



Financial Services Authority

FSA UK Country Report

The fifth Quantitative Impact
Study (QIS5) for Solvency II

March 2011

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1 Introduction

Solvency II

The Solvency II Directive, adopted through the European legislative process, aims to harmonise and strengthen the supervisory framework for European (re)insurance companies.

The more important features of Solvency II are:

- market-consistent balance sheets;
- risk-based capital;
- the ability to use internal models to calculate capital requirements;
- the Own Risk and Solvency Assessment (ORSA);
- the application of the requirements to group and solo entities;
- senior management accountability; and
- supervisory assessment.

In order not to impose too heavy a burden on small and medium firms, the principle of proportionality applies throughout the Directive.

As part of the development of Solvency II, the European Commission (the Commission) requested that the European Insurance and Occupational Pensions Authority (EIOPA¹) run a number of large-scale field tests called Quantitative Impact Studies (QISs) to assess the practicability, implications and possible impact of the alternatives considered.

1 On 1 January 2011 the Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS) changed to EIOPA in line with the creation of the new European Supervisory Authorities (ESAs). To avoid ambiguity CEIOPS is referred to as EIOPA throughout this report.

QIS5

On 6 July 2010 the Commission published a call for advice and technical specifications asking EIOPA to launch the fifth Quantitative Impact Study (QIS5) on Solvency II. EIOPA ran QIS5 from August to November 2010. The Commission expressed its desire to encourage participation from all sizes of firm and all types of business (insurer, reinsurer, captive, life, non-life and health).

The main aims of QIS5 were to look across Europe at the impact on both solo firms and groups, covering the:

- practicability and suitability of calculations for technical provisions, own funds, the minimum capital requirement, solvency capital requirement and the valuation of assets and liabilities;
- effect on the level of capital needed by insurers;
- suitability of calibrations proposed for establishing capital requirements; and
- preparedness of insurers that may wish to use an internal model in Solvency II and the results arising from internal models.

The information and data collected from QIS5 should assist EIOPA and the Commission in the refinement and further development of the delegated acts (formerly known as level 2 implementing measures), technical standards and level 3 guidance. It will also help identify whether additional areas might need transitional arrangements.

A further important objective was to encourage insurers to prepare for the introduction of Solvency II and to identify areas where their internal processes, systems and infrastructure (including data collection) may need to be enhanced.

Operational arrangements to conduct QIS5 and collate results from firms were made by national insurance supervisors separately in each Member State, supplemented by a centrally coordinated collation of groups' results. Results collated at national level were then shared within EIOPA, which produced an overall EIOPA QIS5 report available on EIOPA's website.²

To support the exercise, the Commission published a technical specification for QIS5, and EIOPA provided a number of spreadsheet tools and helper tabs. There was also a question and answer procedure run by EIOPA in conjunction with the Commission which answered over 200 questions³, and one run by the FSA which answered almost 600.

The purpose of this report is to summarise the findings from the QIS5 submissions (quantitative and qualitative) received from UK solos and groups.

When reading this report, the following is a useful reminder of what the QIS5 exercise does and does not provide.

² <https://eiopa.europa.eu/>

³ The tools and EIOPA Questions & Answers can be found on EIOPA's QIS5 pages at: <https://eiopa.europa.eu/consultations/qis/quantitative-impact-study-5/index.html>

The QIS5 exercise provides:

- estimates at a point in time (at year end 2009) for the quantitative aspects of the Solvency II proposals at the time of the exercise;
- information on the quantitative impact of the proposed technical specifications and alternative calculations, e.g. illiquidity premium, loss absorbency of technical provisions, group aggregation methods and third country equivalence;
- qualitative feedback on the practicality of current methodology, the appropriateness of calibrations, and proposals for both groups and solo firms; and
- information on firms' preparedness for Solvency II.

The QIS5 exercise does not provide:

- a technically correct answer as to whether or not the calibrations of the standard formula components are calibrated at a 99.5% confidence level as required by the Directive;
- a prediction of the impact of Solvency II in economic climates other than that at year end 2009;
- data subjected to the same formal review requirements as, for example, year-end regulatory submissions; or
- an assessment of the impact of the final technical specifications for Solvency II.

QIS5 was conducted at a time when the basic, level 1 Directive was known, and the Commission is partway through drafting the more detailed delegated acts.

QIS5 in the Solvency II framework

QIS5 is an important input to the overall Solvency II process. It comes at a critical time for the development of the regime and the results will shape the final Solvency II landscape through the delegated acts, technical standards and level 3 guidance. The data gathered in the exercise will help to ensure that Europe moves towards a risk-sensitive, market-consistent and practical new regime for insurance.

2 Participation

The UK response for QIS5 was considerably higher than for previous QIS exercises. We saw a total of 267 solo firms take part in QIS5, of which the vast majority submitted both questionnaires and spreadsheets. This compares favourably to the 129 submissions received under QIS4.

We had a good representation from a cross-section of the industry with 148 non-life and 119 life firms taking part. Particularly pleasing was the spread of submissions from across the spectrum of the size of firms, with three times more small firms submitting QIS5 results than submitted QIS4 results. This strong level of participation leads us to consider that the exercise has provided us with a comprehensive and representative picture of the main impact of Solvency II along with its main issues in the UK industry; it indicates the high level of importance attached to Solvency II by the industry.

Table 1: Number of participating solo firms by size⁴ and type of business

	Life	Non-life	Total
Small	42	60	102
Medium	41	74	115
Large	33	17	50
Total	116	151	267

In total, more than 70% of solo firms captured by Solvency II, representing the majority of UK market share, provided us with QIS5 results. In addition to the 267 solo submissions, we had 35 group submissions compared with 17 in QIS4, again representing groups of varying sizes and business types.

4 The size of firm is defined by EIOPA and is consistent with the definition used in its Europe-wide QIS5 report.

We are extremely grateful for the amount of effort put into the QIS5 exercise by the UK industry, and feel this reflects increasing engagement with Solvency II as we move towards implementation.

3 Quality

In general we are pleased with the quality of data gathered in QIS5. Between the receipt of the QIS5 submissions and the UK data submission to EIOPA, we undertook a 'sense check' procedure. This involved a number of resubmissions and clarifications, and has led us to have increased confidence in the data we submitted to EIOPA.

As Table 2 shows, firms reported in their QIS5 submission that their input data for QIS5 was generally of good quality in terms of accuracy, appropriateness and completeness, and that their results are sufficiently reliable.

Table 2: Firms' assessment of quality

Average assessment of quality (1 – poor; 2 – fair; 3 – good; 4 – excellent) – SMALL FIRMS	Small						Medium						Large					
	Results			Input data			Results			Input data			Results			Input data		
	Reliability	Appropriateness	Accuracy	Completeness	Accuracy	Reliability	Reliability	Appropriateness	Accuracy	Completeness	Accuracy	Reliability	Reliability	Appropriateness	Accuracy	Completeness	Accuracy	
Technical provisions	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Best estimate	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Risk margin	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Valuation of assets and liabilities other than technical provisions	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Undertaking specific parameters	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
SCR standard formula market risk	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
SCR standard formula Counterparty default risk	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
SCR standard formula Life underwriting risk	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
SCR standard formula Health underwriting risk	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
SCR standard formula Non-Life underwriting risk	1	1	1	2	1	1	2	1	1	2	1	2	1	1	1	1	1	
SCR standard formula overall	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
MCR	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Own funds	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	

Whilst technical provisions and valuation were rated as generally good in terms of data and results, the solvency capital requirement (SCR) was considered to be less reliable in parts. There is some variation between modules, with underwriting risk and undertaking specific parameters (USPs) causing particular problems. The minimum capital requirement (MCR) was also considered to be calculated with a good degree of reliability.

These conclusions mask significant variation from firm to firm and, whilst the overall amount of effort expended on QIS5 has produced very strong results, there are some areas (particularly around own funds) where we feel the industry did not produce completely accurate and reliable results, and where we questioned firms' own assessment of quality. We recognise that the issue may be less about the quality of the underlying data and more about how these were incorporated for QIS5. In addition, we were less content with the quantity and quality of information on internal models, as described in Chapter 11.

The qualitative comments received from firms were numerous and generally thoughtful and detailed. These comments were all read and analysed, and a lengthy summary of them has been submitted to EIOPA for inclusion in its report. We are particularly grateful for the comments that provided a detailed explanation of the difficulty the respective firms were facing and why. This input will be valuable for the development of delegated acts, technical standards and level 3 guidance.

We note that several firms experienced some difficulties with the interpretation of the requirements set out in the technical specifications. Both the FSA and EIOPA expended a large amount of effort in answering queries from firms, with almost 600 questions answered directly by FSA staff and over 200 publicly responded to by a panel containing EIOPA and Commission members. Some ambiguities of interpretation and difficulties of practical application remained (e.g. expected profits in future premiums (EPIFP) and the reinsurance treatment in the catastrophe risk module), which are discussed in more detail in this report.

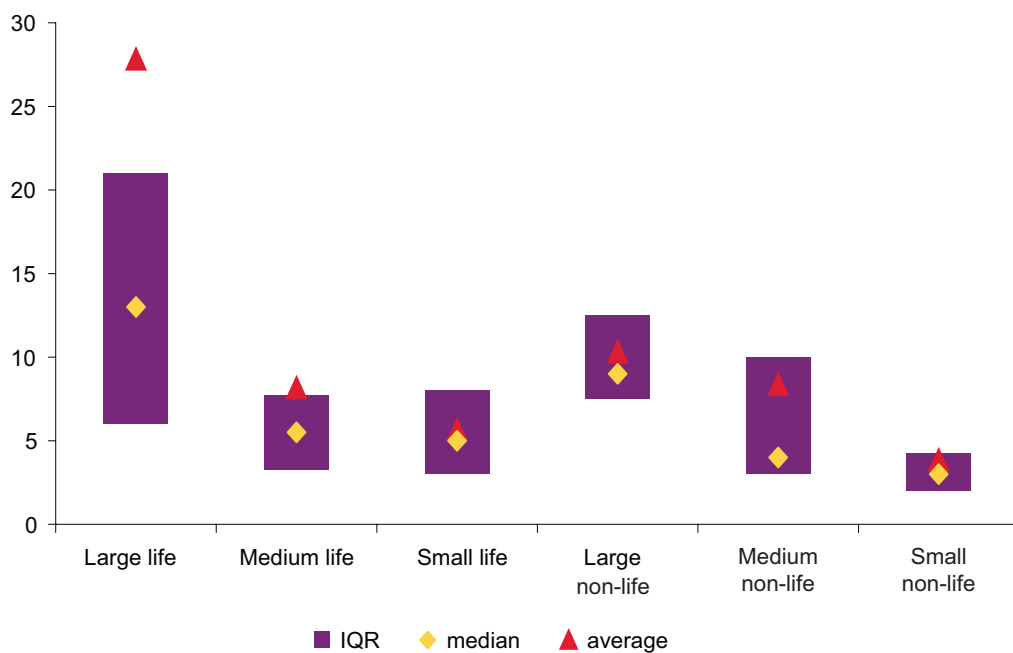
As part of the FSA's ongoing supervision we are having conversations with firms looking at their QIS5 results and their implementation plans for Solvency II. As well as looking at the results from QIS5 we aim to discuss data quality issues, and calculation methodologies and problems.

4 Preparedness and resourcing

Resourcing for QIS5

Chart 1 shows the total resources that were needed by firms to complete the QIS5 exercise. This information is based on responses to the qualitative questionnaire. Most but not all firms completed all parts of the questionnaire.

Chart 1: Total resources needed to complete QIS5 in person months



The illustration shows the interquartile range (IQR), i.e. the middle 50% of the responses, as well as the average and the median. The high averages can be explained by a skew to the data from some firms (especially for large life firms) which used a large amount of resources for their QIS5 exercise; the maximum time spent was 240 person months.⁵

⁵ On the basis that firms spent around three months on the exercise, this figure corresponds to about 80 people working full time on QIS5. It should be mentioned that some of the inputs for these graphs encompassed firms with business outside of the UK, and it is unclear the extent to which the results reflect QIS5 and Solvency II work done specifically in the UK.

As expected, there is a strong difference between size classes with larger firms applying more resources. With the exception of large life firms, there is no clear difference in total resources used between the sectors.

Table 3 shows the average resources used divided between sub-categories of resource type. From this we can see that for life firms the dominant driver is actuarial input whilst for non-life insurers the main resource requirement falls into the ‘other’ category, which was not specified further.

Table 3: Average resources used for QIS5 in person months

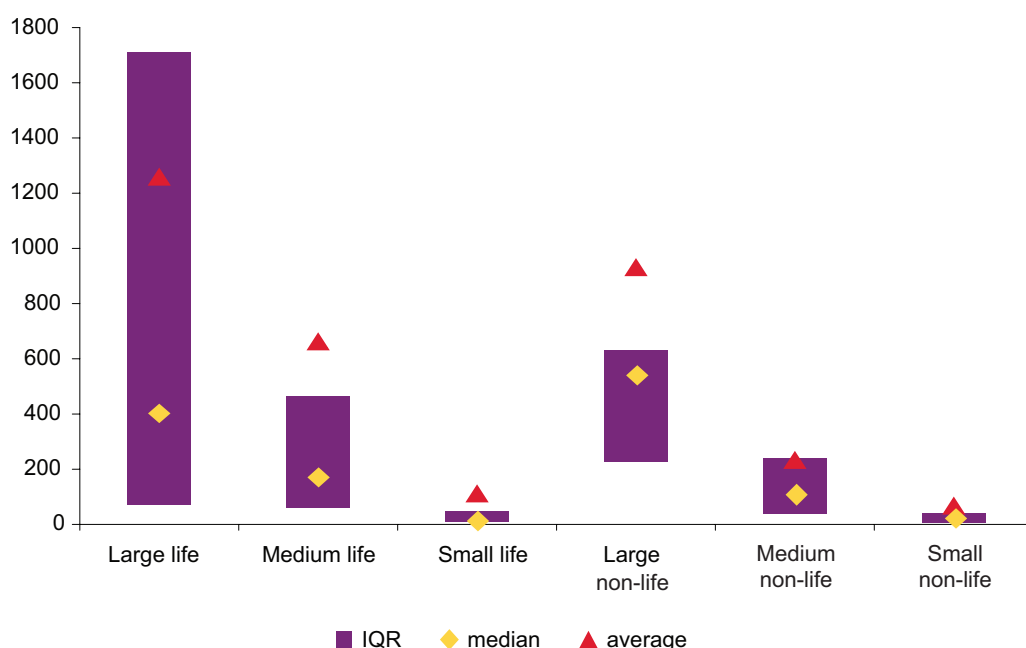
Average resources in person months	Life				Non-life			
	All	Large	Medium	Small	All	Large	Medium	Small
Actuarial	10	24.4	6.6	4.1	3	3.9	4.3	1.6
IT	0.2	0.1	0.1	0.3	0.4	0.6	0.3	0.6
Other	2	3.5	1.9	1.2	4	5.9	3.8	1.7
Total	12.2	28	8.6	5.6	7.4	10.4	8.4	3.9
QIS4 comparison (total)	5.6	5.8	1.6	5	6.2	5.4	6.4	7.7

QIS5 showed significantly higher participation than QIS4 and was a more detailed exercise with a number of options tested. These considerations necessarily have an impact on the average resource requirement. However, from the data provided we can see that firms spent on average around twice as much time on QIS5 as on QIS4. This perhaps reflects the objective to be ‘better than best efforts’ and the increasing level of engagement with implementing Solvency II.

Preparedness and resourcing for Solvency II

Chart 2 shows firms’ current estimate of the resource costs likely to be spent in the run up to Solvency II. Whilst this is an estimate, it provides some insight into the cost of resources leading up to Solvency II.

Chart 2: Estimate of resource costs leading up to Solvency II in person months



The amount of time firms plan to spend on Solvency II varies radically even for firms within the same category. The skew to the data demonstrated by the high averages are a result of some firms' commitment to allocate a particularly high level of resources relative to other firms. Comparing these numbers against the resources required for QIS5 we can see a similar pattern, namely that larger firms plan on committing more resources, and that large life firms are spending the greatest amount of time in the run up to Solvency II.

Table 4 shows the estimate of resource cost leading up to Solvency II by type. As for QIS5 we see life firms committing more actuarial resource and non-life firms committing more 'other' resources.

Table 4: Estimate of resource costs leading up to Solvency II by type in person months

Average resource costs in person months	Life				Non-life			
	all	large	medium	small	all	large	medium	Small
Actuarial	242	583.6	263.2	31.7	104	244.4	78.3	14
IT	140.5	320.7	156.8	26	91.7	305	55.4	18.5
Other	209	436.7	247.3	53.3	162	380.7	118.1	33.6
Total	591.5	1341	667.3	111	357.7	930.1	251.8	66.1

Unfortunately, directly comparable data were not gathered in QIS4, so it is not possible to provide a comparison between QIS5 and QIS4 here.

In terms of preparedness for Solvency II, Table 5 indicates the responses by size of firm across some of the key areas on the Solvency II balance sheet.

Table 5: Preparedness by area and size of firm

		Fully prepared, all data available and no problems with methodologies	No problems with data, but problems with methodologies	No problems with methodologies, but problems with data	Do not feel prepared at all
Small firms	TPs	23%	48%	29%	1%
	SCR	14%	55%	28%	4%
	MCR	59%	23%	18%	1%
	Own Funds	75%	17%	7%	1%
Medium firms	TPs	29%	35%	34%	1%
	SCR	19%	39%	40%	1%
	MCR	59%	16%	25%	0%
	Own Funds	61%	28%	11%	0%
Large firms	TPs	22%	38%	38%	3%
	SCR	22%	32%	43%	3%
	MCR	70%	5%	24%	0%
	Own Funds	35%	46%	19%	0%

Pleasingly very few firms ‘do not feel prepared at all’ on these four key areas. It is interesting to note that larger firms feel less prepared in the area of own funds, perhaps reflecting their often more complicated capital arrangements or the more technical calculations associated with complicated ring-fenced funds and EPIFP. Most feel fully prepared on the MCR, although there is clearly still work in the industry to get fully Solvency II compliant on areas around technical provisions (TPs) and the SCR.

5 Overall financial impact

In considering the quantitative results from QIS5, it is vital to be aware of the context of the results. QIS5 is a study of the impact of a possible implementation of the Solvency II requirements. It is likely that the final requirements under Solvency II will be different (possibly materially so in some cases) from those tested under QIS5, so QIS5 cannot be used as a completely accurate predictor of the capital impact of the new regime. QIS5 was tested at year end 2009 and therefore only reflects market conditions at that date. It cannot and does not reflect the market conditions seen at other year ends. It is also important to note that the overall results do not fully consider the impact that the use of internal models may have.

Many firms did not include their internal model results in QIS5 at all, so the exercise may not reflect the capital requirements they will be subject to under Solvency II. In addition, the impact of many of the transitional measures possible under Solvency II may not be fully reflected in these numbers; for example, transitioning for own funds or the transitional on the discount rate. These are likely to have a material effect.

Finally, while the quality of submissions was generally good, a number of firms calculated their results on a 'best efforts' basis, and others interpreted some critical requirements in varying ways.

Change in surplus

A useful comparison between regimes is the development of surplus between Solvency I and Solvency II.⁶ We have not provided a comparison between Solvency I and QIS5 solvency ratios. We consider this comparison to be a misleading statistic as the offsetting effects of moving to a risk-sensitive and market-consistent regime will frequently lead to solvency ratios decreasing when free capital increases, or vice versa.

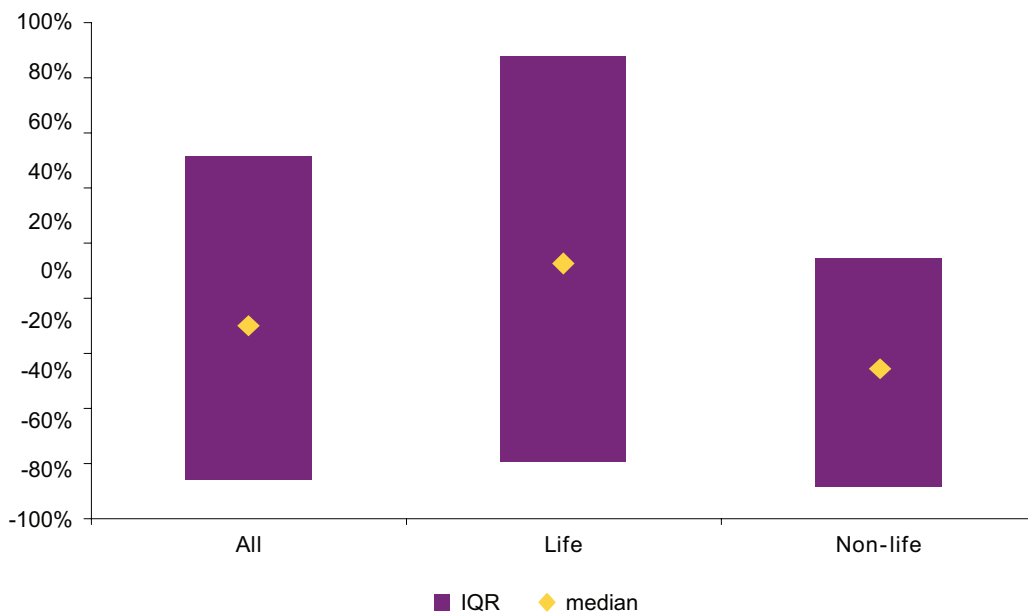
Chart 3 shows the development of surplus for life, non-life and all firms from Solvency I to QIS5. It is extremely important to note that the comparison is against the Solvency I figures, and not against Individual Capital Adequacy

⁶ 'Surplus' under Solvency I is defined as the excess of available capital over required capital. We have compared this against the excess of capital eligible to meet the SCR (assuming tiering restrictions) divided by the SCR. This is calculated on a standard formula basis for most firms.

Standards (ICAS) figures, so the Solvency I figure is likely to be different to the regulatory capital actually held by the firm in the UK. Comparisons against ICAS (which is the biting regulatory capital constraint for many UK insurers) are likely to give different results.

In all the charts in this section the results for the 25th, 50th and 75th percentile firms are given; where it is illuminating the mean result is also given.

Chart 3: The change in surplus from Solvency I to QIS5



The median firm saw a slight decrease in surplus from their Solvency I position, although this graph does not show the development of surplus from their ICAS position. There were significant differences between business types. As expected, large firms saw larger changes, with large life firms generally seeing a positive development and large non-life firms tending to see a decrease in surplus (perhaps reflecting the weakness of Solvency I for non-life firms).

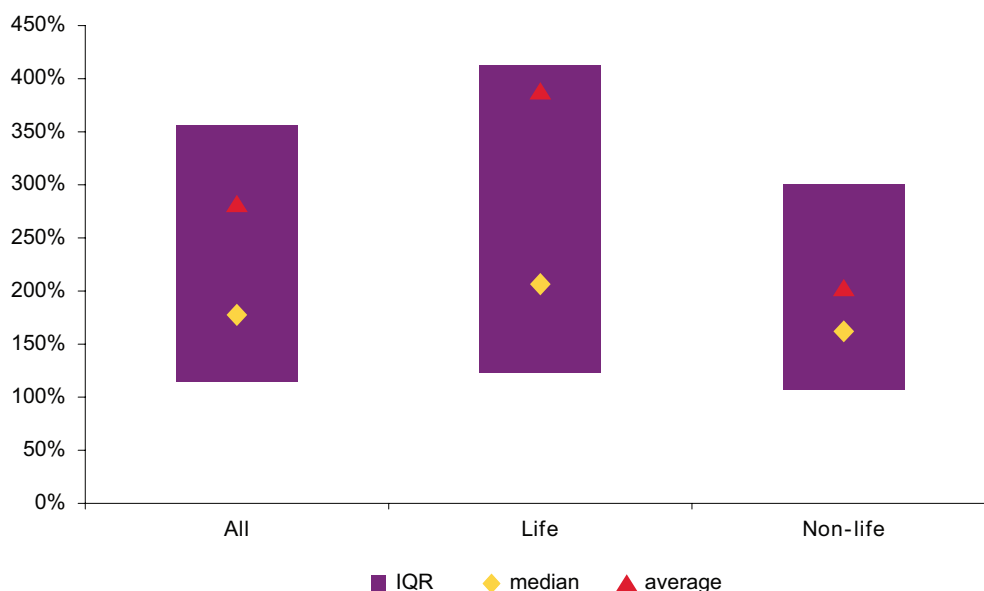
For most non-life firms the surplus has reduced in comparison with Solvency I, with the 25th percentile firm having a reduction in surplus of around 80% and the 75th percentile having a relatively modest increase in surplus. The changes in surplus for life firms are more widely distributed, with the median firm having a very small increase in surplus, and the 25th and 75th percentile firms having changes of around -75% and +85% respectively.

Solvency ratio

The solvency ratio is a standard measure for calculating the financial strength of firms. For Solvency II it is calculated as the own funds eligible to meet the SCR (after restrictions) divided by the SCR. A solvency ratio in excess of 100% indicates that the firm has more than sufficient resources to meet the SCR.

Chart 4 shows the solvency ratios for life, non-life and all firms. We have given the 25th, 50th and 75th percentiles as well as the mean, and note that the results we give are subject to the considerations on ‘best estimate’ quality, internal models, and transitionals described above, which may affect both the SCR and the own funds calculations.

Chart 4: Solvency ratios under QIS5



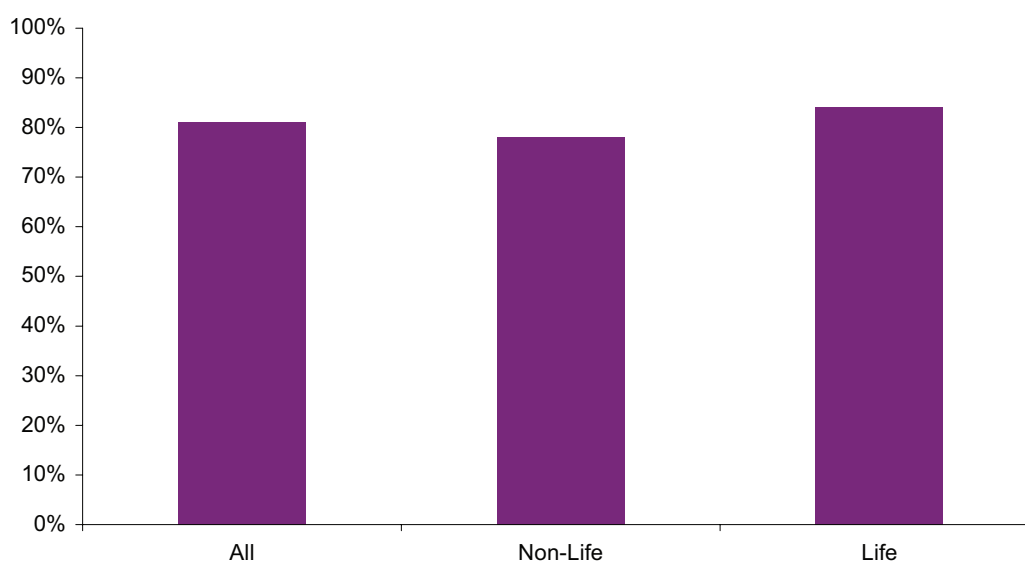
The average firm in the UK has a solvency ratio of 282%, and the median firm has a solvency ratio of 178%.⁷ These figures are higher for life firms, where the average firm has a ratio of 388%, and lower for non-life, where the average firm’s ratio is 203%. It is difficult to make a generalisation about the difference between the solvency ratios of large and small firms, however, there are some variations by types of business which are discussed further below. As for the other tables in this section, these results do not include the effect of transitional provisions.

Proportion of firms meeting the SCR

Around 80% of firms met their SCR under QIS5, with the proportions varying little between life and non-life firms. As with solvency ratios, it is difficult to generalise differences between small and large firms. Relatively few firms failed to meet their MCR under QIS5; too few firms failed to meet their MCR to enable any sort of breakdown by type of business.

⁷ These figures were calculated by averaging the results by firm with an equal weighting applied to each.

Chart 5: Proportion of firms meeting the SCR under QIS5



Results by sector

A number of business types saw an increase in surplus relative to Solvency I under QIS5, for example life unit-linked business; others did not. As under QIS4, annuity writers often had significantly higher capital pressure than under Solvency I, which was typically due to the introduction of the risk margin, the removal of part of the illiquidity premium (although we note that the discount rate transitional in the technical specification allowing use of the current Solvency I discount rate for the full run-off of the business would have a strong positive impact), and the interaction and amount of offset between the credit and illiquidity stresses in the standard formula SCR. Also, as in QIS4, P&I clubs had higher capital pressure than under Solvency I; this was typically due to the counterparty default stress in the standard formula, and how this interacts with their unique business model. Finally, a number of firms with unrated reinsurance saw high capital requirements due to the charge for counterparty default risk for unrated counterparties in QIS5.

As discussed elsewhere in this document, it is important to realise that results do not include the effect of transitional arrangements, and often do not include the application of internal models. As such, the results may change as Solvency II preparedness is further embedded in firms.

6 Valuation

As for previous QIS exercises, the calculation for the valuation of assets and liabilities other than technical provisions did not provide a challenge for most firms. We believe this is primarily due to the many areas where there was consistency between the QIS5 valuation requirements and International Financial Reporting Standards (IFRS) and UK Generally Accepted Accounting Principles (GAAP).

Future guidance on valuation was requested by some firms on areas such as deferred tax, contingent liabilities and valuations where no active market exists.

7 Technical provisions

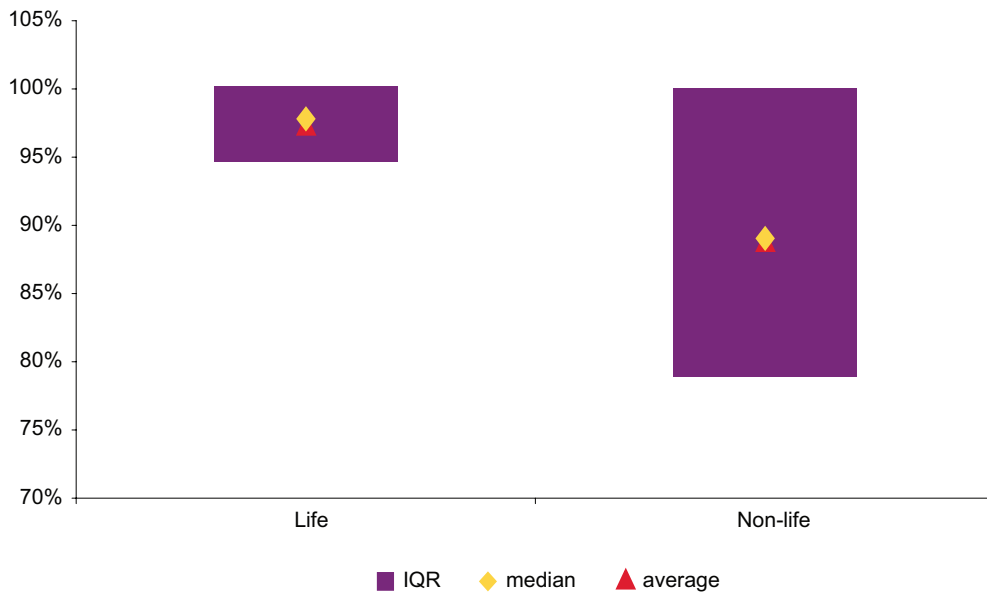
We were pleased that the methods to calculate technical provisions were generally well understood in the UK. On the whole, firms were comfortable with the methods required to calculate technical provisions, although firms often noted that data, documentation and calculation need further work before becoming Solvency II compliant.

Change in technical provisions from Solvency I to QIS5

As can be seen in Chart 6, technical provisions tended to decrease from Solvency I to QIS5. For the average life firm this decrease was very minor whilst for the typical non-life firms it was a little more pronounced. For both sectors the differences were more pronounced for some business types than for others.

The decreases in non-life were mainly due to the introduction of discounting, removal of prudential margins in current reserves, and the change from unearned premium reserve (UPR) to premium provisions which allow for future premium receipts. It is important to note that the technical provisions provided are gross including a risk margin and do not allow for reinsurance recoverables. In Chart 6 the Solvency I technical provisions have been reduced by deferred acquisition costs (DAC).

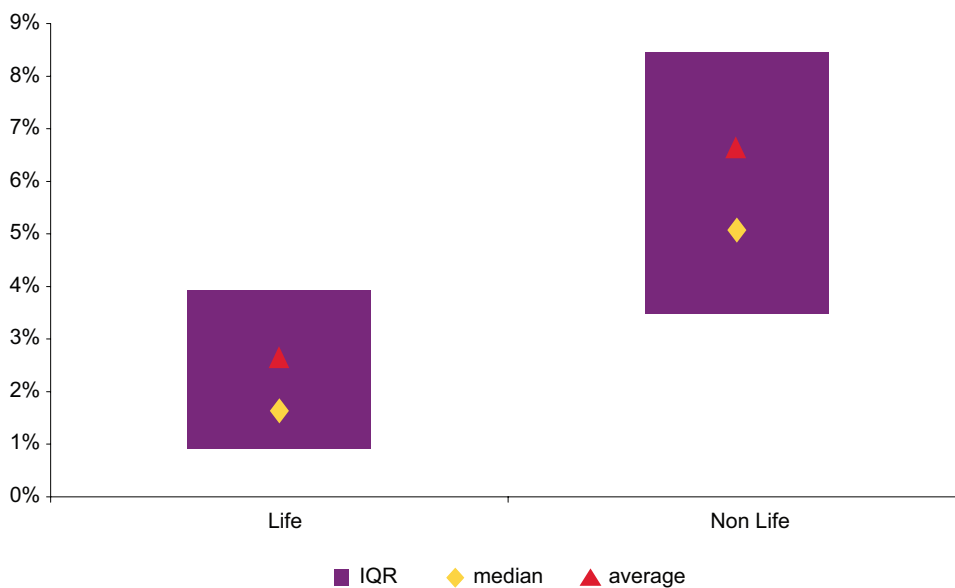
Chart 6: Ratio of QIS5 technical provisions to Solvency I technical provisions net of DAC



The risk margin

The risk margin is around 5% of the size of the best estimate liability for the median firm. It tended to be higher for annuity writers and other providers of long-term business, and is also material for reinsurers. To an extent the results should be considered in line with the simplifications used to calculate the risk margin. For some, particularly small non-life firms, the simplification of taking the risk margin as a straight percentage of best estimate was chosen over other simplifications available, and this certainly influences the results below.

Chart 7: Risk margin as a percentage of best estimate



Very few firms calculated technical provisions as a whole, and where this was performed, it was almost exclusively used for unit-linked products.

There were a number of methodological issues highlighted:

- The definition of contract boundaries is ambiguous for both life and non-life firms. Firms, mostly from the life side, highlighted concerns that not all obligations are taken onto the balance sheet. It is crucial that the contract boundary definition is practicable for all firms and correctly captures the obligations to the firm (and avoids imprudence). There is also a risk that firms will change terms and conditions of contracts to move contract boundaries to achieve a more favourable balance sheet position. Clear guidance is needed.
- The discount rate provided a number of areas of comment. The negative forward rates implied in the discount rate provided a raft of practical problems, and this will need to be addressed.
- The inclusion of an illiquidity premium was welcomed by firms with predictable cashflows, such as annuity writers, as this moves the valuation of technical provisions for this type of business closer to a market-consistent valuation. The 100% bucket for annuity liabilities was used almost exclusively for annuity business.
- The addition of an illiquidity premium for firms with less predictable cashflows, such as with-profits writers, posed a technical challenge in modelling, and also raised theoretical concerns as to whether this business is truly predictable enough to earn the illiquidity premium in practice. This is particularly important given the other capital pressures on this business as described above. Similar concerns could be raised for products falling into the 50% bucket.
- The amount of illiquidity premium did not match the illiquidity premium allowed under the current regime in many cases. For this business a transitional arrangement on the discount rate is extremely important; the transitional tested under QIS5 reduced technical provisions values by around 4% when compared against the value without transitionals and with the current allowance for illiquidity premium, and by significantly more if there is no allowance for illiquidity premium in the specification. Clarity over the application of the transitional to business not in the 100% bucket was requested by firms.
- The calculation of the risk margin proved the most challenging part of the overall calculation of technical provisions for many firms. A large majority used simplifications, with almost 80% using either the first or second level approximations (the ‘approximation of risk’ approach, or the ‘proportional’ approach). As could be expected, the risk margin affected different business types in different ways; for example, the median risk margin for all life business is around 1.5% of the size of the best estimate liability valuation, but for long-term business such as annuities this figure rose to around 5-6%.
- Unavoidable market risk did not affect many firms. For the few for which it was an issue the median result was that it makes up less than 5% of the total risk margin. The calculation has proved challenging though, perhaps

not aided by lack of clarity of the definition. Given the small size and the difficulty of quantifying it, a number of industry participants suggested that it should be removed.

- Allowance for ‘binary events’ for non-life firms was observed to be an area where further work would be required to determine appropriate amounts to include.
- Segmentation was problematic for some life firms, as the segmentation remains the same but the nature of the risk changes over the period of the product. Some packaged non-life products are currently difficult to split by segment; this is particularly the case for motor business. The boundary between health and life was also difficult to interpret for purposes of segmentation. Finally, further guidance on the materiality around unbundling is also required.
- Allowance for future management actions and valuation of guarantees and options appear to be the most challenging parts of the technical provision calculations for life firms. Development of the rest of the risk management system should help with the understanding of future management actions, further guidance may also prove useful.
- Many non-life firms found the application of non-proportional reinsurance adjustments to the gross standard deviations difficult to apply. The biggest concern was that the methodology was overly complicated making the adjustments onerous and impractical to use. Firms commented that in some circumstances the required conditions for the non-proportional reinsurance adjustments to be used were overly restrictive. This meant that the non-life underwriting risk SCR was overstated, and this was particularly the case for smaller firms which tend to hold more excess of loss reinsurance cover.

In addition to the above methodological areas, there are a number of areas where the industry considered that the calculation of technical provisions would benefit from simplifications. For example, areas around segmentation have caused significant concern and difficulty with perhaps limited benefit in terms of risk management. The calculation of expected counterparty default has also proved challenging, and there is an opportunity for clarification here as well.

8 Standard formula SCR and MCR

SCR – statistics

Charts 8 and 9 show the breakdown of the SCR for life and non-life firms. As can be seen life firms tend to gain more diversification benefit and tend to have a higher loss absorbency (as would be expected given the loss-absorbing capacity of with-profits business). Underwriting risk is clearly the largest charge for non-life business, and market risk the largest charge for life business.

Perhaps surprising is the size of the charge for counterparty default risk. This can be in part explained by the high charge of counterparty default risk for unrated reinsurance counterparties, be they internal or external.

Chart 8: SCR breakdown for life firms

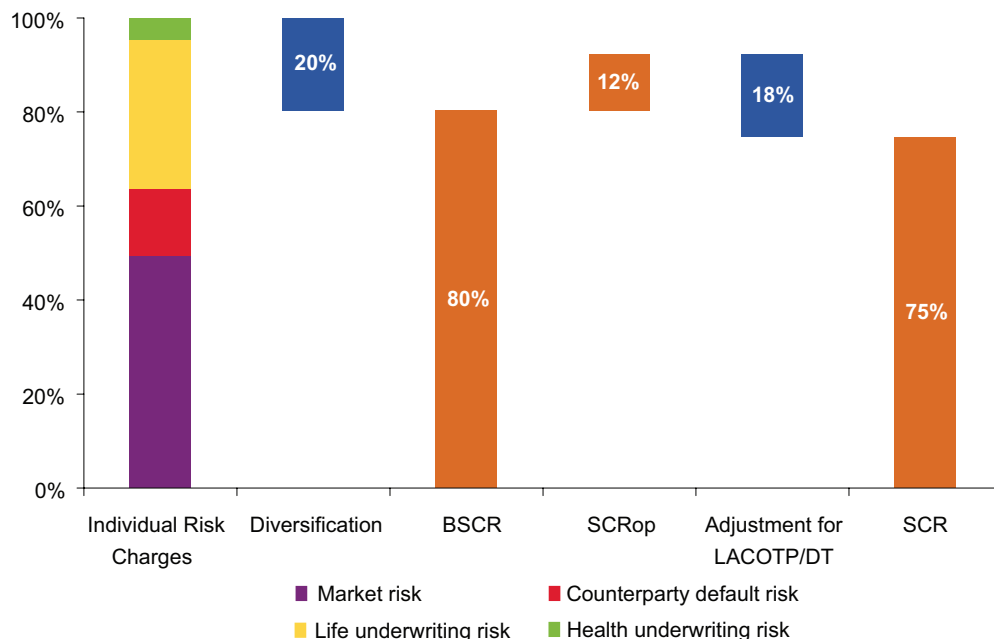
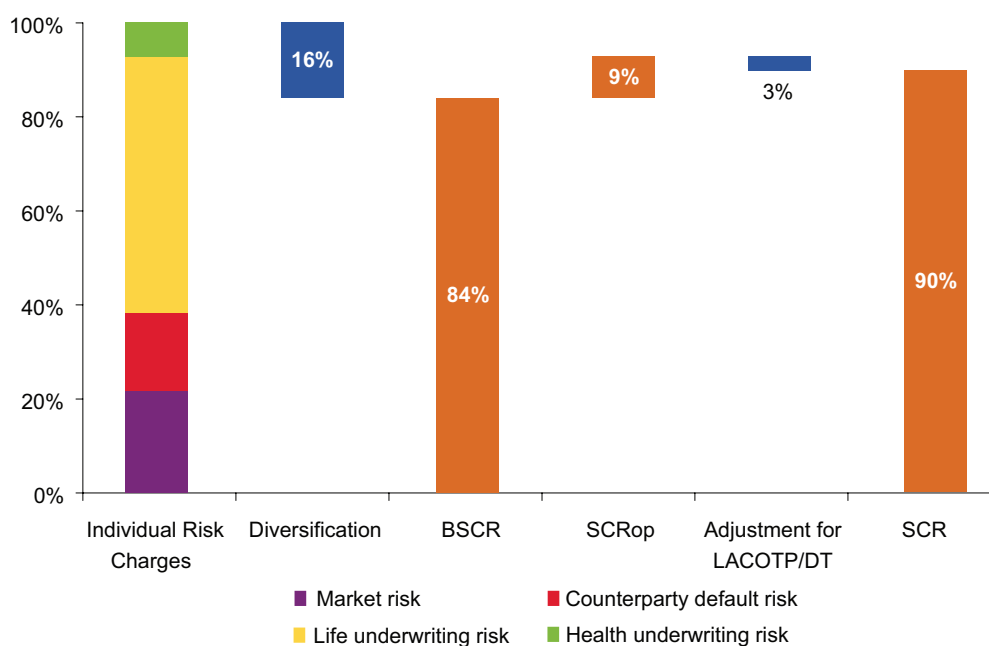


Chart 9: SCR breakdown for non-life firms



The term BSCR stands for Basic SCR, SCRop stands for SCR operational risk, and LACOTP/DT stands for loss absorbing capacity of technical provisions/deferred taxes.

SCR – practical issues

Whilst most firms assessed the quality of their SCR standard formula calculation as average to good, and the general sentiment was that the calculation of the standard formula was not impracticable, there were a number of areas which created practical challenges.

In some cases the challenges came about due to the tight timescales associated with the exercise; in other cases systems were not in place to perform the calculation adequately.

The following is a list of some of the areas of practical difficulty which attracted the most comment:

- Many firms struggled with the equivalent scenario for calculating loss absorbency of technical provisions. Only about a quarter of firms that modelled loss absorbency used the equivalent scenario, with some pointing out difficulties in applying the method, especially for groups.
- Counterparty default remains a complicated risk module, especially considering the relative materiality of the module for most firms. There were a number of calls for simplification of this module.
- Adjusting gross premium standard deviations to allow for non-proportional reinsurance protections proved challenging for many firms.

- The requirement to calculate the life-lapse stress on a policy-by-policy basis also proved difficult for a number of firms that did not have the correct systems in place to calculate at this level of detail.
- Guidance was requested on the proportionality principle and how it applies to the appropriate application of the look-through test for unit-linked business.
- The simplifications in the QIS5 specifications were well received by the UK industry and relatively widely used. In particular, many firms used simplifications in the areas of credit spread, life lapse and counterparty default.

SCR – methodological issues

Firms generally considered the SCR standard formula to be fit for purpose; however, there were a few areas where firms noted that the methodology for the calculation of the SCR produced anomalous results:

- The counterparty default risk charge can be very high for internal unrated reinsurance. Whilst it is important to reflect the risks due to unrated reinsurance adequately, particularly where the arrangement removes underwriting risk from the balance sheet of the firm, the very large charge in the QIS5 technical specifications may still significantly overestimate that risk on occasions.
- Catastrophe risk proved to be an issue for many non-life firms. There were some practical difficulties in using the standardised scenarios, particularly for man-made scenarios. However, the biggest problems surrounded the use of method 2 (the factor method), where the results produced were often very significantly higher than firms' own assessments – this was particularly the case for firms with significant exposures outside the European Economic Area (EEA).
- The current design of the currency risk sub-module within market risk may not encourage good risk management for firms with significant risks and liabilities in currencies other than that in which they report. This is because it incentivises the surplus to be held in a currency different from that in which the liabilities are held.
- The setting of the equity symmetric adjuster at -9% (giving a charge of 30%) did not accurately reflect the significant rise in equity markets in the year ending 2009.
- There were a number of risks not included in the standard formula such as those related to volatility which many see as important to accurately reflect their risks.
- The measurement of operational risk was seen by some firms as overly simplistic for such a complicated risk.

There were a number of comments on the calibration of the standard formula. Other than non-life catastrophe method 2 and counterparty default risk, no areas are considered overly prudent, but there are some areas of under-calibration. In particular,

this includes: spread risk for corporate bonds, equity risk, operational risk, and the premium and reserve risk sub-module for non-life and health non-similar to life techniques (non-SLT).

MCR

The mechanism that caps and floors the MCR to within 25% to 45% of the SCR was applied on around half of all submissions, with more firms seeing their MCR uplifted to equal 25% of the SCR than seeing their MCR capped to 45%. Interestingly, whilst the size of the window has reduced from QIS4, the proportion of firms hitting the cap or the floor is approximately the same. It is clear from this that the cap and the floor remain important additions to the MCR calculation.

40 smaller firms saw their MCR uplifted to the absolute minimum capital requirement (AMCR); this number was split fairly evenly between life and non-life firms.

Most companies found the MCR calculation straightforward and are prepared in terms of plans and workstreams for the MCR calculation. There are no major problems with methodologies, although some comments were made on data issues. These comments were primarily concerned with segmentation issues and the granularity at which the calculations were required for QIS5. There were also some comments requesting guidance on acceptable levels of approximation of the SCR for the cap and floor.

As for previous QISs, there were some comments that the MCR approach is insufficiently risk sensitive and that the MCR may move in a different direction to the SCR under some conditions. There were few proposals for a refinement of the approach.

9 Own funds

Firms' responses regarding own funds were of a sufficient quality to show that the basic principles of own funds are well understood. The majority of respondents indicated that they have no issues related to data availability or methodologies regarding the determination of own funds. Most respondents noted that the assessment of own funds was clearly defined in the technical specification and they are reasonably well prepared to implement the new regime in respect of own funds.

At odds with the self-assessment of data quality in the qualitative questionnaire, there were a number of own funds areas where data quality was less good, and more clarity is clearly required ahead of implementation.

Many firms found it difficult to implement the calculation of expected profits in future premiums (EPIFP). This was due to several reasons: the contract boundaries issues described in Chapter 7; the lack of clarity on assumption setting, for example relating to turning a policy to 'paid up' status; and firms' difficulty with the concept behind the calculation.

Comments from many in the industry indicate a continuing belief that EPIFP should not be identified for a specific capital treatment, given that market-consistent valuation of technical provisions, complemented by the necessary risk charges in the SCR – in this case, lapse risk in connection with future premiums – is the standard for Solvency II.

The amount and quality of the data provided on transitioning for capital instruments was disappointing; firms did not appreciate that many current hybrid and subordinated debt instruments would not qualify under the Solvency II criteria tested in QIS5. The 'with transitioning of capital instruments' scenario was the opportunity to include items in the appropriate tier in accordance with the transitioning criteria.

Consequently the results did not paint a sufficiently clear picture of the impact if there were to be no transitional provisions in this area. However, the amounts involved demonstrate that a transitional regime for these capital instruments would be extremely important for the UK industry. The transitioning criteria specified

by QIS5 appeared to provide a practical solution to this issue subject to further developments at levels 2 and 3.

QIS5 did not specify which participations should be regarded as strategic but gathered responses from firms as to the criteria applied. A range of approaches were put forward by the UK industry.

QIS5 also gathered data on the nature of ring-fenced funds. As expected, the vast majority of ring-fenced funds in the UK industry arise as a result of with-profits business. However, other firms reported different structures (e.g. treating the life and non-life elements of their businesses as separate ring-fenced funds). There was some uncertainty on how to apply the QIS5 calculations and record these in the spreadsheets.

There were a small number of participants reporting items which will, subject to supervisory approval, constitute Tier 2 ancillary own funds under Solvency II. These are primarily:

- letters of credit and guarantees held in trust by an independent trustee as described in the level 1 Directive;
- supplementary members' calls in respect of mutual firms; and
- unpaid share capital (a small number of examples only).

Few firms reported plans to develop new forms of ancillary own funds items.

Finally, there was a lack of understanding of the reconciliation reserve. Firms did not always appreciate that this should reconcile to the excess of assets over liabilities, driven by changes between the accounting balance sheet and QIS5. The own funds position was sometimes clouded by the inclusion of lines other than those relating to own funds items within the own funds section of the spreadsheet – it was not always clear whether these were balancing figures or whether there was genuine misunderstanding of the spreadsheet.

In terms of the capital make-up of the industry as reported under QIS5, Tier 1 capital constitutes around 85% of total capital; the remaining 15% is split more or less equally between Tier 2, Tier 2 ancillary and Tier 3.

10 Groups

We had a very good response rate for insurance groups, collecting 35 submissions compared with 17 collected in QIS4. The submissions were varied, covering groups of different sizes with an increase in the number of small and medium groups participating: some run purely within the UK, those run purely within the EEA, and those with a mixture of EEA and non-EEA firms. The submissions also represented different business mixes including life groups, non-life groups and composite business models.

The data quality from group submissions was on average not as good as that from solo submissions. The main reasons for this included the tighter timescales for the aggregation of solo submissions into a total group quantitative and qualitative submission, issues with group templates, and in part the less developed and occasionally ambiguous guidance in the group technical specifications and manual for completion of the group templates.

In terms of financial impact, the QIS5 results are broadly similar to those from solo firms. However, there are a number of issues which are either specific to groups, or have had a greater impact on group results compared with solo results:

- The standard formula is less likely to provide a good fit to the risk profile of the group. This is mainly due to diversification benefits which can be recognised in the business model at group level, but can also be affected by intra-group transactions, such as intra-group reinsurance. Therefore we would expect a large number of groups to use internal models to calculate their SCR to ensure the appropriate treatment of the risks underlying their diverse and complex business.
- Transitioning for capital instruments tends to be particularly important for larger groups, where a large proportion of those instruments to which transitioning would apply have originated. As discussed in the previous chapter on own funds, the absence of transitioning for capital instruments could have a significant effect on the solvency levels of a large proportion of the UK industry.
- The use of local rules for non-EEA firms when using the deduction and aggregation method as compared with QIS5 rules has a large capital impact for

a number of international groups. Without the ability to transition out of using local rules in an orderly manner, or the introduction of appropriate equivalence regimes, there would be a large increase in group solvency requirements in the short term.

In addition to the above, the majority of issues that relate to solo firms mentioned elsewhere in this report also affect groups. A detailed discussion of the QIS5 group results can be found in the EIOPA report.

11 Internal models

Whilst we captured a large volume of full and partial internal model results, the number of submissions of full data on internal model results and parameters fell substantially short of what we would have expected given the number of firms in the internal model approval process (IMAP). In part we feel this is because firms are still in the process of developing their models and do not yet have the required data, although the lack of qualitative questionnaires in particular was disappointing.

Not all firms intending to apply to use an internal model to calculate their regulatory capital under Solvency II gave internal model results under QIS5. As such, the results we discuss below reflect a subset of these firms.

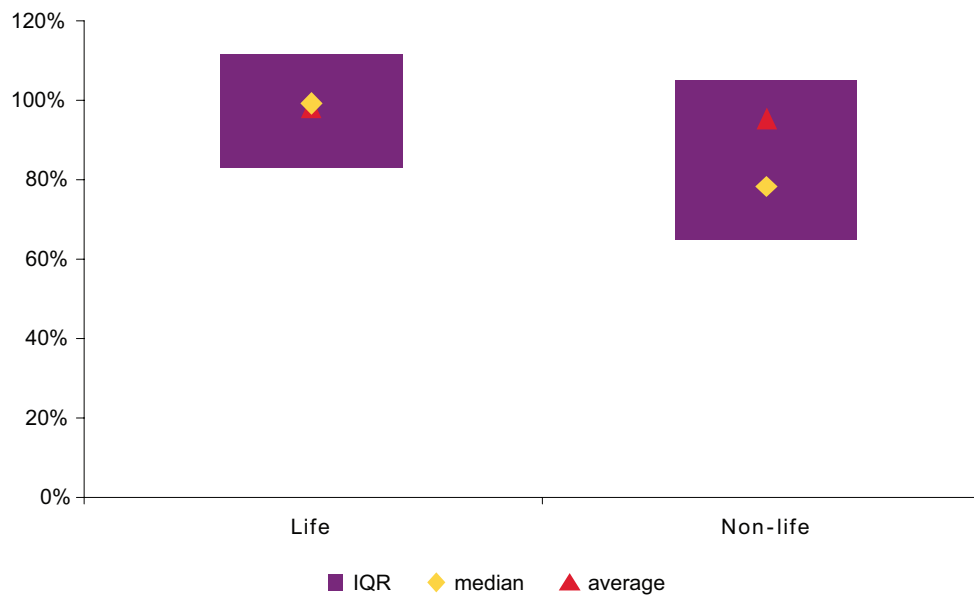
Overall, the SCR calculated by means of an internal model were broadly comparable with the SCR calculated by the standard formula.

Non-life firms that provided internal model capital results had an average capital requirement on their internal model around 20% lower than the standard formula would have given them. Significantly more than half of non-life firms had lower capital requirements under their internal model than under the standard formula; this difference could be partially explained by the large geographic diversification for large non-life firms of the type that intend to use an internal model.

The results were a little different for life firms. For around half of the firms that submitted internal model results, the SCR was higher under the internal model than under the standard formula. The average life firm's internal model SCR was almost equal to their standard formula SCR, with the 25th percentile firm having an SCR 15% lower under the internal model, and the 75th percentile firm having an SCR 10% higher under their internal model.

Unfortunately little data was provided on the capital impacts of using the internal model to calculate the risk margin.

Chart 10: Internal model SCR as a percentage of the standard formula SCR



Many firms used structures that did not mirror the standard formula. For the non-modular approach, preference was given for stochastic-based methods in deriving SCR from a stochastic probability distribution forecast (PDF) variation of the risk factors.

Those firms that did use modular structures often used varying approaches to correlation, for example aggregating all modules across the business using a large ‘mega-matrix’ for correlation.

Finally, some firms chose to model ‘combined stresses’ using Economic Scenario Generators (ESGs) simultaneously to capture a number of risks together (such as all market risks).

Firms using internal models tended to capture a number of risks excluded from the standard formula. These include:

- Volatility
- Hedging
- Liquidity
- Basis
- Legal

In their qualitative questionnaire, some firms expressed their desire for a more nuanced capturing of insurance features such as the underwriting cycle.

There were some comments regarding the integration of partial internal models to the standard formula, with some firms suggesting that using the standard formula correlation matrix is the best way to integrate the partial internal model. Others

suggested alternative approaches such as the use of a large ‘mega-matrix’ for correlation, or using a copula-based approach.

12 Next steps

The information and data collected from QIS5 should assist us greatly in the refinement and further development of the delegated acts, technical standards and level 3 guidance. It will also help to identify whether additional areas might need transitional arrangements.

The QIS5 exercise provided a springboard for discussions between firms and their usual supervisory contact at the FSA. This will help with our ongoing work of assessing firm preparedness.

Over the next twelve months, we will be undertaking a number of important pre-implementation activities including:

- in Europe, continuing negotiations for more detailed requirements and possible additional transitional arrangements to assist in implementation;
- consulting on the proposed UK Handbook rules to implement the Directive;
- reviewing our supervisory framework and practices to align with evolving Solvency II standards;
- working with firms in the ‘pre-application’ phase of IMAP;
- engaging with European counterparts for the review of European cross-border groups’ internal models;
- developing the appropriate technology and templates to comply with the Solvency II reporting requirements, including Member State reporting to EIOPA;
- liaising with firms more generally as part of our day-to-day supervision to assess their current plans and preparedness; and
- continuing the development of our operational capacity and capability through recruitment, training and process design.

We will continue to update market participants regularly, for example through the regular Insurance Standing Group and its sub-group meetings, as well as through publications and workshops. We are holding our Solvency II conference

for firms on Monday 18 April 2011 where we will update firms on the policy and implementation activity from now until go live and beyond.

We encourage people to visit the Solvency II pages of the FSA website, www.fsa.gov.uk/solvency2 as well as the Commission's and EIOPA's websites to stay informed of developments.

Further queries on the QIS5 exercise can be directed to Anthony.Brown@fsa.gov.uk. All other queries should be emailed to Solvency2@fsa.gov.uk or your usual supervisory contact.

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