo call 1890 77 77 77
Register of Financial Service Providers help-line
lo call 1890 20 04 69
F +353 1 410 4900
www.financialregulator.ie
www.itsyourmoney.ie
Information Centre: 6-8 College Green, Dublin 2

PO Box No 9138,
College Green,
Dublin 2, Ireland