



PÉNZÜGYI SZERVEZETEK
ÁLLAMI FELÜGYELETE
HUNGARIAN FINANCIAL
SUPERVISORY AUTHORITY



QIS4 on Solvency II

Country Report

for

<Country>

Hungary

</Country>

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General remarks

The QIS4 Country Reports will serve as the key input in the final European QIS4 Report, as well as the lessons drawn from the QIS4 exercise. The Country Report is divided in two parts: the Main Body and the Annexes.

The Main Body focuses on the main conclusions to be drawn as regards the QIS4 exercise in the country concerned, providing the reader with a useful insight in the QIS4 results. Concretely, the Main Body:

- 1) highlights the QIS4 results with respect to QIS4 key priorities (e.g. simplifications, internal models) and topical issues (e.g. deferred taxes, loss-absorbing capacity of technical provisions); and
- 2) describes what are the outstanding QIS4 results for the concerned country (e.g. (re)insurers which are particularly affected, areas in the specifications where significant changes/improvements are observed, areas needing further guidance or raising debate, etc.).

Whilst it is not possible to define a priori these points, as they will be identified when analysing participants' contributions, or on the basis of the questions received over the QIS4 exercise (Q&A process), as regards the "1)" points, the corresponding paragraphs in the Report Template have been highlighted by a grey shading and a vertical bar at the right-hand side.

The Annexes are a factual, exhaustive and comprehensive reflection of the contributions received from participants.

1. Executive summary

Please include at least the following headings in the executive summary and distinguish, if possible, between the size and type of undertakings.

Overall Financial impact

What is the average impact on capital surplus following from the QIS4 specifications compared to the existing solvency regime? What is the change in solvency ratios following from the QIS4 results, both with reference to SCR and MCR? How many firms need to raise additional capital? What are the types of business/firms most impacted? Please differentiate between standard formula and internal model outcomes. *(Reference tables: Annex A)*

<Analysts view Financial Impact>

Overall financial impact: The substantial changes in the valuation of assets and liabilities and in the calculation of capital requirements under QIS4 lead to major and varying shifts in the solvency position of the participants relative to existing standards.

Average capital surplus following from QIS4 specifications was 302.1% of the capital surplus under the existing solvency regime. On a company by company basis, both major upward and downward shifts (ranging from -94.5% to 1221.8%) were observed.

Compared to an average solvency ratio of 209.1% under the current regime, the average solvency ratio of the participants with reference to the SCR standard formula was 265.3%, whereas their average solvency ratio with reference to the MCR was 757.4%.

All participants had sufficient basic own funds to cover the MCR. On the other hand, 3 out of 14 participants (one medium-sized and 2 small undertakings) would need to raise additional capital to meet the SCR. (It is noted that the total number of participants was 15, one participant's capital requirement results were however disregarded as unreliable).

Those participants whose solvency margin in Solvency I was well over 300% retained their solvency position in QIS4. However, small participants specialising in either life or non-life business experienced a decline in their capital adequacy levels.

</Analysts view Financial Impact>

What are the main drivers of the overall financial impact, i.e. what is the impact on assets and other liabilities? What is the impact on technical provisions? What is the impact on required capital (MCR and SCR)? What are the largest components of the SCR? What is the impact on available and eligible capital? Please differentiate between standard formula and internal model outcomes.

(Reference tables: Annexes A, B, C, E, G, H)

<Analysts view Drivers>

Drivers of overall financial impact: Relative to existing standards, total assets were revalued slightly upwards (104% of current balance sheets). Insurance liabilities and unit-linked liabilities fell to 79.5% and 86.0% of their current value respectively. The net effect of these changes was a major upward shift of own funds for all participants.

Due to the revaluation of assets and liabilities, the own funds of the largest participants increased two to fourfold. On the other hand, small participants' own funds increased only moderately.

The increase of own funds was accompanied by higher standard formula SCR requirements. On the average, the amount of standard formula SCR calculated in QIS4 was twice the required solvency margin in Solvency I (199.4%). As regards the comparison of QIS4 to 'effective' Solvency I capital requirements, i.e. taking into account the valuation differences of assets and liabilities, 'effective' capital requirements fell on the average to 60.5% of Solvency I standards.

The largest components of the standard formula SCR were market risk, non-life underwriting risk and life underwriting risk.

Two participants submitted internal model SCR data. According to their internal model results, the solvency ratios of these two participants were 209% and 936%.

</Analysts view Drivers>

Assets and other liabilities

Description (adequacy of the proposed design, practicability, quantitative impact) of the QIS4 results.

(Reference tables: Annex B)

<Analysts view AoL>

Quantitative impact: It is difficult to draw clear trends as the new valuation brought both upward and downward changes. The value of total assets increased slightly relative to current accounting figures (to 103.9%), while the value of total investments dropped slightly (to 97.5%). Reinsurance assets increased sharply (to 5290.7%), given that reinsurance

is not generally recognised as an asset under current accounting (instead, under current local GAAP it is mostly netted against technical provisions).

Adequacy of methodology and practicability: Participants expressed support for the principle of valuing assets and liabilities on a market-consistent basis. On the other hand they noted that a fully market-consistent valuation was not an easy task to accomplish.

Fixed income securities, equity, real estate and other investments were most often marked to market as the market price of these assets are generally available. In some cases some of the assets were marked to model: these assets included mortgages, policy loans, and one respondent used a mark to model technique to value fixed interest assets. Liabilities were more commonly marked to model.

It was a common practice that participants used economic valuation for most assets and liabilities. However for non-insurance liabilities and short term receivables/payables, participants generally used current accounting figures as the difference between the economic value and the accounting value was not material. In other cases, reinsurance assets have not been set to a pure economic value. One participant noted that intra-group loans have not been marked to market.

Some participants questioned the decision to value intangible assets at nil as they do have an economic value. The supervisor however considers that intangible assets should be valued at zero for solvency purposes.

There was little explicit feedback on deferred taxes, but it appears that the reported figures were not entirely comparable, and they were not always in line with the technical specifications.

</Analysts view AoL>

Technical Provisions

Description (adequacy of the proposed design, practicability, and quantitative impact) of the QIS4 results for the calculation of the technical provisions, best estimate and risk margin. Please also describe particularly the use and functioning of the simplifications and proxies, used for both the calculation of the best estimate and the risk margin. Do you see increasing convergence in the methods used to calculate technical provisions?

(Reference tables: Annex C)

<Analysts view Technical Provisions>

Quantitative impact: Generally, most participants reported a decrease of technical provisions in all or most lines of business.

Relative to current valuation, the level of total QIS4 technical provisions developed as follows:

- Total life technical provisions (net): 78.2%
 - total non-linked (net): 69.2%
 - total unit-linked (net): 86.7%
- Total health and non-life technical provisions (net): 71.9%

In life business, the total risk margin was 2.8% of total (net) technical provisions (2.9% of the net best estimate). In non-life and health business, the total risk margin was 6.8% of total net technical provisions (7.4% of the net best estimate).

In both life and non-life business, the prime reason behind the drop in the value of technical provision was discounting (currently, fixed guaranteed rates are used for discounting in life and there is virtually no discounting in non-life). Additional factors were the recognition of embedded future profits and the removal of built-in prudence such as equalisation provisions.

Adequacy of methodology: A number of participants expressed support for the high-level framework (best estimate and cost-of-capital margin). One participant expressly disagreed with the cost-of-capital methodology to determine the risk margin.

Concerning the detail of the proposed methodology, participants submitted the following critical remarks (following in part CRO Forum's critique of the methodology):

- diversification between lines of business should be recognised in the risk margin;
- the cost-of-capital factor should be reduced to between 2% and 4%;
- the distinction between the guaranteed and discretionary part of with-profit technical provisions does not have an added value.

The supervisor, on the other hand, considers that

- CEIOPS' reference entity approach for calculating the risk margin, assuming the transfer of each line of business to an empty reference undertaking, thus not recognising diversification between lines of business, is justified in prudential regulation;
- setting a different cost-of-capital factor needs careful consideration;

- under Hungarian circumstances, the distinction between the guaranteed and discretionary part of with-profit technical provisions is meaningful and justified;
- the unadjusted swap rates used for discounting in QIS4 are not risk-free.

Practicability: Some participants criticised the technical difficulty of the risk margin calculation and the lack of more technical support. For some of the largest participants, the calculation of the risk margin did not present a difficulty. Many participants, however, had to resort to simplifications or proxies to calculate the risk margin.

Simplifications and proxies: Some participants did not use simplifications or proxies. Other participants used some of the provided simplifications and proxies: these included the simplifications and proxies to determine risk margins; the *expected loss based proxy* and the *premium-based proxy* to determine the best estimate of premium provisions; the *case-by-case based proxy* for claims provisions; the *claims handling cost reserves proxy*; the *gross-to-net proxy*; the *discounting proxy* and the *annuity proxy*. Some participants noted that the simplifications and proxies provided for QIS4 sometimes yielded divergent results.

Convergence in calculation methods: It is difficult to judge from the responses whether the methods used to calculate technical provisions are converging, although the quantitative results suggest some convergence in particular for non-life business.

</Analysts view Technical Provisions>

Own funds

Description (adequacy of the proposed design, practicability, quantitative impact) of the QIS4 results for the determination, classification and limits applied to the own funds.

(Reference tables: Annex D)

<Analysts view Own Funds>

Quantitative impact: Submitted results reflected the conservative funding structure of the Hungarian insurance market. Almost all own fund items reported were tier 1 basic own funds (99.5%). One participant reported tier 2 basic own funds (dated subordinated debt). No tier 3 elements and no ancillary own funds were reported. Accordingly, in no case did the limit system cause a breach of requirements.

Adequacy of methodology and practicability: Respondents generally agreed with the proposed classification of own funds, and no major practical difficulties regarding the classification were reported. One participant stressed the importance of recognising hybrid instruments as risk bearing capital.

</Analysts view Own Funds>

SCR standard formula

Description (adequacy of the proposed design, practicability, quantitative impact) of the QIS4 results. Please pay special attention to:

- the high-level structure of the SCR;
- the methodologies (standard and alternative) tested for measuring the loss-absorbency of technical provisions (discretionary profit-sharing, also compared to QIS3);
- different approaches for the calculation of equity risk and participations;
- non-life underwriting risk, including the use of entity-specific parameters;
- health underwriting risk;
- simplifications;
- other.

(Reference tables: Annex E, F)

<Analysts view SCR Standard>

Quantitative impact: On the average, the amount of standard formula SCR calculated in QIS4 was twice the required solvency margin in Solvency I (199.4%).

The overall composition of the basic SCR (BSCR) per each risk module was the following:

▪ market risk:	52.7%
▪ counterparty default risk:	4.0%
▪ life underwriting risk:	23.5%
▪ health underwriting risk:	0.9%
▪ non-life underwriting risk:	51.6%
▪ diversification:	-32.6%

The overall composition of the standard formula SCR was the following:

▪ BSCR:	98.0%
▪ operational risk:	7.9%
▪ adjustment for profit sharing:	0%
▪ adjustment for deferred taxes:	-5.9%

The composition of the standard formula for individual participants varied according to the type of business.

High-level structure: A few participants commented on the modular structure of the standard formula. One participant felt that the current modular structure of the SCR prevents the risk correlation factors between individual risks, across different SCR sub-groupings, from being transparent. Some of the comments seemed to indicate a preference for a pure bottom-up approach. Another participant offered suggestions for a rearrangement of sub-modules (move lapse and expense risk from the life module to the top level; move life disability risk with the health module; split mortality and longevity risk into trend and level uncertainty components).

Adjustments for loss absorbency: It is noted that under the current regulation Hungarian insurers have only limited discretion regarding policyholders' future bonuses. Accordingly, most participants reported no adjustment for **future discretionary benefits**. Some participants disagreed with separating the calculation of SCR into the components before and after profit sharing. They felt that the multiple parallel calculations under QIS4 are burdensome, have limited added value and may not properly reflect the non-linear nature of risks. Some of these participants said that they bypassed the gross risk charge calculations and proceeded directly to the net risk charges. One of these participants referred to the equivalent scenario in QIS4 as an appropriate method in this regard. However, none of the participants did actually use the QIS4 equivalent scenario method in its quantitative submission.

One participant commented that the profit sharing methodology was useful.

The supervisor considers that adapting the adjustment for future discretionary bonuses to the specifics of Hungarian with-profits business will need further consideration. QIS4 results did not indicate that the equivalent scenario method was the most appropriate approach for this particular market. Possible future treatment for the Hungarian market may include simplifications or the classification of future discretionary bonuses as surplus funds.

As regards the adjustment for **deferred taxes**, it appears that the interpretation of this feature caused a difficulty for some participants. As noted above, reported figures were not entirely comparable, and they were not always in line with the technical specifications.

Equity risk and participations: Hungarian insurers typically hold limited equity investments. Nonetheless, due to the high risk factors, the equity risk sub-module had a non-negligible effect on the SCR outcome (an average 19.4% of the diversified BSCR).

A number of participants criticised the use of fixed scenarios as an inadequate reflection of reality.

Regarding equity risk alternatives, the dampener approach was not welcomed by participants. 3 participants provided results for this alternative. Respondents however felt that the dampener approach was not consistent either with the SCR framework or with their existing internal modelling techniques. The validity of mean reversion over a one-year time horizon was also questioned.

Feedback on the treatment of participations was extremely limited, although one participant commented that its parent group supported the look-through approach.

Quantitatively the equity risk alternatives had no major impact on the SCR of the participants (typically less than 10% of the equity risk charge, to be further attenuated through the steps of aggregation).

Non-life underwriting risk is a major risk module that had a dominant impact on the standard formula results (51.6% of the total BSCR, 64.3% for composite participants and 92.0% for non-life participants).

The largest non-life participants remained largely silent regarding the adequacy of the calibration. One small participant complained about the high risk charge and questioned whether the calibration properly reflected the 99.5% confidence level. Another small participant noted that its own standard deviation estimates would lead to a significantly lower risk charge. Although the supervisor does not have a final view about the adequacy of the calibration at this time, it appeared that undertakings' own estimates of standard deviations in the leading lines of business (Motor liability; Motor other classes; Fire and other damage to property) were lower (sometimes significantly) than the fixed QIS4 parameters.

Participants welcomed the option to use entity-specific parameters. None of the participants did, however, actually replace market-wide factors with entity-specific ones: they considered that the limited length of the time series available to them would not allow a reliable estimate. The supervisor considers that, unlike in QIS4, undertaking-specific parameters should not be based on an unbiased estimate of the standard deviation: rather, they

should include an allowance for estimation error (decreasing with the length of time series).

Geographical diversification had no effect on Hungarian QIS4 results.

Catastrophe risk had a major contribution to non-life underwriting risk. The three different methodologies for calculating this sub-module (standard, regional, internal) did not seem to converge. Most participants used the method 2 regional scenarios provided by the supervisor, it is however admitted that this method would need further improvement. Some participants used method 3 internal approaches. The standard method 1 was criticised for not properly reflecting reinsurance coverage.

Health underwriting risk had a marginal impact on the Hungarian outcome (0.9% of the total BSCR).

Simplifications: Most participants did not use simplifications to calculate the standard formula. Two small participants used a simplification to calculate a single sub-module (life catastrophe risk, counterparty default risk). One small participant used simplifications extensively (to calculate counterparty default risk and several sub-modules of market risk and life underwriting risk). Participants did not submit qualitative feedback on SCR simplifications.

</Analysts view SCR Standard>

SCR internal models

Description (adequacy of the proposed design, practicability, quantitative impact) of the QIS4 results based on internal model calculations.

Lessons learnt with respect to the standard formula in light of the internal models results, where possible/statistically relevant.

(Reference tables: Annex G)

<Analysts view SCR IM>

Quantitative impact: Two participants submitted their internal model results. Both submitted internal model results differed significantly from the standard formula result. In one case the internal model result was 269% of the standard formula SCR; in the other case it was 48% of the standard formula SCR. Major differences between internal models and the standard formula affected primarily the market risk sub-modules, non-life catastrophe risk and life lapse risk.

Internal model use: 6 out of 15 participants (2 medium-sized and 4 small companies) reported that they are in the process of building an internal model. One participant answered that it is planning to build an

internal model. One participant answered that it did not intend to build an internal model.

Of those participants who are building internal models, 4 are building a full internal model and 2 are building partial models. Areas of use include mainly product development; pricing; performance analysis; reinsurance policy; investment policy; capital allocation; asset-liability management; technical provisions; in some cases also risk limit setting; strategic decisions; budgeting; bonus and dividend payments.

Both of those participants who submitted their internal model results are building full internal models. Both are part of a group-wide model. These models have a modular structure, which however differs from the classification of risks used in the standard formula. Both of them mostly use a 99.5% VaR risk measure, but in the case of some risk modules 99.0% TailVaR or quarterly VaR is used. Some risks not included in the standard formula are also covered. These include equity and interest rate volatility risk; bond fund risk; mortality contagion risk and transferability risk.

</Analysts view SCR IM>

MCR

Description (adequacy of the proposed design, practicability, quantitative impact) of the results of the combined approach tested for QIS4 (i.e. linear approach with a cap and a floor). Namely:

- new design (compared to QIS3) of the linear calculation, for each type of business;
- application of the corridor.

(Reference tables: Annex H)

<Analysts view MCR>

Quantitative impact: The ratio of the linear calculation to the SCR standard formula varied between 15.8% and 45.2%, with an average of 34.7%. The combined MCR was floored at 20% of the SCR standard formula in only 1 out of 14 cases. The 50% cap did not have an effect.

Compared to the two SCR internal model results, in one case the linear calculation was 11.2% of the internal model SCR (floored at 20%), in the other case it was 47.8% of the internal model SCR.

From the quantitative results, no particular line of business could be identified as an outlier.

Given the above results, the calibration target for the linear calculation was generally met. No supervisory ladder problem was observed either

between the linear calculation and the SCR or between the combined MCR and the SCR.

Adequacy and practicability of methodology: The combined MCR appears sufficiently simple and practicable. Generally, participants were able to calculate it without difficulty.

A number of participants echoed the CEA view that the MCR should be calculated as a percentage of the SCR. In these participants' view, the QIS4 combined approach is insufficiently risk sensitive. The critique of the new approach was however less harsh than that of the modular approach in QIS3, and some participants welcomed the corridor, especially the cap, as a step towards their preferred approach.

The supervisor believes that the MCR should set an independent floor for the SCR, and disagrees with the application of the cap in the QIS4 corridor approach. Such an arrangement would impair the safety net function of the MCR and would seriously erode solo-level policyholder protection, given that under group supervision the MCR would not set an independent solo level floor for capital requirements. The supervisor therefore holds the view that the MCR should be calculated either by a stand-alone linear approach or by a floor-only combined approach.

</Analysts view MCR>

Groups

Description (adequacy of the proposed design, practicability, quantitative impact where possible/statistically relevant) of the QIS4 results for insurance groups.

(Reference tables: Annex G2-G3; other tables will be taken from the centralised groups database)

<Analysts view Groups>

There were no group submissions in Hungary.

</Analysts view Groups>

Other issues

- Other major issues

<Analysts view Other Major Issues>

No other major issues were identified.

</Analysts view Other Major Issues>

- Major national issues (e.g. captives)

<Analysts view Major National Issues>

No major national issues were identified.

</Analysts view Major National Issues>

2. Introduction

*Note: Where a question asks for views of undertakings and supervisors, it would be helpful if you could **distinguish clearly in your report between the views held by undertakings and those of supervisors**, and include, where appropriate, your reaction to the views expressed by undertakings.*

Please include at least the following headings in the executive summary and distinguish, if possible, between the size and type of undertakings.

Where possible: make a comparison between QIS3 / QIS4

Section 1 provides the executive summary, highlighting the QIS4 results with respect to the QIS4 priorities and topical issues. It also describes any outstanding QIS4 results for the concerned country.

Section 2 gives an overview of the structure of this report and describes the methodology of the QIS4 exercise.

Section 3 provides insight in the scope and type of undertakings that have participated in the QIS4 exercise and highlights particular problems that they encountered.

Section 4 through 12 deal with solo-entity issues. **Section 4** starts with the reliability of the results and resource issues. **Section 5** highlights the overall financial impact of the QIS4 exercise, whereas **Sections 6 through 9** deal with the specific impact and issues on, in that order, the valuation of assets and liabilities, technical provisions, own funds and the SCR standard formula. **Section 10** analyses in depth the use of internal models. **Sections 11 and 12** cover the impact on the MCR and proportionality issues respectively.

Section 13 deals with group issues and analyses the impact on the overall financial position. It also covers diversification effects, operational risk issues, group support and group internal models.

Section 14 discusses any remaining issues that are not covered elsewhere in the report.

3. Participation

3.1 Representativeness of Data Provided by Solo Undertakings

- Please complete the following tables for the number of respondents that provided at least some quantitative data for solo undertakings in QIS4. (These tables will be provided as a spreadsheet integrated in the IT tool – you are asked to copy/paste the tables into this report.)

Table A Number and size of respondents (by legal status under the EU Directives)

	Small			Medium			Large			Number of respondents part of a group
	No	% of S II affected	% of total	No	% of S II affected	% of total	No	% of S II affected	% of total	% of total
Life undertakings	3	60	43	1	100	100	0	-	-	20
Non-life undertakings	3	43	6.7	0	-	-	0	-	-	6.7
Pure reinsurers	0	-	-	0	-	-	0	-	-	-
Captives	0	-	-	0	-	-	0	-	-	-
Composites (including respondents providing data for both life and non-life business)	3	50	50	5	100	100	0	-	-	33.3
All respondents	9	50	16	6	100	100	0	-	-	60
- of which Mutual undertakings (included above)	1	25	2.9	0	-	-	0	-	-	-

Table B Market coverage (by type of business written)

	Total Market Share	Of which: Composites
	%	%
Life business	89.5	51.6
Non-life business	94.2	88.8
Health business	70	68.3

2. Please complete the following tables for the total *number* of respondents that provided figures for the various parts of QIS4, and for the corresponding *percentage (%)*. This percentage should be calculated as the number of respondents for the relevant part of the QIS4 exercise divided by the total number of respondents (which can be found in the final column of table A), excluding where possible from the denominator, those firms that are known to have no exposure to that risk.

Table C Coverage of provisions (by type of business written)

Respondents with only Life Business	Provisions based on QIS4 methods		Provisions based on Internal Model	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Total gross best estimate provisions	4	100		
Total net of reinsurance best estimate provisions	4	100		
Total Cost-of-Capital provisions	4	100	1	25

Respondents with only Non-Life Business	Provisions based on QIS4 methods		Provisions based on Internal Model	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Total gross best estimate provisions	3	100		
Total net of reinsurance best estimate provisions	3	100		
Total Cost-of-Capital provisions	3	100	0	-

Respondents with Life and Non-Life Business (composites)	Provisions based on QIS4 methods		Provisions based on Internal Model	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Total gross best estimate provisions-life business	8	100		
Total gross best estimate provisions-non-life business	8	100		
Total net of reinsurance best estimate provisions-life business	8	100		
Total net of reinsurance best estimate provisions-non-life business	8	100		
Total Cost-of-Capital provisions-life business	8	100	1	12.5
Total Cost-of-Capital provisions-non-life business	8	100	1	12.5

Table D Coverage of different (sub)risk modules (by type of business written)

	Total number of respondents	Of which: undertakings with only Life Business		Of which: undertaking with only Non-life Business		Of which: undertaking with both Life and Non-life business (composites)	
		<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>

MCR calculation	15	4	100	3	100	8	100
SCR calculation							
Operational risk	15	4	100	3	100	8	100
Interest rate risk	15	4	100	3	100	8	100
Equity risk	11	3	75	1	33.3	7	87.5
Property risk	7	2	50	1	33.3	4	50
Currency risk	8	2	50	0	-	6	75
Spread risk	9	3	75	0	-	6	75
Concentration risk	2	0	-	0	-	2	25
Counterparty default risk	12	2	50	3	100	7	87.5
Life revision risk	3	0	-	1	33.3	2	25
Life mortality risk	10	3	75			7	87.5
Life longevity risk	6	2	50	1	33.3	3	37.5
Life disability risk	7	2	50			5	62.5
Life lapse risk	9	3	75			7	87.5
Life expense risk	11	3	75	1	33.3	7	87.5
Life cat risk	10	3	75			7	87.5
Health (long-term) risk	1	0	-	0	-	1	12.5
Non-life health (short-term) risk	9			2	66.7	7	87.5
Non-life workers' compensation risk	0			0	-	0	-
Non-life premium/reserve risk	11			3	100	8	100
Non-life CAT risk	11			3	100	8	100
Non-life undertaking specific factors:							
- premium	3			1	33.3	2	25
- reserve risk	0			0	-	0	-
Risk-absorbing effect of future profit sharing in SCR calculation	2	1	25	0	-	1	12.5
Risk-absorbing effect of deferred taxes	5	2	50	0	-	3	37.5
Alternative approaches:							
- Equity risk option 2	7	2	50	1	33.3	4	50
- Equity risk option 3	0	0	-	0	-	0	-
- Equity risk dampener	3	1	25	1	33.3	1	12.5
- Equivalent scenario	0	0	-	0	-	0	-
- Lower boundary for FPS	7	2	50	0	-	5	62.5
- Internal model SCR	2	1	25	0	-	1	12.5
- Simplified methods for valuation of technical provisions	0	0	-	0	-	0	-
- Simplified methods for calculation of SCR	0	0	-	0	-	0	-
- Geographic diversification for non-life	0	0	-	0	-	0	-

3.

- a. How many (i) small, (ii) medium, and (iii) large firms provided only qualitative responses for QIS4 (and are therefore not included in the data tables above)?

- b. How many (i) small, (ii) medium, and (iii) large firms provided only quantitative responses for QIS4?

<Analysts view on 3a>

All the participants who provided qualitative responses made the calculations as well.

</Analysts view on 3a>

<Analysts view on 3b>

Three small and two medium sized insurers provided only quantitative responses for QIS4. All of them are composites.

</Analysts view on 3b>

3.2 Representativeness of Data Provided by Groups

4. Please complete the following table for the number of groups that provided at least some quantitative data in QIS4.

<Analysts view on 4>

Not relevant since no groups completed QIS4 in Hungary.

</Analysts view on 4>

Table E Number and market coverage of groups

	Total Number of respondents	Total Market Share (%)
Cross-sector groups		
International groups		
European groups		
National groups		
All respondents		

Notes for completing these tables:

Table A: please show the number of solo-undertakings, in each relevant size category that provided some data for QIS4. Please express this also as the percentage of the total number of authorised undertakings in that size and type category in your market. The size of respondents should be classified according to the Annex. National supervisors should apply their own discretion over how to classify the size of respondents providing data for both life and non-life business. Composite undertakings, and respondents providing data for both life and non-life business, should be included only in the fifth row of this table. The final row in Table A should show the number of mutual undertakings that have been included in the other rows of the table.

Table B: please show the market share covered by all the respondents who have provided some data, irrespective of size, where this market share should be determined by reference to premium income for non-life business, and by reference to current provisions for life business and health business.

Table E: please show the number of groups, for each relevant group category, that provided some data for QIS4. In the last column, please show the market share covered by the groups which have provided some data, where this market share should be determined by reference to premium income for non-life business, and by reference to current provisions for life business and health business. In case only one group provided data, for confidentiality reasons you can leave this column cell empty.

3.3 Data collection issues

5. Please summarize the views **of undertakings about the reliability and accuracy** of the input data for SCR and MCR (from question QS.1).

<Participants view on 5>

The participants had to provide, by using a rank from 1 (less) to 5 (good), an assessment of the reliability and accuracy of the input data for SCR and MCR.

Eleven of fifteen undertakings replied this question, nine small and two medium sized. The average response for the input data for SCR was 3.9 for reliability and 4.0 for accuracy and for MCR 4.2 for reliability and 4.3 for accuracy.

For SCR input data the average for the small sized respondents was 3.9 for reliability and 4.0 for accuracy, and for the medium sized 4.0 for reliability and also for accuracy.

The reliability for SCR input data was 4.0 for life and also for non-life undertakings, which is higher than the average, and 3.8 for composites, which is lower. It is the same with accuracy.

For MCR input data the reliability for small sized undertakings (4.2) was above and for medium sized (4.0) was below the average. We can observe the same tendency in accuracy (4.3 for small and 4.0 for medium sized undertakings).

The reliability for MCR input data for life and non-life undertakings was above, and for composites was below the average. The accuracy for MCR

input data for non-life undertakings was higher, for life and composites was lower than the average.

</Participants view on 5>

<Analysts view on 5>

</Analysts view on 5>

6. Please describe the **major practical difficulties** that solo-undertakings reported during QIS4 in the collection of data needed for the purpose of the calculations, and any suggestions to solve these issues, distinguishing if possible between different size and types of undertaking.

<Participants view on 6>

For two of the small sized respondents, no difficulties arose since they used their internal models. The remaining small sized undertaking mentioned that past loss ratios of MTPL in Hungary are distorted.

The major difficulty for the three medium sized undertakings was that the quantitative template was issued late so it was very difficult to plan and prepare for it.

Another problem was that some data differed from what they use in their own internal models which caused some extra work. Some of the data (for example net loss ratios for historical years) are challenging to collect.

No suggestions for solutions.

</Participants view on 6>

<Analysts view on 6>

</Analysts view on 6>

7. What major difficulties did groups in your country encounter in producing group data for QIS4? What solutions did they propose (from question QG.2)?

<Participants view on 7>

Not relevant since no groups completed QIS4 in Hungary.

</Participants view on 7>

<Analysts view on 7>

</Analysts view on 7>

4. Reliability of results (including adequacy of data) and resource requirements

8. Please summarize the views **of undertakings about the reliability and accuracy** of (from question QS.1):
- the results for the value of assets and non-insurance liabilities;
 - the results for the value of technical provisions;
 - the SCR;
 - the MCR.

<Participants view on 8>

In general the accuracy of the results was 3.9.

The reliability for

- the value of assets and non-insurance liabilities was 3.7 out of 5. Small sized undertakings are below and medium sized are above this.
- the results for the value of technical provisions was 3.8
- the SCR was 3.8
- the MCR was 3.9.

</Participants view on 8>

<Analysts view on 8>

</Analysts view on 8>

9. Please provide your **assessment of the reliability and accuracy of all the input data and results** emerging from the QIS4 study. Please distinguish where possible between different sizes and types of undertaking. To support your assessment, please fill in table F below (in terms of high, medium, low).

<Participants view on 9>

The average for reliability and accuracy is

- high if it is between 3.3 and 5.0
- medium if it is between 1.7 and 3.3
- low if it is between 0.0 and 1.7

In this system every answer was high which means that the undertaking's opinion is that the data and the results are reliable and accurate enough.

For small sized participants the reliability and accuracy of SCR input data was lower, for MCR input data was higher than the average. All of the results were lower.

For medium sized undertakings the shoe is on the other foot.

In life business the input data and the results for the values are higher the results for SCR and MCR are lower than the average.

In non-life business the input data, the results for the value of technical provisions and SCR and MCR are higher than the average and the results for the value of assets and non-insurance liabilities is lower.

For composites the input data for SCR and MCR are lower than the average, as the result for the valuations and the SCR. The results for the MCR are higher.

</Participants view on 9>

<Analysts view on 9>

</Analysts view on 9>

Table F: Reliability and accuracy of the data and results

	Reliability	Accuracy
SCR input data	high	high
MCR input data	high	high
Results	high	high
- Valuation of assets	high	
- Valuation of liabilities	high	
- Technical Provisions	high	
- SCR	high	
- MCR	high	

10. *Please describe the major practical difficulties with respect to long-term insurance in the non-life business that solo-undertakings reported during QIS4 (FINREQ.2)*

</Participants view on 10>

The participants did not mention any difficulties.

</Participants view on 10>

<Analysts view on 10>

</Analysts view on 10>

11. *Please describe the way that captives have been treated in the QIS4 exercise. In your view, what would be the appropriate treatment (FINREQ.3)?*

<Participants view on 11>

Not relevant since there are no captives in Hungary.

</Participants view on 11>

<Analysts view on 11>

</Analysts view on 11>

12. Please provide an outline of any general **national guidance** that was given to undertakings for the completion of QIS4, the reasons for providing this guidance, and the perceived effectiveness of this guidance in helping undertakings to complete QIS4 appropriately.

<Participants view on 12>

There was no national guidance given to undertakings in Hungary.

The Hungarian Supervisory Authority organized a meeting for the participants of the QIS4. We gave them a lecture on the templates, after that we could discuss the questions incurred.

This method was more useful because the undertakings could raise their questions which we answered immediately.

</Participants view on 12>

<Analysts view on 12>

</Analysts view on 12>

13. Please fill in table G below and elaborate on the **estimated additional resources** (in person months) needed by undertakings to comply with the Solvency II framework, differentiating between those undertakings planning to use an internal model and those that are not. Please elaborate on the level of resources needed to complete QIS4, and on especially demanding parts of the QIS4 exercise. How does this vary across different size and types of undertakings (from question QS.3).

<Participants view on 13>

The respondents with internal models mentioned that their models provide most of the relevant information for Solvency II.

The valuation of the provisions, the MCR and the SCR in accordance with the proposed methodology would require additional management planning, resource allocation and work flow prioritisation.

The aspects that the undertakings dedicated most of their resources were SCR calculation, credit risk and lapse risk calculations, review the technical specifications, on best estimate of provisions (especially annuity reserves), to derive the QIS4 balance sheet out of the existing balance sheet and calculations of the risk margin.

</Participants view on 13>

<Analysts view on 13>

</Analysts view on 13>

Table G: Estimated additional resources for complying with Solvency II

		Additional resources (estimate, in person months) for one-off introduction of systems and controls	Additional resources (estimate, in person months) for yearly valuation	Resources (in person months) utilised to complete QIS4
Standard formula	Small	69.3	3.9	7.4
	Medium	-	-	2
	Large	-	-	-
Internal Model	Small	5.7	2	1.7
	Medium	6	0.6	1.5
	Large	-	-	-

14. Please describe the resources needed by the supervisor for the QIS4 exercise. Has the number of people involved in QIS4 increased compared to previous QISs exercises? Are the final results widely spread and shared, both within the supervisory authority and with industry? Do you intend to publish the results of the country report? How did you deal with the internal models results? How was the cooperation with other supervisory authorities working when dealing with group results?

<Analysts view on 14>

There were 5 experts on our QIS4 analyst team (compared to 3 experts for QIS3). Our estimate of the total workload of QIS4 analysis is 3.1 expert months. We plan to share the results within the supervisory authority and with the industry in the form of QIS4 debriefing seminars. Subject to participants' approval, we hope to be able to publish the country report.

As regards group results, one supervisory authority contacted us to check the consistency between group and solo level submissions. Some other supervisory authorities are planning to discuss group QIS4 with us at upcoming co-co meetings.

</Analysts view on 14>

5. Overall financial impact

Please note that the questions in this section are intended to help CEIOPS to identify potential areas of difficulty that could arise from the changes that the application of the present QIS4 specification would make to the overall capital requirements and the corresponding financial position of undertakings. Accordingly, any ratios suggested below should be regarded as being only illustrative for this purpose, and supervisors may wish to consider other possible threshold ratios as well when answering these questions.

We hope that the completed tables of the QIS4 results will help to inform the answers to many of these questions

15.

- a. Please provide a broad description of the potential quantitative impact on the **overall financial position** of solo life undertakings, non-life undertakings, health undertakings and reinsurers from applying the new Solvency II quantitative requirements (i.e. the new valuation methodologies for assets and liabilities, the SCR and the MCR, the own fund approach). Please differentiate between standard formula and internal model outcomes. The impact on the overall financial position should refer at least to the impact on capital surplus and to the impact on the solvency ratios.

(Reference tables: Annex A, tables 3B, 3C and 3D)

<Analysts view on 15a>

The new solvency II quantitative requirements have revealed that the economic value approach used in QIS4 has a huge potential quantitative impact on the overall financial position of an undertaking. Starting with the valuation of assets and liabilities, accounting figures and economic values of assets and liabilities do differ in most cases. The impact is such that while assets are undervalued and thus the excess of economic value over book value is realised in the QIS4 balance sheet, the sum of best estimate and risk margin in QIS 4 proved to be less than the amount of insurance technical provisions in Solvency I. These trends resulted in the overall increase of surplus capital.

Average capital surplus following from QIS4 specifications was 302.1% of the capital surplus under the existing solvency regime. On a company by company basis, both major upward and downward shifts (ranging from -94.5% to 1221.8%) were observed.

The most conspicuous difference is the difference between the amount of own funds in the QIS4 and the available solvency elements in Solvency I.

In each case, the level of own funds in the QIS4 balance sheet exceeds the level of available solvency capital based on Solvency I valuation principles.

Due to the revaluation of assets and liabilities, the own funds of composite insurers amounted to more than twice the amount of Solvency I available solvency elements, in one case it reached more than 500 percent. It is important to note that there was only a moderate increase in the level of solvency capital of small insurers. From a prudent perspective, it is favourable that the own funds of the participating undertakings are exclusively made up of basic own funds, more precisely of tier 1 capital elements (only one insurer reported a tier 2 capital element but it makes up less than 0,5% of own funds)

However, the development of capital adequacy in QIS4 is not so obvious which means that the increase of own funds was accompanied by higher (risk-based) capital requirements (SCR).

Compared to an average solvency ratio of 209.1% under the current regime, the average solvency ratio of the participants with reference to the SCR standard formula was 265.3%, whereas their average solvency ratio with reference to the MCR was 757.4%.

The participants whose solvency margin in Solvency I was well over 300% could retain their solvency position in QIS4. Small insurers who carry on insurance business only in either life or non-life branch saw a decline in their capital adequacy level.

This is basically in line with the change in the capital requirement. On the average, the amount of SCR calculated in QIS4 is twice that of the required solvency margin in Solvency I. There are 2 outlying figures (both belong to small insurers) where the capital requirement calculated in QIS4 has dramatically increased to 4 and 5 times the capital requirement in Solvency I, respectively. The solvency calculation of one of them is not reliable, so that undertaking was omitted from SCR analyses.

Currently, there is no insurer among the participants who would breach the level of MCR, however, 3 insurers would breach the level of SCR.

Only 2 insurers provided the SCR figures calculated with their internal models. Even the direction of the change in SCR was not the same, the change in volume was extreme: the SCR calculated with internal models was in one case almost 3 times as much as the result of the SCR standard formula, in the other case it was half as much. The solvency ratios of these two participants were 936% and 209%, respectively.

</Analysts view on 15a>

- b. Are there any particular types (or significant numbers) of undertakings that would have to **raise** significant new amounts of capital in order to meet either the SCR or the MCR?
(Reference tables: Annex A, table 3E)

<Analysts view on 15b>

3 participants (2 of them are small-sized insurers) out of 14 calculated negative QIS4 surplus, that is, their eligible own funds based on QIS4 valuation principles are exceeded by the amount of the SCR (the total number of participants was 15, yet one participant's SCR figures were disregarded as unreliable). However, figures also show that 2 of the 3 P&C insurers comply with SCR only by a narrow margin and are thus heavily exposed to the fluctuation of market values. There was no insurer whose eligible own funds were not sufficient to meet the MCR.

The volume of change in the capital surplus is rather extreme in either direction (more than 100 percent change), there were only 2 insurers who calculated only modest change in the QIS4 surplus compared to the Solvency I surplus. It is apparent that composite insurers reached higher capital adequacy level. Since most participating composite insurers in Hungary are classified as medium-sized undertakings in QIS4, size does make a difference in this respect. No conclusion can be drawn, however, from the type of the insurer.

</Analysts view on 15b>

- c. Are there any particular types (or significant numbers) of undertakings that would see the **excess of eligible own funds over the SCR** (i.e. capital surplus with reference to SCR) either (i) decrease by more than 50% or (ii) increase by more than 50%, as compared to the excess of the Solvency I available Solvency margin over the Solvency I required Solvency margin? In the case that Member States have adopted prudential requirements in addition to the Solvency I requirements, in addition to the above calculation, the comparison should also be performed in comparison to these requirements.
(Reference tables: Annex A, Tables 3C and 3D)

<Analysts view on 15c>

As it is stated above, the excess of eligible own funds of composite insurers over their SCR has most conspicuously increased. The vast majority of the insurers who would need to raise capital to meet the SCR have seen a huge (more than 50%) drop in their QIS4 surplus compared to their Solvency I surplus. The low number of participants does not allow to draw any further reliable conclusions.

d. **Which items** on insurers' solvency balance sheets **are the most impacted?** What is the relationship between the new Solvency II explicit requirements (technical provisions and capital requirements) and the previous Solvency I explicit and implicit requirements (technical provisions, required solvency margin, plus prudent valuation principles for assets and liabilities)?
(Reference tables: Annex A, tables 3A-3E)

In Hungary Solvency I valuation principles form the underlying basis for the valuation on current bases, therefore no significant, if any, difference between the two valuation approaches was expected. However, some insurers reported different figures for certain asset types (investments and reinsurance). It was our decision that by convention Solvency I figures should be equal to the current bases figures even if one insurer reported IFRS figures for current bases valuation.

The structure of the balance sheet in QIS4 is different from the one used in Hungary and there was no common guideline for the reclassification of assets and liabilities, either. Because of the impending deadline, we (the supervisory authority) decided to define the content of each QIS4 balance sheet item by ourselves by taking the principle of "substance over form" into account and set out to determine the equivalent of Hungarian balance sheet items in the QIS4 balance sheet as well.

The volume of investments on traditional portfolio liabilities increased while there was a huge drop in the level of technical provisions (other than UL) within the liabilities. While the volume of unit linked investments was basically left unchanged, there was a moderate decrease in the level of unit linked liabilities at each life insurer.

There are some observable trends in the revaluation process that is most conspicuous in the case of composite medium-sized insurers (the largest ones in Hungary). In most cases, there has been an upsurge in the level of capital as a direct consequence of the fact that the amount of technical provisions fell significantly by 10-20%. This impact was stronger in the case of composite insurers where the decrease was even higher. Within the assets, the volume of assets from reinsurance has risen, there were a few insurers where the rise was very sharp. Bond and equity investments were revaluated as well, but the impact is not so strong. At some insurers both types of investments appreciated although we expected the devaluation of these assets because of the recent downward pressure on market prices and the interest rate policy of the national bank.

This impact can be attributed to 2 salient factors: The tiny excess (less than 5%) of market value over book value was recognised in the asset side of the balance sheet, while it is also apparent that Solvency I regime has overestimated the level of technical provisions needed to meet insurance liabilities insofar as the amount of Solvency I technical provisions do exceed the sum of best estimate and risk margin calculated in QIS4.

</Analysts view on 15d>

16. Please describe how the overall financial impact on undertakings varies according to
- (a) Size of undertaking (e.g. small, medium or large)
 - (b) Structure of undertaking (e.g. independent entity or part of a group)
 - (c) Legal structure (e.g. mutual or proprietary)
 - (d) Lines of business written (e.g. specialising in particular type(s) of business; composites)
- (Reference tables: Annex A, tables 1 and 2)*

<Analysts view on 16a>

See above at question 15 in this chapter.

</Analysts view on 16a>

<Analysts view on 16b>

See above at question 15 in this chapter.

</Analysts view on 16b>

<Analysts view on 16c>

See above at question 15 in this chapter.

</Analysts view on 16c>

<Analysts view on 16d>

See above at question 15 in this chapter.

</Analysts view on 16d>

6. Valuation of Assets and Liabilities (other than provisions)

17. Please describe the adequacy of the proposed design, practicability and quantitative impact of proposed methods for the valuation of assets and liabilities, and differentiate per balance sheet item. Please refer in your answer to participations, intangibles, intra-group transactions and initial recognition of non-insurance liabilities using the risk-free rate. (from question QS.2(c) and QS.4(c))
(Reference tables: Annex B)

<Participants view on 17>

The QIS4 participants all agreed on the principle of valuing assets on a market value basis and that the valuation of assets and liabilities was not an easy task to accomplish.

One participant mentioned that the Hungarian local GAAP is based on book value and the lack of practical information and practice also caused problems.

Another mentioned that the IFRS basis used is consistent with their internal model, in their opinion the key principle in valuing assets is the use of market values assuming a liquid market. They used fair values of investments, which are based on quoted bid prices or amounts derived from cash flow models. Fair values for unlisted equity securities were estimated using applicable price/earnings or price/ refined cash flow ratios to reflect the specific circumstances of the issuer. Securities for which fair values cannot be measured reliably were recognised at cost less impairment.

One was of the opinion that in QIS4-based valuation participants had to value intangible assets nil, although they do have economic value. They intimated that their solvency position would have considerably grown had they been allowed to consider the economic value of these assets as available solvency elements.

One participant mentioned that the valuation of non-life premiums new business of the next year should be taken into account. The current approach is inconsistent in terms of comparing the SCR calculation with the input for technical provisions.

</Participants view on 17>

<Analysts view on 17>

</Analysts view on 17>

18. Please elaborate on:

- the valuation (method, amounts, process, governance) of intangible assets (from question QS.13);
- the feedback on the valuation of deferred taxes.

<Participants view on 18>

It was a common practice to leave the Solvency I value of intangible assets unchanged for the purpose of economic valuation but there were insurers who simply have chosen to set the value of intangibles to zero.

One participant remarked that it generally does not recognize goodwill on the Market Value Balance Sheet when acquiring participation or business. When the insurer acquires another company, any amount paid is directly charged to Economic Available Capital (EAC). However, it does acknowledge that some intangible assets may have economic value, and should thus appear on the Market Value Balance Sheet.

The above participant also mentioned that from a capital adequacy perspective it would be imprudent to rely on the calculated economic value of goodwill as the terms and amount of future new business are far too uncertain.

Another provided their own QIS4 calculation method for revaluing marketable intangible assets (their non-company specific softwares) as follows: $\min[0.7 \cdot \text{Gross value}; \max(0.4 \cdot \text{Gross value} *; \text{Book value})]$

As for the quantitative impact of the proposed valuation methods, the value of total assets increased slightly relative to current accounting figures (to 103.9%), while the value of total investments dropped slightly (to 97.5%). Reinsurance assets increased sharply (to 5290.7%), given that reinsurance is not generally recognised as an asset under current accounting (instead, under current local GAAP it is mostly netted against technical provisions).

</Participants view on 18>

<Analysts view on 18>

</Analysts view on 18>

19. If the figures used by undertakings for QIS4 differ from the figures used for general purpose accounting, please explain how these QIS4

figures were derived and whether these are used for another purpose in the business (from question QS.39).

<Participants view on 19>

The participants that replied to this question did the same practice, namely that the market value of assets was generally based on IFRS accounting figures. However, in some cases mark-to-model approaches were used based on replicating portfolios. One participant refined the IFRS accounting figures by revaluating the financial instruments classified as Held to Maturity to market price.

One participant noted that for liabilities replicating portfolios and MV liability techniques were used based on centrally controlled market curves and Standards of Practice. That insurer also mentioned that it prepares the Market Value balance sheet quarterly which is very much in line with QIS4; thus it has a growing set of experience and reliability of figures to rely on.

Another participant mentioned that the fair values of technical provisions were derived from internal model.

Rough estimates were not used, except for one participant but it did not go into further details.

One of the participants highlighted that the assets backing the mathematical portfolio are valued at book value under the current accounting system. For QIS4 purposes these were marked to market.

Almost all the respondents use these economic value figures for other purposes, too. Some of the largest participants reported that they use these figures for primary capital and risk management purposes, such as internal model and life/non life embedded value calculation, but IFRS accounting was also a common answer.

Others noted that they use these figures for internal reporting and ALM, too.

</Participants view on 19>

<Analysts view on 19>

</Analysts view on 19>

20. Please elaborate on (from question QS.40):
- (a) the nature of assets and liabilities that were
 - (i) marked to market;

- (ii) marked to model;
- (b) the value of each category of assets and liabilities that was marked to model;
- (c) where relevant, the characteristics of the models used and the nature of input used when marking to model;
- (d) differences between economic values obtained and accounting figures (both in aggregate, and also by category of assets and liabilities).

<Participants view on 20>

a) (i) It was a common practice among the respondents that fixed income bonds, equity, real estate, and other investment assets were marked to market since the actual market price of these assets is generally available. One medium-sized insurer refined this method and distinguished between liquid markets (observable market price), less frequently traded and/or less transparent markets (extension of market value) and assets that do not have markets (alternate methods).

a) (ii) The 3 respondents mentioned all liabilities (one just the technical provisions including re-insurance liabilities) and some asset that were marked to model. These assets include mortgages, policy loans, but one of the respondents used mark-to-model calculations even for fixed interest assets.

b) and c) One medium-sized insurer noted that they use valuation curves and risk neutral scenarios that are set centrally. These curves are used for determining the values for marked to model which include market data for swap rates and implied volatilities where available and extrapolations where necessary. A risk model governance committee reviews all changes to valuation methodology. The values are taken either directly from PV cash flows of risk neutral scenarios or from replicating portfolios.

A smaller insurer remarked that mark-to-model valuation was used when discounting best-estimate cash flows.

d) Especially the difference between the discounting rates (guaranteed technical interest rate for the local GAAP and market consistent rate for QIS4) was highlighted by all respondents. Hidden reserves (for assets and technical provisions), the difference between the valuation of available for sale assets at cost vs. economic basis, future discretionary benefits and the capitalization of embedded future profits was mentioned.

One participant highlighted that most insurance liabilities are accounted at cost basis accounting which implies different assumptions (basically pricing assumptions) when projecting cash flows.

There was one outstanding response to the question, namely that where the historical data was long enough, there was no significant difference.

</Participants view on 20>

<Analysts view on 20>

</Analysts view on 20>

21. Please summarize any other adjustment made by undertakings to the accounting figures (from question QS.42).

<Participants view on 21>

None of the respondents made any adjustment to the accounting figures.

</Participants view on 21>

<Analysts view on 21>

</Analysts view on 21>

22. Please elaborate on the use of accounting figures not regarded as economic values (from question QS.14).

<Participants view on 22>

It was a common practice that participants used economic valuation for most assets and liabilities. However, for non-insurance-linked liabilities, short term receivables and payables participants generally used accounting value since the difference between the economic value and the accounting value was not material. In other cases, reinsurance assets have not been set to a pure economic value. One of the medium-sized insurers stressed that intercompany (intra-group) loans have not been marked to market as the overall exposure of the subsidiary is 0.

One participant noted that the difference between the Solvency I. and QIS4 accounting values on the asset side (which amounts to 1%) comes mainly from revaluating "Other assets".

Regarding the valuation of intangibles and other assets, one of the respondents took the easy way out and set the book value of intangible assets and DAC to zero in the QIS4 balance sheet and recognized them as an immediate loss.

One of the participants stated that it had no intention to use accounting figures that are not a suitable representation of economic values. It also emphasized that while it appreciates any efforts which foster consistency between Solvency II and IFRS accounting, IFRS Phase II is still under

development and hence reliance on accounting concepts is not well-founded.

</Participants view on 22>

<Analysts view on 22>

</Analysts view on 22>

23. Please highlight any particular problem areas or suggestions by undertakings in the **application of IFRS valuation** requirements for Solvency II purposes, and in particular any material effects on capital figures/calculations (from question QS. 41 and 43).

<Participants view on 23>

The majority of the respondents stressed that market consistent valuation approach is generally welcome. Some mentioned that they already use this valuation basis for internal risk management purposes or in their internal model. No major problems were identified or suggestions were made except for the following ones:

One of the respondents stressed that that possible upcoming level II measures related to the scope of consolidation should be principle-based and not rule-based. In order to foster market discipline, it is important to know that the differences between IFRS and Solvency II reporting are economically explicable and these differences should therefore not be caused by slightly different (rule-based) requirements.

It highlighted that the availability of market prices for insurance liabilities may change over time and therefore setting prescriptive rules for the valuation of certain parts of insurance liabilities at this point might prohibit the use of market prices later. Furthermore, rules are often subject to arbitrage.

Furthermore, it stated that if a balance sheet item is not material, the IFRS accounting treatment should be considered an acceptable proxy.

It also expressed concern with regard to the application of Article 50 of the draft directive. According to Article 50, insurers shall disclose a report on their solvency and financial position on an annual basis while the differences between the IFRS financial position and the Solvency II financial position should also be explained. This article also applies to insurance groups. However, the scope of consolidation for delivering this information at group level is still ambiguous.

</Participants view on 23>

<Analysts view on 23>



</Analysts view on 23>

7. Technical provisions

7.1 Move from Solvency I to Solvency II

24. What are the differences between QIS4 and local GAAP figures with respect to technical provisions (from question QS.15)? What are the main causes for those differences?

<Participants view on 24>

For life technical provisions, participants mentioned the following reasons behind valuation differences:

- discounting (local GAAP uses discounting by fixed guaranteed interest rates), and
- the recognition of embedded future profits.

For non-life technical provisions, the following reasons were mentioned:

- discounting (not required by local GAAP), and
- built-in prudence in local GAAP, including equalisation provisions and provisions for large losses.

</Participants view on 24>

<Analysts view on 24>

Generally, most participants reported a decrease of technical provisions in all or most lines of business.

Relative to current valuation, the level of total QIS4 technical provisions developed as follows:

- Total life technical provisions (net): 78.2%
 - total non-linked (net): 69.2%
 - total unit-linked (net): 86.7%
- Total health and non-life technical provisions (net): 71.9%

As noted by the participants, in both life and non-life business the prime reason behind the drop in the value of technical provision was discounting. Additional factors were the recognition of embedded future profits and the removal of built-in prudence such as equalisation provisions.

</Analysts view on 24>

7.2 Methodology

25. Please describe the **methodologies adopted** for the calculation of technical provisions (simple or complex, etc.), including the use of actuarial methods (from question QS.16) and simplifications (from question QS.17).

<Participants view on 25>

For **life technical provisions**, it appears that most participants used deterministic cash flow projections. One participant mentioned that the cash flow projection it used was identical to that used for embedded value purposes. One participant mentioned the use of stochastic methods and risk-neutral valuation, in particular for the financial component of liabilities including options and guarantees. This participant referred to a (group-wide) standard practice for the development of best estimate actuarial calculations.

For **non-life technical provisions**, those participants who responded mentioned the chain-ladder method as the approach used to determine future cash flows. One participant said that it used an upgraded variant of this method, calculating multiple parallel projections and checking them against actuarial judgement.

Concerning **simplifications and proxies**, some participants did not use simplifications or proxy methods at all. Others used some of the provided simplifications and proxies (these included the simplifications and proxies to determine risk margins; the *expected loss based proxy* and the *premium-based proxy* to determine the best estimate of premium provisions; the *case-by-case based proxy* for claims provisions; the *claims handling cost reserves proxy*; the *gross-to-net proxy*; the *discounting proxy* and the *annuity proxy*). However, none of the participants did expand on the use of simplifications under question QS17.

</Participants view on 25>

<Analysts view on 25>

</Analysts view on 25>

26. Please describe the adequacy of the proposed design, practicability and quantitative impact of proposed methods for the calculation of the technical provisions of (from questions QS.2(a), QS.2(b), QS.4(a), QS.4(b))

- Best estimate provisions (life and non-life), in particular as regards:
 - "extra benefits" (i.e. future bonuses in addition to guaranteed benefits for life insurance contracts);
 - Embedded options and guarantees;

- risk margins.

(Reference tables: Annex Ca tables 1, 3, 10 and Annex Cb tables 1, 6, 7, 9)

<Participants view on 26>

Concerning the overall adequacy of the proposed methods for the calculation of the technical provisions, a number of participants expressed support for the high-level framework (best estimate and cost-of-capital margin). One participant questioned the notion of current exit value, arguing that the use of entity-specific experience would better reflect the economic value of liabilities.

At the same time, some participants criticised the technical difficulty of the risk margin calculation and the lack of more technical support.

Concerning future discretionary benefits and embedded options/guarantees: A number of participants hold the view that it is important to value embedded options and guarantees on a market-consistent basis, and find the proposed methodology adequate in this respect. One participant however expressed a view that on the other hand, explicitly splitting the value of liabilities into guaranteed versus discretionary future benefits, or separating the value of embedded options and guarantees from the best estimate does not have added value.

Concerning risk margins: A number of participants expressed support for the high-level framework. However, broadly following CRO Forum's critique of the proposed approach, the following aspects have been questioned: (a) some participants opine that diversification between lines of business should be extended to the risk margin, that is, reflecting a hypothetical portfolio transfer onto a diversified reference undertaking; (b) some participants felt that the cost-of-capital factor of 6% was unjustified, and argued for a factor in the range of 2%-4% instead.

One participant expressly disagreed with the cost-of-capital methodology to determine the risk margin.

For some of the largest participants, the calculation of the risk margin did not present a difficulty (even when considering the separate calculations per line of business). Many participants, however, had to resort to simplifications or proxies to calculate the risk margin. Some participants noted that the simplifications and proxies provided for QIS4 sometimes yielded materially different results.

</Participants view on 26>

<Analysts view on 26>

Quantitative impact: Generally, most participants reported a decrease of technical provisions in all or most lines of business.

Relative to current valuation, the level of total QIS4 technical provisions developed as follows:

- Total life technical provisions (net): 78.2%
 - total non-linked (net): 69.2%
 - total unit-linked (net): 86.7%
- Total health and non-life technical provisions (net): 71.9%

In life business, the total risk margin was 2.8% of total (net) technical provisions (2.9% of the net best estimate). In non-life and health business, the total risk margin was 6.8% of total net technical provisions (7.4% of the net best estimate).

Adequacy of methodology: It is difficult to judge from the responses whether the methods used to calculate technical provisions are converging, although the quantitative results suggest some convergence in particular for non-life business.

Regarding the critical comments raised by the participants, and the adequacy of the methodology in general, our view is that

- CEIOPS' reference entity approach for calculating the risk margin, assuming the transfer of each line of business to an empty reference undertaking, thus not recognising diversification between lines of business, is justified in prudential regulation;
- setting a different cost-of-capital factor needs careful consideration;
- under Hungarian circumstances, the distinction between the guaranteed and discretionary part of with-profit technical provisions is meaningful and justified;
- the unadjusted swap rates used for discounting in QIS4 are not risk-free.

</Analysts view on 26>

27. Please describe the treatment of **guarantees and options** in contracts. If possible, distinguish between the approach taken by large insurers and small insurers (from question QS.2a and 4a).

<Participants view on 27>

The treatment of guarantees and options did not cause a problems for most participants, and their view is that it is appropriate to value options and guarantees on a market consistent basis.

One large participant mentioned that it does not consider it viable to value options and guarantees separately from the base liability.

According to one small participant, the valuation methodology of guarantees and options should be elaborated in more detail.

</Participants view on 27>

<Analysts view on 27>

</Analysts view on 27>

28. Please elaborate on the appropriateness of the **definition of future premiums** used in QIS4 for the calculation of best estimate values.

<Participants view on 28>

We did not receive responses regarding this particular aspect.

</Participants view on 28>

<Analysts view on 28>

At this time we do not yet have a final view about the most appropriate definition of future premiums in the best estimate calculation.

</Analysts view on 28>

29. What is the impact on the size of technical provisions of the proposed methods? Please differentiate into lines of business.
(*Reference tables: Annex Ca table 1, and Annex Cb table 1*)

<Participants view on 29>

Generally, most participants reported a decrease of technical provisions in all or most lines of business.

Life technical provisions: The change in the value of life technical provisions varied significantly. The QIS4 Technical specifications on the valuation of technical provision left many questions open (especially regarding segmentation and the valuation of options and guarantees) which lead to different implementations and, therefore, to incomparable results as well. Of the eight composite and four life undertakings, two medium-sized participants reported a higher level of technical provisions, whereas for one medium-sized and two small participants reported a level of technical provisions nearly the same as under current valuation. The other participants with significant life businesses reported a substantial decrease of life insurance liabilities. The total value of (net) life technical provisions under QIS4 was 78.2% of the current amount. The main reason behind the general fall in the value of life provisions is the change of the discount rates.

Non-life technical provisions: The decrease in non-life technical provisions was more uniform. Of eight composite and three non-life undertakings only one medium-sized participant reported a higher level of technical provisions. The total value of (net) average level of non-life technical provisions was 71.9% of the current amount.

</Participants view on 29>

<Analysts view on 29>

</Analysts view on 29>

7.3 Interest rate

30. What interest rate term structure did participants use? The one prescribed in the QIS4 specifications? A term structure derived using the same methodology (swap rates)? Or another term structure? For the undertakings that have applied their **own interest rate term structure**, please explain why and how this term structure has been derived. What is the sensitivity for changes in interest rates? (from question QS.44)

</Participants view on 30>

Most participants used the term structures provided in QIS4.

Two medium-sized participants used their own interest rate term structures. They pointed out that the differences are generally immaterial. One participant noted that it applied its internal curves because of the tight timeframe to deliver QIS4, and that the main differences from QIS4 standard term structures would be the source of curve from the valuation date and the extrapolation algorithm past the life of the currently available market information. Another participant noted that it runs an internal economic model of which internal term structures are an integral part, and therefore it was not practically feasible to feed in QIS4 term structures. (the methodology of internal yield curve building was very similar to the one presented in QIS4, it only differed in some minor aspects).

</Participants view on 30>

<Analysts view on 30>

</Analysts view on 30>

31. As regards undertakings that could not use the interest rate term structure prescribed in the QIS4 specifications: did they encounter any major difficulties when deriving their term structure?

<Participants view on 31>

No major difficulties were reported.

One participant using internal term structures noted that it needs to derive a monthly yield curve so that all intra-year cash flows can be discounted appropriately, therefore the QIS4 term structure would need additional interpolation.

One participant using internal term structures noted that, since Hungarian swap rates are not sufficiently liquid, it used government quotes to build a term structure. This participant noted that the government term structure is less steep than the bootstrapped swap curve.

</Participants view on 31>

<Analysts view on 31>

</Analysts view on 31>

32. For the undertakings that have used a simplification method that assumes a change in the taxation basis, please describe the quantitative transitional effect of this assumed change in taxation (from question QS.45).

<Participants view on 32>

None of the participants used this kind of simplification.

</Participants view on 32>

<Analysts view on 32>

None of the participants used this kind of simplification.

</Analysts view on 32>

7.4 Life Insurance Provisions

33. *What, if any, problems did undertakings in your country encounter with respect to the definition of **future discretionary bonuses** (especially related to guaranteed and discretionary benefits)? What solution did they propose (FINREQ.28)?*

<Participants view on 33>

A number of participants indicated that the definition of future discretionary bonuses should be more detailed.

Nevertheless, respondents supported the valuation of liabilities on a market-consistent basis, such that takes into account the particular

aspects of a product as well as, where appropriate, policyholder's reasonable expectations.

</Participants view on 33>

<Analysts view on 33>

It should be noted that the concept of liabilities for future discretionary bonuses is largely alien to existing Hungarian regulation and practice. Under existing rules, a minimum of 80% of surplus investment yield above guaranteed rates must be irreversibly allocated to policyholders. Contractual terms may in some cases stipulate even more stringent limits. Therefore, Hungarian life insurers have only limited discretion regarding the allocation of future bonuses. On the other hand, "policyholders' reasonable expectations" regarding future bonuses is also an alien concept in our jurisdiction.

Accordingly, most participants valued future discretionary benefits at zero or at a small amount. (One participant allocated a major part of its QIS4 life provisions to future discretionary bonuses, we however regard this particular result unrealistic and unreliable.) Considering the current situation and existing management practices, zero may indeed be the correct valuation in many cases. However we do not rule out the possibility that, even under existing rules, a limited amount of future discretionary benefits should be allowed for in some cases, yet participants chose to value it at zero due to the uncertainty of methodology.

</Analysts view on 33>

34. Describe the undertakings' use and views of assumptions for **future management actions** (from question QS.18), and provide both a qualitative and quantitative comparison with the assumptions set out for the calculation of a "Lower boundary SCR" (from question QS.52).
(Reference tables: Annex E, tables 10A, 10B)

<Participants view on 34>

Two of the larger participants reported on the modelling of future management actions. One of them reported that all expected management actions are reflected in the valuation of liabilities; the other reported that some but not all (i.e. prescriptive; as opposed to reactive) future management actions are reflected in the valuation of liabilities.

There was no feedback of substance regarding the "lower boundary SCR". This can be attributed to the fact that in Hungary insurers have only limited discretion regarding future bonuses, and that "policyholders' reasonable expectations" is an alien concept in our jurisdiction.

</Participants view on 34>

<Analysts view on 34>

</Analysts view on 34>

7.5 Non-Life Insurance Provisions

35. What methodologies were used to project the future cash-out flows, both as regards standard claims and extreme events?

<Participants view on 35>

Those participants who responded mentioned the chain-ladder method as the approach used to determine future cash flows. One participant said that it used an upgraded variant of this method, calculating multiple parallel projections and checking them against actuarial judgement. The responses did not give us further detail regarding the distinction between standard claims and extreme events.

</Participants view on 35>

<Analysts view on 35>

</Analysts view on 35>

36. Are **run-off triangles** used for the calculation of non-life claims? If yes, please provide a description of these and the actuarial method that has been applied (from question QS.19).

<Participants view on 36>

Yes, the chain-ladder method or one of its variants was mentioned in the responses (see question 35).

</Participants view on 36>

<Analysts view on 36>

</Analysts view on 36>

37. Please describe the claims for which a **case by case approach** has been applied, and elaborate on the method applied, usage of actuarial methods and usage of the case-by-case proxy (from question QS.20).

<Participants view on 37>

One small participant used a case by case approach for all claims other than Motor third party liability, since the amounts were immaterial and since no statistically relevant data were available. Another participant reported the use of the case-by-case proxy. The rest of the participants did not use a case by case approach.

</Participants view on 37>

<Analysts view on 37>

[Redacted]

</Analysts view on 37>

38. Please describe the basis on which the **homogenous risk groupings** for non-life business were allocated to the relevant segment(s) specified for QIS4 (from question QS.46).

<Participants view on 38>

From the reponses it appears that, in most cases, the segmentation under existing supervisory reporting provided sufficient basis for allocating non-life business to QIS4 segments. In some cases, the basis for segmentation was the main risk driver for each product (without splitting contracts).

</Participants view on 38>

<Analysts view on 38>

[Redacted]

</Analysts view on 38>

8. Own funds

39. Please describe the adequacy, suitability and practicability of the proposed design for the **proposed classification** of own funds (from question (QS.2(f), QS.4(f)).
(Reference tables: Annex D, table 1, 2)

<Participants view on 39>

Adequacy of methodology and practicability: Respondents generally agreed with the proposed classification of own funds, and no major practical difficulties regarding the classification were reported. One participant stressed the importance of recognising hybrid instruments as risk bearing capital.

Some companies mentioned, that the differentiation between Other reserves for loss-absorbent for all policyholders and with restricted loss-absorbency was not quite unambiguous.

Some other companies agreed with the prescribed classification of the eligible elements, and found the classification useful and risk sensible. One of them mentioned that the need to recognise equity and tier 1 hybrids for risk bearing capital is important.

</Participants view on 39>

<Analysts view on 39>

The data shows (Table D1), that tier 2 and tier 3 elements are not characteristic to the Hungarian insurance market. Only one company reported tier 2 elements, and no one tier 3 elements. This may be one reason, that the companies did not have any problems with the classification, and segmentation the eligible elements in practice.

</Analysts view on 39>

40. Please give details on major impacts arising from a difference in classification of capital instruments between the current Solvency I regime and QIS4 specifications (from question QS.21). Please make a reconciliation of the Solvency I own funds and the Solvency II own funds.
(Reference tables: Annex D, table 1)

<Participants view on 40>

The introduction of a write down feature for example would lead to a major difference in the treatment of hybrid capital and would lead to more unfavourable conditions compared to Solvency I.

Some companies see grandfathering as a very important element especially when introducing completely new and diverging rules.

Others mentioned, that the greatest difference in the classification in QIS4 (contrary to Solvency I), that Other reserves are regarded as eligible own funds elements.

One company considered hidden reserves in assessment the assets and the liabilities.

</Participants view on 40>

<Analysts view on 40>

Companies did not have major difficulties during the assessment the eligible elements. This would be not the fact in the future. The need for the allocation of the capital in a more effective way, may lead to a more complex own funds elements structure in the near future. Mother companies will use much more these so called innovative elements.

As the data show, the level of tier 1 capital amounted to 99,5%, the level of tier 2 capital amounted 0,5% and there were no tier 3 capital elements.

According to the data, among the companies filled the study, the minimum level covered by tier 1 capital is 81%, the maximum is 100%.

The result of the comparison of own funds under QIS4 to the proposed limit structure shows, that there are enough available elements in tier 1 items. There is a surplus amounted 1.819 mill. EUR for the SCR, and 1.949 mill. EUR for the MCR.

</Analysts view on 40>

41. Please provide a short summary description of the items qualified as "other reserves" in the spreadsheet (Tab I.General), distinguishing between:

- other reserves that are loss-absorbent for all policyholders and other reserves with restricted loss-absorbency (from question QS.47);
- the total amount of other reserves with restricted loss-absorbency as a percentage of available own funds, distinguishing between amounts relating to ring-fenced funds and other items.

<Participants view on 41>

Only one company had any comment on this question, but that was interpretation problem, and misunderstood the question.

</Participants view on 41>

<Analysts view on 41>

Companies did not reported "other reserves" with loss absorbency, and only one company reported a very small amount of "other reserves" with restricted loss absorbency. That was only 1‰ of the total own funds.

No one company reported any "ring fenced structure" item, and only 1% of own funds was in "other" items.

</Analysts view on 41>

42. Where undertakings in your country have "surplus funds", please indicate the relative size of this own fund item, as well as the methods used in its valuation.

<Participants view on 42>

We did not receive responses on this particular aspect.

</Participants view on 42>

<Analysts view on 42>

No surplus funds were reported. We however note that adapting the treatment of future discretionary bonuses to the specifics of Hungarian with-profits business will need further consideration. In this regard, it is worth examining whether surplus funds may have a place in the future regime in the Hungarian market.

</Analysts view on 42>

43. Please provide a short summary description of the items qualified as "other" with no further qualification in the spreadsheet (Tab I.General) (from question QS.48).

<Participants view on 43>

We did not receive responses on this particular aspect.

</Participants view on 43>

<Analysts view on 43>

Only one participant reported an amount other this item, but it is not significant considering the whole market (1%).

</Analysts view on 43>

8.1 Ring-fenced funds

44. Please describe the number, size and own funds held within ring-fenced structures and transferability restrictions in place (from question QS.22).

<Participants view on 44>

N/A

</Participants view on 44>

<Analysts view on 44>

N/A

</Analysts view on 44>

45. Please elaborate on undertakings views on the appropriateness and practicability of the specification that ring-fenced structures can serve as own funds only up to the **proportional contribution of the ring-fenced fund** in the company's SCR, and describe the impact both qualitatively and quantitatively (in terms of the percentage of own funds within ring-fenced funds excluded by the cap, in terms of the percentage of the total amount of available own funds excluded by the cap, and in terms of the amount of the SCR for each fund). Please indicate the impact of calculating the SCR as the aggregate of SCR's calculated on a fund by fund basis (i.e. as shown in the denominator of the formula in TS.V.C.5), rather than as a single SCR calculated on a legal entity basis (from question QS.23).

<Participants view on 45>

N/A

</Participants view on 45>

<Analysts view on 45>

N/A

</Analysts view on 45>

46. *What is the impact on the risk margin, SCR, MCR and own funds following from a restriction on compensation of profit/losses between business segments or products? (FINREQ.5)*

<Participants view on 46>

N/A

</Participants view on 46>

<Analysts view on 46>

N/A

</Analysts view on 46>

8.2 Hybrid capital instruments/subordinated liabilities

47. Please provide the total amount of **hybrid capital instruments** and subordinated liabilities as a percentage of available own funds, as reported by undertakings using the issue date; and provide the percentage of these instruments included in tier 1, tier 2 and tier 3 capital.
(Reference tables: Annex D, table 5)

<Participants view on 47>

Only one company reported this kind of instrument.

</Participants view on 47>

<Analysts view on 47>

Only one company reported dated capital instruments, other than common equity capital. All of them are tier 2 capital elements, and it is only 0,5% of the available own funds (if we consider all the companies, filled the test).

</Analysts view on 47>

48. Where hybrid capital instruments and subordinated liabilities have not been classified as tier 1, please provide a summary description of the main reasons why this is the case.

<Participants view on 48>

Only one company reported this kind of instrument.

</Participants view on 48>

<Analysts view on 48>

The reason was, the remaining period to the legal maturity, as at the reporting date.

</Analysts view on 48>

49. Please provide a summary analysis of the information collected about the **perpetuality characteristics** of capital instruments (from question QS.24). Please provide the impact on classification of replacing issue date with reporting date¹:

- (a) only for dated instruments;
- (b) only for dated instruments with an issuer call and interest step-up;
- (c) only for undated instruments with an issuer call and interest step-up;
- (d) only for dated and undated instruments with an issuer call with no interest step-up.

(Reference tables: Annex D, table 5)

<Participants view on 49>

We did not receive responses on this particular aspect.

</Participants view on 49>

<Analysts view on 49>

It is not characteristic in the Hungarian insurance market.

</Analysts view on 49>

¹ For the purpose of this question, please disregard any other features that may have changed the classification of capital instruments under QIS4.

50. What are your views on the outcome of this reporting date analysis? Please provide an overview of how the various options relate to the average duration of undertakings' insurance obligations.

<Participants view on 50>

N/A

</Participants view on 50>

<Analysts view on 50>

N/A

</Analysts view on 50>

51. For all hybrid capital instruments and subordinated liabilities classified in tiers 1, 2 or 3, please provide details of any Alternative Coupon Satisfaction Mechanism (**ACSM**) that is permitted under the terms of the instrument (from question QS.28).

<Participants view on 51>

N/A

</Participants view on 51>

<Analysts view on 51>

N/A

</Analysts view on 51>

52. Please provide a short summary description of the items qualified as "other hybrid capital" (Tab I.General) (from question QS.48).

<Participants view on 52>

N/A

</Participants view on 52>

<Analysts view on 52>

N/A

</Analysts view on 52>

53. Please summarise undertakings views on the Specification to classify an item **wholly in one tier** (instead of splitting the item into its capital and debt components) and, in case undertakings have a diverging view, describe the impact of splitting the item into the capital and debt components (from question QS.50).

<Participants view on 53>

Two medium sized companies rather favour not to split hybrid capital instruments into different tiers as this makes the whole system even more complex, rule based, and not enough objective.

</Participants view on 53>

<Analysts view on 53>

We support it only in that case, when the methodology is clear, and does not give opportunity to hide the reality and objectivity.

</Analysts view on 53>

8.3 Ancillary own funds items

54. Please provide an overview of the types of ancillary own funds reported, distinguishing between those reported in tier 2 and those reported in tier 3. For ancillary own funds reported in tier 2, please provide an overview of the reasons for inclusion in tier 2. (Reference tables: Annex D, table 6)

<Participants view on 54>

Hungarian insurance companies did not report ancillary own funds items.

</Participants view on 54>

<Analysts view on 54>

Hungarian insurance companies did not report ancillary own funds items.

</Analysts view on 54>

55. For all ancillary own fund items reported and not mentioned explicitly in Article 96 of the Framework Directive Proposal, please provide a summary description, distinguishing between tier 2 and tier 3, of (from question QS.25):
- the status of the counterparties;
 - the recoverability of the funds;
 - any outcome of past calls for ancillary own funds.
- Do you think that these aspects were appropriately taken into account in the valuation of ancillary own fund items (see next question)?

<Participants view on 55>

Hungarian insurance companies did not report ancillary own funds items.

</Participants view on 55>

<Analysts view on 55>

Hungarian insurance companies did not report ancillary own funds items.

</Analysts view on 55>

56. Please provide an overview of the valuation bases and valuation assumptions used for reporting **ancillary own fund items**, distinguishing between tier 2 and tier 3 items. Please indicate the percentage of ancillary own funds reported at nominal value. For ancillary own funds not reported at nominal value, please provide an overview of undertakings' explanation of not reporting at nominal value; and an indication of the adjustment undertakings have made to take account of non-recovery risk (from question QS.26).

<Participants view on 56>

Hungarian insurance companies did not report ancillary own funds items.

</Participants view on 56>

<Analysts view on 56>

Hungarian insurance companies did not report ancillary own funds items.

</Analysts view on 56>

57. Please summarise **mutual undertakings' views** on the classification of unbudgeted supplementary calls across tier 2 and 3 (40% of claims which can be called within the financial year can be classified as tier 2, whereas the remainder should be classified as tier 3) (from question QS.49); and a summary analysis of how this relates to the information provided by mutual undertakings on past calls (from question QS.27). Please elaborate on the classification and valuation of unbudgeted supplementary member calls as part of own funds and their views on this suggested classification (from question QS.51).

<Participants view on 57>

We did not receive responses on this particular aspect.

</Participants view on 57>

<Analysts view on 57>

In the Hungarian insurance market, the articles of association of the bigger mutual companies does not include the requirement of supplementary member calls.

</Analysts view on 57>

8.4 Group support

58. Please describe the amount of any 'group support' that firms have taken into account as part of own funds, and how this relates to the total amount of own funds for those solo firms, as well as how this relates to the minimum and maximum amount of 'group support' that could be taken into account (See TS.XVI.I.4 and Tabs I.General and Output Tab). See also question 144 in the Group section.

<Participants view on 58>

N/A

</Participants view on 58>

<Analysts view on 58>

N/A

</Analysts view on 58>

9. SCR standard formula

9.1 General comments on the SCR calculation, calibration issues

59. Please comment on the outcomes of the basic SCR calculations.
(Reference tables: Annex E, table 1,2)

<Participants view on 59>

One small non-life participant complained about the high risk charge and questioned whether the calibration properly reflected the 99.5% confidence level. It wondered whether it is the aim of the new regime to set higher barriers or to increase premiums.

</Participants view on 59>

<Analysts view on 59>

On the average, the amount of standard formula SCR calculated in QIS4 was twice the required solvency margin in Solvency I (199.4%).

The overall composition of the basic SCR (BSCR) per each risk module was the following:

▪ market risk:	52.7%
▪ counterparty default risk:	4.0%
▪ life underwriting risk:	23.5%
▪ health underwriting risk:	0.9%
▪ non-life underwriting risk:	51.6%
▪ diversification:	-32.6%

The overall composition of the standard formula SCR was the following:

▪ BSCR:	98.0%
▪ operational risk:	7.9%
▪ adjustment for profit sharing:	0%
▪ adjustment for deferred taxes:	-5.9%

</Analysts view on 59>

60. Please summarize the views of undertakings about the practicability, suitability and appropriateness of the QIS4 methodology and about the incentives for risk management (from Question QS.2(e) and QS.4(e)).

<Participants view on 60>

One participant noted that calculating the risk charge for each SCR module with and without allowing for the loss absorbency of future bonuses is very time-consuming.

Another participant expressed its view that

- the current modular structure of the SCR prevents the risk correlation factors between individual risks, across different SCR sub-groupings, from being transparent;
- some areas, in particular future profit sharing, non-life premium risk and catastrophe risk, would benefit from simplification;
- expected future profits arising from next year's non-life business should be recognised;
- companies should be allowed to use their own experience to set assumptions where there is sufficient and credible data.

</Participants view on 60>

<Analysts view on 60>

</Analysts view on 60>

61. Please summarise the **views of undertakings** as regards the **suitability of parameters for the SCR for the different sub risk modules** (market risk, counterparty default risk, life underwriting risk, health underwriting risk, non-life underwriting risk, operational risk, correlations between risk factors) (from question QS.5).
(Reference tables: Annex E, table 1 and 2)

<Participants view on 61>

Market risk: Some participants consider that prescribed scenarios with fixed parameters do not always adequately match reality; e.g. interest rate shocks can differ for each country and therefore the standard shock factors in QIS4 are not applicable for all markets. One participant missed the recognition of bond funds and of interest rate volatility and equity volatility risk in the QIS4 standard approach.

Counterparty default risk: Some respondents expressed the view that the parameters appear subjective. One participant considers that the calculation is very complicated and difficult compared to the small contribution to the risk charge. One participant noted that there is a double punishment for concentration risk through the Herfindahl-index.

Life underwriting risk: One participant expressed a view that the mass lapse scenario is overly punishing.

One participant noted that its internal model uses generally more conservative tests for mortality and expense risk. Another participant also noted that its internal model life catastrophe shock was higher than the QIS4 standard formula parameter (2 per mille instead of 1.5 per mille).

One participant expressed a view that the scenarios were appropriate.

Non-life underwriting risk: The largest non-life participants remained largely silent regarding the adequacy of the calibration. One small participant complained about the high risk charge and questioned whether the calibration properly reflected the 99.5% confidence level. Another small participant noted that its own standard deviation estimates would lead to a significantly lower risk charge. Participants welcomed the option to use entity-specific parameters. None of the participants did, however, actually replace market-wide factors with entity-specific ones.

Operational risk: A number of participants responded that the operational risk module is flawed as it is insufficiently risk sensitive. The 100% correlation factor with the BSCR was criticised, at the same time one participant expressed a view that the risk charge itself was too low. One participant however said that the factor-based calculation was appropriate.

Correlation factors: A recurring comment was that there should be diversification between operational risk and other risk modules. Some participants felt that the QIS4 correlations were more appropriate than those under QIS3. One participant mentioned that it used more conservative correlations in its internal model. This participant also noted that it uses a zero correlation between life underwriting risk and market risk, except for life contagion risk which is highly correlated with market risk.

</Participants view on 61>

<Analysts view on 61>

At this time, we do not yet have a final view about the appropriateness of the standard formula parameters for our market.

</Analysts view on 61>

62. Please explain whether you believe that the calibration of the different modules of the SCR, and in particular the **underwriting risk modules**, were appropriate for the particular characteristics of your market.

<Participants view on 62>

Regarding the underwriting risk modules in particular (see also question 61):

Life underwriting risk: One participant expressed a view that the mass lapse scenario is overly punishing. One participant noted that its internal model uses generally more conservative tests for mortality and expense risk. Another participant also noted that its internal model life catastrophe shock was higher than the QIS4 standard formula parameter (2 per mille instead of 1.5 per mille). One participant expressed a view that the scenarios were appropriate.

Non-life underwriting risk: The largest non-life participants remained largely silent regarding the adequacy of the calibration. One small participant complained about the high risk charge and questioned whether the calibration properly reflected the 99.5% confidence level. Another small participant noted that its own standard deviation estimates would lead to a significantly lower risk charge. One participant noted that method 1 for calculating non-life catastrophe risk can lead to grossly inaccurate result.

</Participants view on 62>

<Analysts view on 62>

At this time, we do not yet have a final view about the appropriateness of the standard formula parameters for our market.

</Analysts view on 62>

63. Are there any areas where you believe that the proposals tested in QIS4 for the SCR seem either to (i) **overstate** or (ii) **understate** the **level of risk**? Do you have any views about how the calibration of the different components of the SCR might be refined in the light of the results and the information obtained during QIS4 (FINREQ.16)? Do you think that these concerns could be adequately addressed by a change to some of the parameters? If not, how do you think that the QIS4 methodology could be refined to ensure that the true risk drivers are captured more appropriately?

<Participants view on 63>

Participants mentioned non-life premium and reserve risk and life lapse risk as potentially overstated risk charges.

On the other hand, from the responses it appears that some aspects of market risk might be not covered, and that method 2 for calculating non-life catastrophe risk may have been understated.

</Participants view on 63>

<Analysts view on 63>

At this time, we do not yet have a final view about the appropriateness of the standard formula parameters for our market. We would advise caution

before reducing the life lapse shock parameters as suggested by some participants.

</Analysts view on 63>

9.2 Adjustment for the loss-absorbing capacity of technical provisions and deferred taxes

64. With respect to the risk absorbing properties of future profit sharing (TS.VI.H):
- a. Please compare the results of the methodology applied in QIS4 with the results of the methodology applied in QIS3 (adequacy of the proposed design, practicability, quantitative impact); and please set out any views received on the suitability and practicability of the adjustment included in QIS4 for the effect of future profit sharing (from question QS. 4.e.i).
(Reference tables: Annex E, table 10)

<Participants view on 64a>

Some participants disagreed with separating the calculation of SCR into the components before and after profit sharing. They felt that the multiple parallel calculations under QIS4 are burdensome, have limited added value and may not properly reflect the non-linear nature of risks. Some of these participants said that they bypassed the gross risk charge calculations and proceeded directly to the net risk charges. One of these participants referred to the equivalent scenario in QIS4 as an appropriate method in this regard. However, none of the participants did actually use the QIS4 equivalent scenario method in its quantitative submission.

One participant commented that the profit sharing methodology was useful.

</Participants view on 64a>

<Analysts view on 64a>

It should be noted that the concept of liabilities for future discretionary bonuses is largely alien to existing Hungarian regulation and practice. Under existing rules, a minimum of 80% of surplus investment yield above guaranteed rates must be irreversibly allocated to policyholders. Contractual terms may in some cases stipulate even more stringent limits. Therefore, Hungarian life insurers have only limited discretion regarding the allocation of future bonuses. On the other hand, "policyholders' reasonable expectations" regarding future bonuses is also an alien concept in our jurisdiction.

Accordingly, most participants valued future discretionary benefits at zero or at a small amount, and reported no adjustment for future discretionary benefits. (One participant allocated a major part of its QIS4 life provisions to future discretionary bonuses, we however disregarded this particular result as unreliable.) Although some participants indicated their preference for the QIS4 equivalent scenario approach, they did not actually use this method to derive their SCR results on the Hungarian market.

We consider that adapting the adjustment for future discretionary bonuses to the specifics of Hungarian with-profits business will need further consideration. QIS4 results did not convince us that the equivalent scenario method was the most appropriate approach for this particular market. In our view, possible future treatment for the Hungarian market may include simplifications, or the classification of future discretionary bonuses as surplus funds.

</Analysts view on 64a>

- b. With respect to the loss absorbing capacity of **future profit sharing and deferred taxes** (TS.VIII.C8): please compare the outputs of the alternative method with the outputs of the standard method (adequacy of the proposed design, practicability, quantitative impact).
(Reference tables: Annex E, table 10)

<Participants view on 64b>

Regarding future profit sharing, some participants views indicate that they regard the equivalent scenario approach more appropriate and practicable than the standard approach. However, none of the participants did actually use the QIS4 equivalent scenario method for its quantitative submission.

As regards the adjustment for deferred taxes, it appears that the interpretation of this feature caused a difficulty for some participants. As noted above, reported figures were not entirely comparable, and they were not always in line with the technical specifications.

</Participants view on 64b>

<Analysts view on 64b>

No comparison of the standard and alternative methods is possible as the profit sharing adjustment was generally zero in the standard method, and the alternative method was not used.

</Analysts view on 64b>

65. Comment on the results of the new tested SCR benchmark (i.e. the lower boundary SCR).
(Reference tables: Annex E, table 10)

<Participants view on 65>

There was no feedback of substance regarding the "lower boundary SCR".

</Participants view on 65>

<Analysts view on 65>

There was no feedback of substance regarding the "lower boundary SCR". This can be attributed to the fact that in Hungary insurers have only limited discretion regarding future bonuses, and that "policyholders' reasonable expectations" is an alien concept in our jurisdiction.

</Analysts view on 65>

66. For undertakings that have applied the net approach within the alternative method for calculating the loss absorbency in respect of profit sharing instead of the gross approach, please explain this choice (from question QS.36).

<Participants view on 66>

Although some participants indicated their preference for the equivalent scenario approach, they did not actually use this method in their quantitative submission.

</Participants view on 66>

<Analysts view on 66>

</Analysts view on 66>

67. *Would a simplification for the calculation of the net SCR be needed (FINREQ.12)?*

<Participants view on 67>

Their were no responses on this particular aspects.

</Participants view on 67>

<Analysts view on 67>

In our view, the possibility of appropriate simplifications should be further examined.

</Analysts view on 67>

9.3 SCR Risk Mitigation

68. For **risk mitigation**, please describe:

- the views of undertakings on the appropriateness of the principles for risk mitigation in the context of a standard formula calculation of the SCR (from question QS.33).

- the need for the imposition of liquidity requirements, especially regarding long-term financial risk mitigation instruments (from question QS.35)

<Participants view on 68>

A number of participants agree with principle 1 which effectively requires them to recognise the economic substance of a risk mitigated over its legal form, but do not believe that liquidity to be a key issue for insurance risk mitigation (principle 3), this principle has more relevance in a banking context.

Two of participants resounded the view of CRO forum: "It is not clear how more sophisticated risk mitigation tools would work in the context of these principles."

Two participants note that liquidity is recognised in the directive as one of the risks that insurers should cover through risk management (article 43(2)(d)) rather than capital. They would expect that as part of assessing the effectiveness of the risk mitigation instruments (principle 2) insurers would consider matching the liabilities and any embedded option. The recognition of risk mitigation and the extent to which there is a reduction in the SCR should depend on the quality of the matching, rather than "yes" / "no" answer. The firm's consideration of the matching provided by the specific risk mitigation instrument should also be covered by Pillar 2 review.

</Participants view on 68>

<Analysts view on 68>

</Analysts view on 68>

69. In the case that undertakings have taken account of risk mitigation instruments for the calculation of the QIS4 standard formula SCR which **do not fulfil the principles** included in the specification, and where such mitigating instruments have a significant impact on the SCR, please indicate which of the principles were violated, and give an estimation of the impact of these instruments on the calculated SCR (from question QS.34).

<Participants view on 69>

Some insurer mentioned that the scope of application is unclear, so they may violated it. For example, consider a dynamic hedge program: Hedge effectiveness is a "statistical" feature that can be measured historically but not predicted with absolute certainty.

</Participants view on 69>

9.4 Market risk

70. Please comment on the outcomes of the market risk module, including undertakings' views on this module and its sub-modules and the suitability of the proposed calibration.

Mostly medium-sized undertakings commented on the calculation of each risk module. It is easy to observe that for certain elements of risk factors (e.g. bond yield curve) insurers in Hungary use more sophisticated approaches for stress testing in their internal model, for other risk types they generally use the same approach but with different input factors (e.g. the stress factor used is different).

The use of sophisticated calculations is apparent in the interest rate risk and credit risk management, while property and currency risks are tested with an approach similar to the one in QIS4.

Most of the respondents noted that the interest rate stress testing under the QIS4 is not appropriate/sufficient. Some of them think that interest rate risk can be different per country and that the universal curve shock factors in QIS4 are not applicable for all economies.

As for the credit risk management, one of the largest participants uses a more detailed split, containing several sub-classes by product and charges based on rating and duration. Another medium-sized insurer makes explicit and separate allowance for credit spread risk (the movement of the yield curve relative to the risk free term structure) and credit default risk. This approach allows for the different treatment of secured and unsecured exposures – the QIS4 treatment is similar for secured and unsecured exposures. However, the overall aggregate of the two tests is more conservative compared to the QIS4 non-structured product spread test.

One insurer observed that concentration risk is usually managed within counterparty default risk in the internal models and therefore the separate calculation of capital charge is not really needed. It added that no charge should be applied for internal reinsurance transactions within a group. Moving risk within a group does not increase the risk in the group. As the SCR should be risk based, it would not be appropriate to increase the sum of solo SCRs while the total risk in the group does not increase.

Participants observed some missing elements in the market risk module that could have enhanced the reliability of the calculations:

- The risk of interest rate volatility and equity volatility is not captured in the QIS4 standard approach. Especially for insurance companies with embedded options in their liabilities, the negligence of these risks significantly underestimates the solvency capital required. As entities are explicitly required to include the value of these embedded options in their provisions (both under the new Solvency II Framework and IFRS Phase 2), there is no reason to leave these market risks out of the standard approach. Leaving these risks out of the standard approach does not give the right incentives for good risk management.
- The recognition of bond funds is not properly addressed in the QIS4 standard approach. In many unit linked or variable products, the underlying investments include significant amount of bond funds to which equity shock certainly does not apply. A combination of interest rate risk, credit spread risk, and default risk stress test would be more appropriate. A new category should be added for the recognition of bond funds.

</Participants view on 70>

<Analysts view on 70>

The overall composition of the SCR market risk module was the following:

▪ interest rate risk:	81.5%
▪ equity risk:	36.8%
▪ property risk:	2.9%
▪ spread risk:	0.6%
▪ currency risk:	2.8%
▪ market risk concentration:	3.4%
▪ diversification:	-28.1%

In general, market risk module contributed much to the level of SCR, especially in life branch. It is apparent that capital charge for market risk accounts for approximately 50% of BSCR. More precisely, the capital charge for interest rate risk accounts for the vast majority (80%) of the capital charge for market risk, with the exception of a few insurers. It is important to mention that the standard deviation of the results is relatively high and that no clear distinction can be made by the size of the undertaking.

Hungarian insurers typically hold limited equity investments. Nonetheless, due to the high risk factors, the equity risk sub-module had a non-negligible effect on the SCR outcome (an average of 19.4% of the diversified BSCR).

</Analysts view on 70>

71. Please compare the outputs of the **different equity risk approaches** tested in QIS4 (adequacy of the proposed design, practicability, quantitative impact). Please set out any views received on the suitability and practicability of the various equity risk options (from question QS. 4.e.ii and QS.V.a, FINREQ.22)
(*Reference tables: Annex E, table 7*)

<Participants view on 71>

Participants highlighted the drawbacks of the equity risk approaches from different aspects.

One participant (a small insurer) had a general opinion, namely that predetermined scenarios with fixed parameters do not adequately describe reality and this applies to equity risk approach in QIS4 as well.

One insurer observed that its internal model shock used for global stock is different from the one calibrated for QIS 4 (32%).

Another medium-sized insurer noted that the treatment of equity risk is largely in line with its internal model stress scenarios. However, it does use a more detailed split in its internal model to assess capital requirements more accurately.

The “dampener” approach for equity risk was not welcomed by the participants. Only 3 participants (1 medium sized and 2 small insurers) provided input for the calculation of the equity dampener option. Some of the largest participants in Hungary revealed their reservations about the equity dampener option as well.

A medium-sized insurer commented that for equity risk it does not use a dampener in its internal model. The reason is that it not useful to build it into the quantitative models as this is a significant risk that must be managed. However, not only models are needed to manage risk and capital, but common sense and a good understanding of the current environment is also important.

Another large participant was of the opinion that that alternative equity risk approaches, such as the “dampener”, are not consistent with the rest of the standard SCR framework.

Another medium-sized insurer stressed that within its framework it intends to hold capital for a one-year 99.5 percentile event. By including mean reversion in the calculation of capital for equity risk the possible 99.5 percentile losses that could occur in a one-year period are underestimated. It also argued that the use of mean reversion is more in line with modelling losses over a long horizon (e.g. 50 years), where a company is allowed to be insolvent for several years along the projection as long as at the end of the projection period all outgoing liability cash flows have been fulfilled. However, it is convinced that a company, within its framework, should remain economically solvent at every point in time and thus mean reversion will give an underestimation of the capital required.

One insurer noted that it is concerned about the different treatment of equity risk from other types of asset risk in the standard SCR calculations even if the *so-called duration approach* was not an equity risk calculation option in QIS4. The *duration approach* takes inappropriate account of the one year risk of equity investments by tagging equities with a liability-based holding period as it would be a departure from the principle of market consistent valuations and the one year 'Value at Risk' horizon of the solvency framework. This potential departure would mean that the one year solvency test would include elements that extend beyond the one year horizon. It would additionally complicate the recognition of management actions built into participating insurance contracts such as changes in bonuses.

A medium-sized insurer also has concerns that a different treatment of equities could result in an inappropriate disincentive to invest in volatile assets. The insurer does not support the different treatment of equities because:

- It is inconsistent with a one year solvency test by adding in a multi-year view.
- It complicates the recognition of risk mitigation built into profit sharing life insurance contracts.
- It could also ultimately work against policyholders' interests by undermining the security backing their policies for the following reasons.
- Equities have higher risk in terms of market value changes over a year than do high credit quality bond portfolios.
- "Tagging" equities with a liability-based holding period may create a disincentive for some firms to manage their equity positions actively.

- In addition, this may create an incentive for firms to potentially underwrite, under-capitalize and, therefore, under-price long term casualty, pension or other business.

The importance of appropriate and consistent calibration of asset risk charges (including those for equities), which allow for diversification across asset classes and other risks should also be stressed.

A small insurer mentioned that risk management should only consider events in the future, adding that e.g.: stock prices are definitely Markov processes.

</Participants view on 71>

<Analysts view on 71>

The equity risk dampener formula (as an alternative for the "global" market equity risk component) impacted on the capital charge for equity risk by less than 10% (however, it is important to mention that only 3 insurers provided input for the calculation of the equity dampener option). Through the diversification effect between different risk (sub-)modules, the 10% difference has vanished: on the average, the basic solvency capital required (BSCR) including the "dampener" effect was only 1% less than the one without the dampener effect.

</Analysts view on 71>

72. For **participations** (Annex SCR1), please compare the outputs of the different approaches tested in QIS4 (adequacy of the proposed design, practicability, quantitative impact).
(Reference tables: Annex E, table 7)

<Participants view on 72>

Participants did not comment directly on the approaches ("differentiated equity stress, "across the board", "look-through") tested for participations.

A medium-sized insurer reported that for the capital charge for participations its parent group prefers to "look through" to the risks where possible. It also noted that this "look through" approach does not seem to be allowed for Solvency II.

</Participants view on 72>

<Analysts view on 72>

In Hungary, the volume of participations is negligible. One reason for that is that Hungary is a typical host country and only few subsidiaries (mostly medium-sized insurers belonging to a group) hold participations in other subsidiaries.

Furthermore, as it can be learned from the results of the different approaches tested for participations, the different options did not have a strong impact on the level of SCR. Some insurers reporting participations (investments in affiliated and participating interests) in the Solvency I balance sheet set the value of those participations to zero in the QIS4 balance sheet.

</Analysts view on 72>

73. Please describe the views of undertakings about the suitability and practicability of the suggestion that the supervisory intervention following a breach of the SCR should depend on the overall risk situation of the company (from question QS.12).

<Participants view on 73>

Some of the largest participants jointly commented that this question must refer to a letter from the CRO Forum.

They are all members of the CRO Forum and are thus convinced the approach suggested is suitable and practical. One of them also added that any supervisory intervention should also take into account procyclicality, not only the capital charge itself, and that no risk category should be privileged in this respect.

One of the medium-sized insurers fully supports this approach. It acknowledges that it is suitable for such actions within a coherent framework.

A medium-sized insurer is aware of the potential danger of pro-cyclical behaviour, but believes that this will depend on how the SCR/MCR framework and the appropriate ladder of intervention are specifically designed to deal with such issues. Therefore there is a need for explicit guidelines on regulatory intervention in the directive, which requires intervention based on the overall risk situation of the company and specifically takes the duration of the liabilities into account. The insurer thinks that it would be an effective way to tackle pro-cyclical behaviour and avoid "forced sales" when policyholder protection is not threatened.

Another medium-sized insurer noted that there is always of chance of a large financial distress situation that will make it difficult for a majority of insurance companies to meet the SCR. For this reason, the ladder of intervention between the SCR and the MCR should be sufficiently large.

It is important that supervisors have a common understanding on what circumstances constitute a financial distress situation and how it affects

their use of supervisory tools. It is important that in financial distress situations level playing field between insurers is sustained.

It also listed some issues that should be taken into account when defining harmonized supervision in financial stress situations:

- The liquidity level of an insurance company becomes more important than to what extent an insurance company is not complying with the SCR. The maturity of liabilities and also the transferability of assets should be taken into account. A company with long-term illiquid liabilities should be allowed to get closer to the MCR and should receive more time to recover than a company with more chances of liquidity problems.

The insurer also summarized its recommendations to reduce the procyclicality of Solvency II.

- Introduce an EU level harmonized flexible supervisory intervention system for financial distress situations whereby the focus is on retaining liquidity and the level of technical provisions (instead of the SCR).
- Introduce a decision-making process for CEIOPS to define financial distress situations in order to keep the level playing field.

They also think that there are appropriate mechanisms in the draft directive to deal with non-compliance with SCR in “idiosyncratic” situations (Article 136).

Several medium-sized insurers mentioned that appropriate flexibility is needed to deal with situations where there is a generalised non-compliance with the SCR. The directive or the implementing measures should allow a longer period to restore compliance with the SCR in these circumstances. For example, the recovery period in article 136 could be doubled to 1 year and the deadline for submission of a recovery plan could also be doubled to four months.

One was of the opinion that supervisory intervention following a breach of the SCR assumes regular dialogue between the supervisor and the firm. Therefore, clear articulation of the management actions in place are needed to mitigate the risk. A small insurer noted that the supervision of asset management by the authorities might be a solution.

Some of the largest insurers think that while flexibility is allowed, the undertaking may demonstrate its ability to rebuild capital through:

- description of internal and/or external measures that can be taken;

- evidence of the company's ability to execute each action;
- expression by the Board of the level of confidence it has in the company's ability to execute each action.

Evidence might include, for example:

- stock market listing, and advice from financial advisers as to the amount of equity capital that could be raised;
- regular access to capital markets in recent years by the company, and current availability of those markets to insurers of a similar credit quality;
- plans for internal capital restructuring or transfer of assets or risks within the group;
- evidence of the ability to reinsure risks;
- evidence of market capacity for certain asset disposals or derivative protection.

</Participants view on 73>

<Analysts view on 73>

</Analysts view on 73>

9.5 Life underwriting risk

74. Please comment on the outcomes of the life underwriting module, including undertakings' views on this module and its sub-modules and the suitability of the proposed calibration.

<Participants view on 74>

One participant suggested that the lapse and expense risk sub-modules should not be treated as part of life underwriting risk, rather, they should be categorised as separate risks. This participant also suggested grouping the disability risk sub-module with health underwriting risk instead of life underwriting risk. Furthermore, it suggested splitting both mortality and longevity risk into trend and level uncertainty components.

One participant expressed a view that the mass lapse scenario is overly punishing. It also noted that the surrender strain may be quite volatile as the market consistent value of liabilities may change significantly from one year to another due to the changing market environment.

One participant noted that its internal model uses further sub-module splits and generally more conservative tests for mortality and expense risk.

Another participant also noted that its internal model life catastrophe shock was higher than the QIS4 standard formula parameter (2 per mille instead of 1.5 per mille).

One participant expressed a view that the scenarios were appropriate.

</Participants view on 74>

<Analysts view on 74>

The overall composition of the SCR life underwriting risk module was the following:

▪ mortality risk:	5.7%
▪ longevity risk:	0.2%
▪ disability risk:	6.2%
▪ lapse risk:	30.4%
▪ expense risk:	13.3%
▪ revision risk:	0.6%
▪ life catastrophe risk:	5.7%
▪ diversification:	-38.0%

At this time, we do not yet have a final view about the appropriateness of the standard formula parameters for our market. We would advise caution before reducing the life lapse shock parameters as suggested by some participants.

</Analysts view on 74>

75. *With respect to future premiums, are any other adjustments required to the SCR to reflect a 99.5% confidence level? How would this impact the definition for lapse risk (FINREQ.15) and/or the calibration of the lapse risk shock?*

<Participants view on 75>

We did not receive responses on this particular aspect.

</Participants view on 75>

<Analysts view on 75>

At this time, we do not yet have a final view about this questions.

</Analysts view on 75>

76. Please explain the approach used by undertakings to **bundle or unbundle** contracts for the purpose of assessing the mortality risk component of the SCR, and explain the reason for the approach that is adopted (from question QS.53).

<Participants view on 76>

Undertakings have chosen option 1 as the death and survival benefits are contingent on the life of the same insured person(s) in their contracts. It means that they did not unbundle their contracts.

</Participants view on 76>

<Analysts view on 76>

</Analysts view on 76>

9.6 Non-life underwriting risk

77. Please comment on the outcomes of the non-life underwriting module, including undertakings' views on this module and its sub-modules and the suitability of the proposed calibration.

<Participants view on 77>

Participants submitted only a few comments regarding the non-life underwriting risk module. The largest non-life participants remained largely silent on this question.

One small non-life participant complained about the high risk charge and questioned whether the calibration properly reflected the 99.5% confidence level. It wondered whether it is the aim of the new regime to set higher barriers or to increase premiums. Another small participant noted that its own standard deviation estimates would lead to a significantly lower risk charge.

Participants welcomed the option to use entity-specific parameters. None of the participants did, however, actually replace market-wide factors with entity-specific ones: they considered that the limited length of the time series available to them would not allow a reliable estimate.

One participant, a small life insurer, commented at length on the non-life underwriting risk module, reflecting its parent group's views. It argued that

- expected future non-life profits and losses should be recognised;
- the calibration should reflect the characteristics of different country markets;
- the current approach does not fully recognise diversification between lines of business.

One participant criticised the standardised method 1 for calculating non-life catastrophe risk for not properly reflecting reinsurance coverage.

Non-life underwriting risk is a major risk module that had a dominant impact on the standard formula results (51.6% of the total BSCR, 64.3% for composite participants and 92.0% for non-life participants).

The overall composition of the SCR non-life underwriting risk module was the following:

▪ premium and reserve risk:	77.8%
▪ non-life catastrophe risk:	40.7%
▪ diversification:	-18.6%

Premium and reserve risk contributed the dominant part of non-life underwriting risk. At this time, we do not have a final view about the adequacy of the calibration of this module. Some of the small participants noted that the calibration appeared high in their view, while the larger players remained largely silent on this issue. We however note that in the leading lines of business (Motor liability; Motor other classes; Fire and other damage to property) undertaking-specific standard deviations appeared lower (sometimes significantly) than the fixed QIS4 parameters.

The adequacy of the calibration is difficult to judge as the Hungarian private insurance market is relative young, which limits the length of available time series. Accordingly, none of the participants could replace market-wide factors with entity-specific ones. For the same reason, the use of credibility-weighted personalised factors was sometimes limited by the required minimum length of time series.

Catastrophe risk also had a major contribution to the non-life underwriting risk charge. The three different methodologies for calculating this sub-module (standard, regional, internal) did not seem to converge. Most participants used the method 2 regional scenarios provided by the supervisor, it is however admitted that this method would need further improvement. Some participants used method 3 internal approaches.

78. What is participants' feed-back as regards the approach to geographical diversification presented in the QIS4 specifications? What is the impact of geographical diversification on undertakings' risk profile/SCR? Please provide a description and quantification of **alternative approaches to measuring geographical diversification** for the purpose of the non-life premium and reserve risk calculations (from question QS.37).
(Reference tables: Annex E, table 8a)

<Participants view on 78>

Geographical diversification had no effect on Hungarian QIS4 results.

</Participants view on 78>

<Analysts view on 78>

Geographical diversification had no effect on Hungarian QIS4 results.

</Analysts view on 78>

79. *Could the approach for measuring geographical diversification for non-life premium and reserve risk calculations be extended to life risks (FINREQ.8)?*

<Participants view on 79>

N/A

</Participants view on 79>

<Analysts view on 79>

N/A

</Analysts view on 79>

80. For undertakings that account for non-life insurance business on an underwriting year basis, please summarise the comments of undertakings on any difficulties encountered with the specification for the assessment of provisions and the calculation of the SCR component in respect of underwriting risk (from question QS.55).

<Participants view on 80>

N/A

</Participants view on 80>

<Analysts view on 80>

N/A

</Analysts view on 80>

81. Please elaborate on the specification and selection of any **personalised catastrophe scenarios** used. Please summarise the views on method 1 and 3 (from question QS.38).

<Participants view on 81>

One participant used the maximum retained claim cost relating to a single large claim event above the present XL priority according to the reinsurance programme.

Another participant considered empirical catastrophe events for each line of business, then aggregated the results assuming zero correlations.

Another participant is cooperating with academic researchers in building models for flood, earthquake and windstorm risks. This model was used in the internal model calculation in QIS4. As the study is still in progress and is not yet approved by the management, this participant used method 2 in the standard formula. In the view of this participant, its internal method reflects risk better than pre-specified scenarios.

</Participants view on 81>

<Analysts view on 81>

Only one participant used personalised catastrophe scenarios, and another participant reported that it used personalised catastrophe scenarios only in its internal model.

</Analysts view on 81>

82. *How is method 2 for the calculation of catastrophe risk (regional scenarios) applied in different lines of business (FINREQ.13)?*

<Participants view on 82>

Most participants used the method 2 regional market loss approach provided by the supervisory.

</Participants view on 82>

<Analysts view on 82>

The supervisor provided a method 2 regional market loss approach for earthquake, flood and windstorm risks. The regional scenarios covered only one line of business (Fire and other damage to property). The method 2 approach used gross written premiums as a volume measure; net exposures were calculated according to individual reinsurance programmes. We admit that our method 2 approach has been developed under heavy resource constraints and database limitations, therefore this approach would need further improvement.

Quantitative comparison of non-life catastrophe risk alternatives:

On the average the method 2 charge was 41.1% of the method 1 charge, or 58.6% of the method 1 charge restricted to Fire and other damage to property.

One participant submitted an internal model result covering the same risks as the method 2 approach (earthquake, flood and windstorm): in this case the internal model result was nearly 25 times higher than the method 2 result.

</Analysts view on 82>

9.7 Health underwriting risk

83. *Please elaborate your view of the treatment of health business proposed in QIS4. Please state if this reflects a material improvement to the approach used in QIS3. Do you have any suggestions to improve this module (FINREQ.1)?*

<Participants view on 83>

Companies mostly did not have any comment on this module, because it is not a characteristic business segment in our insurance market.

One company mentioned that according to their view, disability is part of life risk. They believe it to be more appropriate to make one risk group: morbidity risk, containing health and disability.

</Participants view on 83>

<Analysts view on 83>

Being not a characteristic business segment in the Hungarian insurance market, we do not have market experience about health underwriting risk. But indeed it is a good idea, to assess separately the short and the long term products. The short term is very similar to non-life insurance, and the long term health insurance to life insurance (pricing, provisioning, risk assessment).

</Analysts view on 83>

84. *Please comment on the outcomes of the health module, including undertakings' views on this module and its sub-modules and the suitability of the proposed calibration.*

<Participants view on 84>

See point 83.

</Participants view on 84>

<Analysts view on 84>

According to the outcomes of this module, the results shows, that it is not a significant business segment in Hungary. In case of composite companies (8 companies) the weighted average of health module in the composition of BSCR amounted to 1.1% with 0.9% standard deviation. The same data in case of non-life companies (3 companies): the weighted average was 2.6% and the standard deviation 5.6%. This module gives the lowest proportion of the BSCR in case of composite companies.

</Analysts view on 84>

9.8 Counterparty default risk

85. Please elaborate your view of the treatment of counterparty default risk proposed in QIS4. Please state if this reflects a material improvement to the approach used in QIS3. Do you have any suggestions to improve this module?

<Participants view on 85>

We did not receive responses on this particular aspect.

</Participants view on 85>

<Analysts view on 85>

In the QIS4 specification the main steps are the same, as in the QIS3. The RC (recovery cost) had changed to LGD (loss given default), which is welcomed, it is a BaselII terminology.

The calculation of LGD a little more complex compared to RC.

The calculation itself makes difference between a group member and an outsider, which is a rationale improving. (We do not agree with a respondent (see. 86.), which says, that in case of intragroup (internal) reinsurance no charge should be applied for transactions regarding internal reinsurance.

It is a good improving, that this module in QIS4 tries to cover much more risks, than did in the QIS3 (securitisation, receivables from intermediaries).

One of the weakest points of the calculation is that we have to consider only the 50% of the LGD. It seems to be very subjective.

</Analysts view on 85>

86. General comments on the counterparty default risk module and its sub-modules (undertakings' views as in question 61, and calibration aspects as in question 62)

<Participants view on 86>

According to the views of the companies:

Counterparty default risk module includes a complicated difficult and time consuming calculation compared to the small risk contribution of this type of risk. Regulators should keep in mind that the calculation of a standard model should be simple and not too complex.

For reinsurance, the parameters seem to be subjective (50% measure). Also, there is a double punishment for concentration risk through the Herfindahl-index.

Non-proportional (especially XL) reinsurance is not properly taken into account. Calibration makes no difference between for e.g. A- and A+ rating, unless there is a big difference between an A- and A+ rated company.

One opinion sad, that there are too big steps between rating categories.

One company`s internal model uses a total-return approach for counterparty default risk for risk mitigating contracts as reinsurance and financial derivatives.

No charge should be applied for transactions regarding internal reinsurance within a Group. Moving risk within a Group does not increase the risk in the group. As the SCR should be risk based, it would not be appropriate to increase the sum of solo SCRs while the total risk in the Group does not increase.

</Participants view on 86>

<Analysts view on 86>

According to the outcomes of this module, the results shows, that it is not a significant risk module in Hungary. In case of composite companies (8 companies) the weighted average of counterparty risk module in the composition of BSCR amounted to 4.8% with 5.8% standard deviation (not very stable). The same data in case of non-life companies (3 companies): the weighted average was 0.5% and the standard deviation 0.7% in case of life companies (4 companies): the weighted average was 1.3% and the standard deviation 1.4%. This module gives the second lowest proportion of the BSCR in case of composite companies.

Regarding the suggestion that intra-group reinsurance should be exempt from the risk charge, our view is that in the context of the solo level SCR this comment is misplaced. The SCR of a solo entity should reflect the risk on a legal entity basis; furthermore we believe that intra-group reinsurance does involve counterparty risk.

</Analysts view on 86>

87. *In your view, does the default risk module review all risks appropriately? Consider for instance the impact of guarantees and facilities, the risk factors for financial and reinsurance default risk (FINREQ.19-20).*

<Participants view on 87>

One company mentioned that the counterparty default module should cover the default and rating migration risks on all assets, and that the credit spread module should cover the risk that spreads move within the given rating.

</Participants view on 87>

<Analysts view on 87>

</Analysts view on 87>

88. What is participants' feed-back as regards the treatment of non-rated debtors? What impact does the capital charge with respect non-rated debtors have on the overall SCR?

<Participants view on 88>

We did not receive responses on this particular aspect.

</Participants view on 88>

<Analysts view on 88>

We do not have this information, because the result of counterparty default risk is an input data in the (I. Scenarios) spreadsheet, and there is no data about non-rated debtors.

</Analysts view on 88>

9.9 Use of Own Undertaking Data

89. Please summarise **undertakings' views** on:

- the proposed standardised methods for calculating the premium and reserve risk component in respect of underwriting risk (from question QS.4.e.iii, QS.29);
- any differences between undertaking-specific parameters and the standard parameters (from question QS.30);
- how they would justify that the data used meet the completeness, accuracy and appropriateness requirements (from question QS.31);
- the rationale for any potential alternative standardised methods for the use of own undertaking data, and the impact on the undertaking-specific parameters for the life underwriting and long-term health underwriting modules (from question QS.32).

<Participants view on 89>

General comments: In general, responses were supportive of the option to use undertaking-specific parameters. Respondents expressed the view that the use of entity-specific data would give a better reflection of the underlying risk, in particular for non-life underwriting risk. Participants felt

that companies should be allowed to use their own experience to set assumptions where there are sufficient and credible data. In their view, this would allow capital requirements to more accurately capture risk exposures and risk mitigation schemes.

Entity-specific parameters in non-life underwriting risk: None of the participants did replace market-wide factors with entity-specific ones (credibility-weighted averages under the standard non-life premium and reserve risk approach were however widely used). There were no specific comments on the QIS4 standardised method to derive entity-specific standard deviation parameters for non-life premium and reserve risk.

One small participant noted that its own estimated standard deviation in the non-life premium and reserve risk sub-module would have led to a significantly lower risk charge, improving the participant's solvency position by 247%.

Justification of completeness, accuracy and appropriateness of data: Some participants indicated that the use of audited data for external reporting or the use of internal model data could be justified. However, from the quantitative submissions it appeared that none of the participants felt it justified to use an undertaking-specific parameter derived from currently available data.

Entity-specific parameters in life and health underwriting risk: One participant mentioned that it is working at a national and a European level on estimating future mortality. This participant noted that Groupe Consultatif could assist and coordinate this project, and also advised joint research by the industry.

</Participants view on 89>

<Analysts view on 89>

Although participants welcomed the option to use entity-specific parameters, none of them did, however, actually replace market-wide factors with entity-specific ones. Participants apparently considered that the limited time series available to them would not allow a reliable estimate.

We appreciate that participants did not rush to give 100% credibility to undertaking-specific estimates on the basis of whatever data presently available. We note that the option to use undertaking-specific parameters in the standard formula has a potential for cherry-picking incentives. Therefore we consider that the criteria for justifying the completeness, accuracy and appropriateness of the underlying data would need careful consideration. Furthermore we consider that, unlike in QIS4, undertaking-

specific parameters in non-life underwriting risk should not be based on an unbiased estimate of the standard deviation: rather, they should include an allowance for estimation error (decreasing with the length of time series).

We have reservations about extending the scope of undertaking-specific parameters to the life and long-term health underwriting risk modules of the standard formula.

</Analysts view on 89>

90. For undertaking-specific parameters for non-life business including Accident & Health short-term and Workers' Compensation underwriting risk, please describe per LOB the extent to which undertakings have been able to calculate **their own estimate** of the standard deviation for premium and reserve risk, and the length of the time series used (from question QS.54).
(Reference tables Annex E, table 4)

<Participants view on 90>

We did not receive responses on this particular aspect.

</Participants view on 90>

<Analysts view on 90>

Entity-specific premium risk standard deviations were automatically calculated in the reporting spreadsheets. Regarding reserve risk standard deviations, 3 participants calculated their own estimates. The latter were based on 4-5 year to 7-8 year-long time series.

None of the participants opted to replace market-wide factors with entity-specific ones. Credibility-weighted averages under the standard non-life premium and reserve risk approach were however widely used.

</Analysts view on 90>

91. *Which, if any, parameters in the standard formula have undertakings replaced with entity-specific parameters for the calculation of the life, non-life and health risk modules (FINREQ.10)?*

<Participants view on 91>

No participant reported replacing standard parameters with undertaking-specific ones.

</Participants view on 91>

<Analysts view on 91>

No participant reported replacing standard parameters with undertaking-specific ones.

</Analysts view on 91>

92. Please summarise the effect on the level of the SCR for non-life underwriting risk of including own estimates of the standard deviation for premium and reserve risk in place of market standard parameters (assuming no credibility weights were applied).
(Reference tables: Annex E, table 5)

<Participants view on 92>

One small participant noted that its own estimated standard deviation in the non-life premium and reserve risk sub-module would have led to a significantly lower risk charge, improving the participant's solvency position by 247%.

</Participants view on 92>

<Analysts view on 92>

Regarding **premium risk standard deviations**, in the leading lines of business (Motor liability; Motor other classes; Fire and other damage to property), participants' own estimated standard deviations were typically lower (sometimes significantly) than the fixed QIS4 parameters. In other lines of business the differences were less marked. The highest undertaking-specific estimates were observed in the Marine, aviation, transport and Miscellaneous lines of business.

Regarding **reserve risk standard deviations**, 3 participants provided their own estimates, but none of them opted to replace standard parameters. In one of these cases, the use of entity-specific estimates would have led to a slight drop in the non-life underwriting risk charge. In the other two cases, the use of entity-specific estimates would have led to a huge drop in the risk charge.

</Analysts view on 92>

93. Please describe your views on the suitability and practicability of possible approaches of incorporating own firm estimates for the premium and reserve risk for non-life underwriting risk, including the number of years business for which data would be needed, and the associated credibility weights that could sensibly be applied.

<Participants view on 93>

We did not receive responses on this particular aspect.

</Participants view on 93>

<Analysts view on 93>

We do not have a final view about the required minimum length of the time series in the calculations or about the appropriate credibility weights.

Regarding the replacement of the standard parameters by fully entity-specific estimates, we consider that cherry-picking incentives should be avoided. Therefore the criteria for justifying the completeness, accuracy and appropriateness of the underlying data would need careful consideration. Furthermore we consider that, unlike in QIS4, undertaking-specific parameters in non-life underwriting risk should not be based on an unbiased estimate of the standard deviation: rather, they should include an allowance for estimation error (decreasing with the length of time series).

</Analysts view on 93>

9.10 Operational Risk

(Reference tables Annex F)

94. Please describe (adequacy of the proposed design, practicability, quantitative impact) the **results of the operational risk approach** tested for QIS4 and compare these with QIS3.

<Participants view on 94>

For participants' view, see down under at question 95.

</Participants view on 94>

<Analysts view on 94>

The **quantitative results** of the operational risk capital charge show that in the composition of SCR the operational risk amounted to 7,4% (considering all the companies). In the QIS3 studies this capital charge amounted to 8,7% in composition of BSCR.

As for the qualitative part, it can be assumed that medium-sized insurers with strong group relations have more developed operational risk management systems than small-sized insurers. However, some medium-sized insurers only plan to set up such systems in the near future. The deliberate collection of operational risk events (including near misses) has started only recently, although there are already a few examples where operational risk events are collected at group or world level.

For more details, see the answers to the questions in this chapter.

</Analysts view on 94>

95. What are the views of undertakings on the operational risk capital charge in the standard formula, as calculated in QIS4 (from question ORQ.13)?

<Participants view on 95>

The design and calibration of the the operational risk capital charge of the standard formula proved to be controversial in the light of the answers to this question.

One half (a weak majority) of the respondents criticised the calculation approach of the operational risk capital (ORC) charge. The critics about the calculation method:

- The formula is not enough risk sensitive
- The formula is not consider the company's own risk management processes (e.g. high level risk management as SOX compliant controls
- There is no recognition of diversification benefits as the operational risk charge of the standard formula assumes 100% correlation with other risks

The other half of the respondents agreed with the calculation method, though remarked that extrapolating required capital figures for operational risk on the basis of past loss events is probably not the best solution to assess prospective risks. One participant indicated that any event that generated a loss in the past should have triggered a management action to mitigate the risk, therefore past losses are useful only to assess the gross exposures and not the actual net ones. One mid-sized insurer remarked that operational risk can hardly be analysed by quantitative methods in mid-sized companies therefore there is no other option than to calculate operational risk capital charge according to the QIS4 specification.

</Participants view on 95>

<Analysts view on 95>

</Analysts view on 95>

96. Please summarise any views of firms about how the design and calibration of the operational risk capital charge could be improved.

<Participants view on 96>

The respondents suggested only high level principles:

- Diversification benefits should be recognised.
- The management actions, and high level risk management should be taken into account
- One participant suggested an LDA (Loss Distribution Approach) for the calculation of operational risk capital charge (from Basel II).

</Participants view on 96>

97. Please provide a brief **description of the operational risk management system** in use by the undertakings in your country. If possible, distinguish by size of the undertaking. In your answer, please consider (from question ORQ.8):
- the capture of operational risk events and near misses in day-to-day management+
 - the quantification and administration/recordkeeping (including length of historical records) of operational risk events and near losses+
 - the methodology for the quantification of operational risk, both in respect of size and likelihood+
 - the capture of interrelations between various risks.

No clear distinction can be made by the size of the undertaking, corporate culture and the level of control of the parent company has much greater influence on that.

As regarding to record keeping

In general, the recordkeeping of operational risk events and near misses occurs at group level. It is a common practice that insurers that already installed operational risk management system regularly collect, analyse and report operational loss events to the management.

Most insurers only focus on the operational risk events that has occurred and resulted in a loss as well. One respondent, a smaller insurer noted that only IT and logistics failures are recorded in a Service Desk systems, other operational risk types are not.

The length of historical records usually does not exceed 5 years. At most insurers the deliberate collection of data for operational risk management purposes started only in 2007 (most particularly the administration of near misses).

Only one respondent remarked that it developed an operational loss event collection and reporting process with group escalation thresholds established, while a centralised loss database for operational risk events and near misses for the group is already in the pipeline as well. The centralised database will include material operational risk events and near misses.

Quantification and capture the operational risk

In general, recordkeeping and quantification of near misses is still in its infancy, though some insurers do capture and record near misses above a predefined threshold based on possible loss. Reporting is usually linked to the threshold, though one participant noted that events below threshold are also reported if the loss could have been even higher.

As for the thresholds, one participant remarked that there is no predefined threshold for fraud events, such events are always recorded and reported. Another mentioned that in case of recording near misses there is an incentive for business units to lower the thresholds as they are rewarded in the scorecard process for that.

The methodology for the quantification of operational risk in the majority of cases is based on groupwide guidelines (if applicable). It is a common approach that risks (events) are scored on likelihood (frequency) and impact (severity) though the level of quantification methods applied is different.

The use of scenario analysis and the risk self-assessment is a widespread tool among the medium-sized insurers. Still, they disclosed that they are introducing more advanced approaches in the near future. One plans to make use of scenario analysis to arrive at loss distributions, others plan to quantify the severity and frequency of operational losses with qualitative and quantitative categories while aggregate losses will be stochastically simulated. One participant intends to quantify operational risk events and near misses using the Value-at-Risk (VaR) measure as soon as the above-mentioned centralised group-level database is fully developed.

Only one respondent reported to use a sophisticated method

This model is based on a Loss Distribution Approach (LDA).

Insurers with operational risk management systems capture interrelations between various risks with one exception. One participant (a medium-sized insurer) reported that group diversification and diversification between risk event types are considered as well.

</Participants view on 97>

<Analysts view on 97>

</Analysts view on 97>

98. Please indicate the **number and type of operational risk events** and near misses that have occurred over the last five years in undertakings in your country. What mitigation techniques were

commonly in place and what, if any, new mitigation techniques did the undertakings introduce after the event(s) (from question ORQ.9)?

<Participants view on 98>

There were only two correct answers to the **occurrence of operational risk** events:

One medium-sized insurer reported 26 events (threshold is 10,000 EUR).

The other small insurer (with a lower level of operating risk management system) reported 1 internal fraud in MTPL claim settlement. It did not record the number of external frauds in MTPL business, although there were many. On average, 1 or 2 external frauds are detected in property business. Interruption of business processes and system failures occurred twice this year.

Broadly speaking, the **mitigation techniques** used by the participants are expected to prevent the likelihood of occurrence rather than mitigate the impact of operational risk events. Participants also regard it important to address the "soft" characteristics of operational risk management, such as:

- establishing internal rules, improving organization risk awareness;
- coaching, appointed local risk managers close to the business;
- cooperation with internal audit and compliance, introducing preventive and detective controls;

One respondent mentioned that within its operational risk framework risk response can be achieved through several combinations of mitigation strategies:

- reduce likelihood of occurrence (by e.g. implementing process controls, supervision);
- reduce impact (e.g. by limits, power of attorney);
- risk avoidance (by stopping, if possible, the activity that generates the risk);
- risk acceptance (by judging (ORC) that the identified risk is within the agreed risk profile);
- risk transfer (e.g. by insurance).

Participants after certain risk events revise their available mitigation techniques and introduce more sophisticated ones or improve on the existing ones. They use different tools (e.g.: root-cause analysis of loss events) to further strengthen business processes and controls.

Only one participant (a medium-sized composite insurer) revealed its operational risk mitigating technique (and future plans) in detail: the ORM framework has developed considerably over the past six years. All major incidents are analysed on a local level; material incidents become part of training exercises and dedicated mitigation techniques are assigned to each material incidents. The insurer focuses on the prevention of incidents by taking stock of internal and external developments and analyse these using an integrated risk assessment approach. Other developments are: product approval process, remote entity risk assessment, risk forecasting. The insurer is convinced that good risk mitigation structures benefit from an integrated multidisciplinary approach with direct communication lines to the member responsible in the executive board.

</Participants view on 98>

<Analysts view on 98>

</Analysts view on 98>

99. Please indicate the most common **categorization** of risk events and near misses used by undertakings and the relation to the categorization of ORIC (ORQ.11)

<Participants view on 99>

The operational risk categories used show similarity with the ones proposed by the Operational Risk Insurance Consortium (ORIC), however, they are more sophisticated (risk events are classified into different levels and in most cases are in line with the risk management framework of the group.

Risk events are usually categorised only by risk event type, but one insurer observed that it also takes into account the process and reputation impacts. The number of categories used vary a lot, one respondent mentioned that it only reports only certain level of risks defined by the risk management framework of the group. A small insurer noted that the actual category of a risk event depends on individual opinion of the staff that avert the operational failure.

One participant with sophisticated operational risk management system categorises risk events by both incident type and risk event type, the latter ones are further split into different risk levels.

</Participants view on 99>

<Analysts view on 99>

10. Internal models (solo) (including partial models)

10.1 Questions concerning all solo insurance undertakings

(Reference tables Annex G1, G3)

100. What is the percentage of participants which already use an internal model? What is the percentage of participants which intend to develop, or are currently developing, an internal model in the future? Do they intend to develop or a full internal model? In the case of partial internal models, what risk categories do they intend to model? What are the main reasons for developing an internal model, according to participants?

(Reference tables: Annex G1, tables 1 to 9)

<Participants view on 100>

40% of the 15 participants are already using an internal model, two medium and four small sized. These undertakings are using, and actively developing their internal model. There is only one small sized undertaking, which has plans to develop an internal model, but not already using it. It means that 46.67% of the participants are actively developing an internal model.

Four of the respondents develop a full, and two of them a partial internal model.

The two undertakings (one P&C, one composite) which have a partial internal model intend to model the following risk categories:

- in SCR non-life risk: non-life premium risk, non-life cat risk
- in SCR market risk: interest rate risk, equity risk, spread risk
- in SCR life risk: mortality risk, longevity risk, disability risk, lapse risk and life cat risk
- SCR operational risk
- Other business line

Six respondents mentioned that the main reasons for developing an internal model were the better risk management, the better capital management and the more transparent decision-making. Two undertakings said the lower regulatory capital and one mentioned the improved flexibility in managing versus one capital measure.

One of the participants answered that they do not want to develop an internal model, and three of them that they do not know yet. The main reasons were that developing an internal model is too expensive, too demanding, too large administrative burden. One of the undertakings mentioned that the standard SCR works well.

</Participants view on 100>

<Analysts view on 100>

</Analysts view on 100>

101. Concerning those undertakings that are either using or actively developing internal models, please indicate in which business areas they intend to develop internal models (from question IMQ.3.c).
(Reference tables: Annex G1, table 20)

<Participants view on 101>

Six of the participants are already using an internal model. All of them use it in product development. 83.33 % of the respondents use their internal model in pricing, performance analysis, reinsurance and investment policy. 66.67 % mentioned capital allocation, ALM and asset allocation and 50 % suggested market consistent technical provisions and CoC risk margin. 33.33 % of the participants use their internal model for risk limit setting, strategic business decisions, budgeting and bonus setting. 16.67 % use it also for risk strategy, dividend payments, assessment of uncertainty in technical provisions.

Most of the respondents already developed an internal model (with the above business areas), or a number of separate models (for product pricing and product development). Their future developments will focus on fully integrating the core finance functions within a coherent model. They only plan minor adjustments in the future.

</Participants view on 101>

<Analysts view on 101>

</Analysts view on 101>

102. What is participants' view on the costs associated with internal models? To what extent are those costs purely Solvency II related?
(Reference tables, Annex G, tables 10, 11 and 12)

<Participants view on 102>

The respondents gave no data for this question. They do not know yet that they will incur costs in respect of Solvency II model approval requirements or not in addition to costs that would otherwise be incurred.

One participant has a view that they will not have costs associated with internal models since they can use their already developed internal model for Solvency II purposes.

Another respondent said that these questions will be easier to answer when Solvency II standards will be finalized.

</Participants view on 102>

<Analysts view on 102>

</Analysts view on 102>

103. Concerning those undertakings that are either using or actively developing internal models, please describe their progress in internal model development during past few years and where they are at this stage compared to their longer term goals? (from question IMQ.3.a)

<Participants view on 103>

Four of the participants answered this question, two medium and two small sized.

In the past two-four years most of the respondents developed their own internal model for calculating SCR.

One participant's internal model is based on numerical MC-simulations based on probability distributions fitted to company specific data. Their model is also applied at various small and mid-sized insurance companies.

Another respondent said that in the past two years they had significantly increased the use of technology and controls in the calculation with their own developed system.

One undertaking is still developing a framework for their internal model on a stress and scenario testing economic capital basis.

All participants mentioned that their main longer term goal is aligning internal models to expected future external disclosure requirements including Solvency II. They are currently working on this.

</Participants view on 103>

<Analysts view on 103>

</Analysts view on 103>

104. Concerning those undertakings that have plans to use a full or partial internal model in the future for calculating the SCR what additional steps do they foresee to make their current internal models suitable for Solvency 2 purposes (from question IMQ.3.d).

<Participants view on 104>

Five general comments were received. Three medium and two small sized answered this question.

One undertaking's opinion that their internal model is already suitable for Solvency II.

Two participants mentioned that their further steps depend on final specifications of Solvency II.

One respondent's plan is to make changes to further strengthen the process of producing their economic model as well as further aligning it with their overall risk and governance process.

The remaining undertaking's plan for the next 2-4 years is to invest in significant model validation exercises.

</Participants view on 104>

<Analysts view on 104>

</Analysts view on 104>

Questions concerning insurance undertakings using an internal model for assessing capital needs

10.2 Full and partial internal models (art. 110)

105. Please compare the structure of undertakings' internal model with that of the standard formula. For instance, which risk modules of the standard formula are a) combined, b) divided in undertakings internal model? Are there risks included in undertakings' internal model, but not covered by the standard formula? And the other way around (from question IMQ.4-6)?
(Reference tables: Annex G1, tables 21 and 22)

<Participants view on 105>

Two undertakings reported quantitative data about their full internal model with a modular structure. There are all risks included except revision risk (from SCR life risk module) and concentration risk (from SCR market risk

module). Both of them said that the equity volatility and interest rate volatility risks are figure in theirs' internal model, but not covered by standard formula. One insurer indicated the mortality contagion risk too, and the other denoted "Transfer risk" for the risk that value cannot be transferred from one country to the other. This is modelled comparable with Credit risk. They also model the risk of bond funds separate from equity or real estate funds and interest rate as these contain interest rate, spread, and default risks. They include Fx translation risk for the risk of non-euro surplus holdings losing value given they are a EUR reporting company (this risk is only held at corporate and not within the solo entities).

At this other company the mortality risk is split into trend uncertainty, level uncertainty, volatility and calamity. Level, trend and volatility are combined into life non-cat and calamity is separated. The same for morbidity risk. Disability in their model is placed under morbidity risk. Non-life is split into prior, current non-cat and current cat. Expense and lapse risk are together grouped in business risk and calculated for life, morbidity, and non-life. Concentration risk is not separately modelled, but is part of their credit risk model.

The first insurer mentioned that the mortality contains separately mortality, longevity, contagion up and contagion down shock (corresponds with Cat risk). They have morbidity risk and lapse contains a parameter up, parameter down and contagion shock. Concentration risk is limited by risk policies which limits concentration instead of by a capital charge. The health risk is not included as a separate risk category, but included in Morbidity Risk because this is a relative small risk for them.

</Participants view on 105>

<Analysts view on 105>

</Analysts view on 105>

106. Concerning those internal models that have been purchased please indicate by using the table in the questionnaire the name, function/use of the main models and the providers (from question IMQ.9).

<Participants view on 106>

	Name of software	Function / use	Provider
1	Algorithmics	Scenarios, replicating portfolios, and VaR calculations	Algorithmics
2	VIPitech	Actuarial modelling	Wattson Wyatt
3		Purchased software serves as the starting point to build models	

</Participants view on 106>

<Analysts view on 106>

</Analysts view on 106>

10.3 Use test (art. 118)

107. Please describe to which extent internal models are used in undertakings (from question IMQ.21-24b).
(Reference tables: Annex G1, tables 24 to 29)

<Participants view on 107>

One undertaking reported that they use theirs' internal model in all area listed in IMQ.3b except budgeting and management compensation. The ulterior and some other areas are under development. Their risk management strategy consider the results produced by the internal model to a large degree and the outputs of the internal model are included in regular reporting for the board of directors and other senior management. This internal model is approved by them.

The other undertaking answered just the same, but they use theirs' internal model in area budgeting too, and does not use in management compensation.

</Participants view on 107>

<Analysts view on 107>

</Analysts view on 107>

10.4 Statistical quality (art. 119)

108. Concerning those undertakings that consider that their internal model has the ability to rank risk sufficiently for risk management purposes, please briefly describe the criteria that they have applied to risk ranking (from question IMQ.29).

<Participants view on 108>

Both of them consider that their internal model has the ability to rank risk sufficiently for risk management purposes, but just one of them described the criteria: In their model they have capability for analysis by risk type,

both in an absolute as in a marginal way all based on the specific distribution of the specific risk type.

</Participants view on 108>

<Analysts view on 108>

</Analysts view on 108>

109. Please indicate by using the table in the questionnaire what the undertakings main sources (name or description of time series) of input data for key risk modules/drivers within their internal models are. What are the sampling periods for each main input data? What are the sampling frequencies for each main input data? Specify for each main input data if it is publicly available, entity-specific or external but not publicly available (from question IMQ.31.a-c).

<Participants view on 109>

	Name or description	Risk module	Risk driver	Sampling period		Sampling frequency	Nature
				Beginning year	Ending year		
1	Equity Risk	Market	Indices	2002	2007	Weekly	Publicly available
2	Interest Rate Risk	Market	Swap curves	2002	2007	Weekly	Publicly available
3	Fx	Market	Exchange rates	2002	2007	Weekly	Publicly available
4	Real Estate	Market	Property values			Annually	External but not publicly available
5	Credit Spread	Market	Spreads			Annually	Entity-specific
6	Interest rate	Market		5~10 years depending on the available reliable history.	2007	Monthly	Publicly available
7	Equity	Market		Depends on specific equity exposure	2007		Publicly available
8	Credit			1992	2007	monthly	Publicly available
9	Underwriting	Life		Product and unit specific			Entity-specific
10	Underwriting	Non-life		Product and unit specific			Entity-specific
11	Investment risk	Market		24-years	2007	monthly	Publicly available

</Participants view on 109>

<Analysts view on 109>

The participant generally used weekly or monthly publicly available data for some sub-modules of market risk and some entity specific data for life and non-life underwriting risks.

</Analysts view on 109>

110. What approaches do undertakings use to model dependencies (from question IMQ.33).
(Reference tables: Annex G1, tables 36-38)

<Participants view on 110>

There are dependencies taken into account within risk categories and across risk categories in both internal models. At one undertaking the data (e.g. historical time series) and expert opinion is the basis of the correlation. At the other insurer the historical data for market risk and KMV model for credit risk. For non-market risks they used correlations based on expert opinion. Currently for practical purposes and to make their own model work they trade off conservative correlations for catastrophe risks with market risk for less conservative correlations for operational/business with market risks.

</Participants view on 110>

<Analysts view on 110>

</Analysts view on 110>

111. What risk mitigation techniques do undertakings take into account in their internal models (from question IMQ.35).
(Reference tables: Annex G1, tables 39-40)

<Participants view on 111>

Both of undertakings took into account risk mitigation techniques in every category listed in IMQ.35 (except all tax issues at the either of them).

</Participants view on 111>

<Analysts view on 111>

</Analysts view on 111>

112. Do undertakings take account of management actions in their internal models (from question IMQ.37).
(Reference tables: Annex G1, tables 41-42)

<Participants view on 112>

One of them took into account only so called prescriptive management actions (not responsive management actions) partly: Changes in expense charges, Reductions in surrender values and Restrictions in the ability to surrender future management actions did not take into account.

The other participant took into account all management actions which described in IMQ37.

</Participants view on 112>

<Analysts view on 112>

</Analysts view on 112>

10.5 Calibration (art. 120)

113. What kind of risk measure / time horizon do undertakings use in their internal model? Is it very different from the 99.5% one-year Value-at-Risk measure to be used for SCR purposes? Does it provide for a higher or a lower level of protection?

<Participants view on 113>

The responders used the 99.5% one-year Value-at-Risk measure almost everywhere. One of them used the 99.0% one-year Tail Value-at-Risk for non-life catastrophe sub risk and for health underwriting risks. The other used at market sub risks only quarterly*2 time horizon.

</Participants view on 113>

<Analysts view on 113>

</Analysts view on 113>

114. If different risk measures, confidence levels or time horizons for different modules or risk drivers are used, briefly describe how results coming from different calibrations are aggregated (from question IMQ.40).

<Participants view on 114>

For the majority of the risks the companies used 99.5% VaR. For extremely fat-tailed risks either of responders used 99.0% tailVaR. For dynamic hedge programs they take the hedge effectiveness into account. The other responder's view is that the uncertainties in liabilities, like trend uncertainty in life are by principle "multi-year". The calculations are done

in such a way that they are in line with pure the 1-year risks. Market risks are calculated on a quarterly VaR and doubled to get to an annual VaR.

</Participants view on 114>

<Analysts view on 114>

</Analysts view on 114>

10.6 Documentation (art. 123)

115. If circumstances under which the internal model does not work effectively are documented, please describe those circumstances (from question IMQ.48).

<Participants view on 115>

One of the responders keeps documentation of those material assumptions that could be considered conservative and liberal. At this time, they think them mostly offset, but continue to refine the model. For the non-market risks the internal model is set up in such a way that if not enough data or updates of data are available a more simplified model can be used.

</Participants view on 115>

<Analysts view on 115>

</Analysts view on 115>

116. Briefly describe to what extent undertakings are currently disclosing information publicly about the input, modelling and output issues of their internal models (from question IMQ.51).

10.7 Other questions

117. Please provide information about the original risk measures, calibrations and time horizons used by undertakings in their internal models. To the extent possible provide the information per risk module accordingly to the standard SCR formula.

<Participants view on 117>

</Participants view on 117>

<Analysts view on 117>

The participants used the 99.5% one-year Value-at-Risk measure almost everywhere. The 99.0% one-year Tail-Value-at-Risk measures might be provided the same level of protection at those risks where insurers used it.

</Analysts view on 117>

118. Please provide information (mean and standard deviation) about reported parameters derived from internal models that can be compared / benchmarked with parameters used in the standard SCR formula. Please carefully indicate the parameter in question and group the information according to the standard SCR risk classification. Indicate the key lessons to be drawn as regards the structure of the standard formula, the correlation parameters and the calibration of other parameters (i.a. underwriting risk parameters).

<Participants view on 118>

We did not receive responses about the parameters, just from the structure of undertakings' internal model (see under question 105.)

</Participants view on 118>

<Analysts view on 118>

</Analysts view on 118>

119. Please comment on the outcomes of the internal model results relative to standard SCR calculations.
(Reference tables: Annex G1, tables 68 – 72)

<Participants view on 119>

The two responders give completely different outcomes of their internal model results.

One of them should take into account almost treble the standard SCR (269.9%), the other's result is 48.2%.

The **market risk** is given the most biggest part of SCR is getting lower at the second company (77%), the first responder did not aggregate the results, but every sub risk module of market risk is getting higher in its internal model.

Even the two responders got opposite result, in **life lapse** sub risk both of them reported lower level of capital charge (50% and 63% of standard capital charge).

Nevertheless one of the responders would necessary higher level of SCR by its own internal model, it would be lower than its all own found.

</Participants view on 119>

<Analysts view on 119>

Major differences between internal models and the standard formula affected primarily the market risk sub-modules, non-life catastrophe risk and life lapse risk.

</Analysts view on 119>

11. MCR

120. Please describe (adequacy of the proposed design, practicability, quantitative impact) of **the results of the combined approach** tested for QIS4 (i.e. the linear approach with a cap and a floor). Specifically (from question QS.2(d) and 4(d)):

- new design (compared to QIS3) of the linear calculation, for each type of business;
- the application of the corridor.

(Reference tables: Annex H, table 1, 2 and 3)

<Participants view on 120>

Participants did not report difficulties calculating the MCR.

A number of participants echoed the CEA view that the MCR should be calculated as a percentage of the SCR. In these participants' view, the QIS4 combined approach is insufficiently risk sensitive. The critique of the new approach was however less harsh than that of the modular approach in QIS3, and some participants welcomed the corridor, especially the cap, as a step towards their preferred approach.

</Participants view on 120>

<Analysts view on 120>

Concerning practicability, we regard the combined MCR design as sufficiently simple and practicable. Generally, participants were able to calculate it without difficulty. Although there were some misunderstandings mainly about the meaning of the future discretionary benefits input, these were easily corrected in most cases. In one participant's case we regarded the MCR result unreliable due to uncertainties regarding the correctness of the future discretionary benefits input.

Concerning the adequacy of the proposed design, we fundamentally disagree with the application of the SCR cap, as this would effectively remove the safety net function of the MCR (see our response to question 122 below).

One technical aspect that, in our view, needs further elaboration is the separation of the notional non-life and life MCR for composites. Currently, the linear result is being split between life and non-life, without a similar splitting of the cap or the floor. In our view, the separation of life from non-life should either be pursued across the board, or not at all.

Concerning the quantitative impact, the linear calculation itself provided a reasonably good interplay with the **standard formula**. The

ratio of the linear calculation to the SCR standard formula varied between 15.8% and 45.2%, with an average of 34.7%. In most cases the ratio fell between 30% and 40%. The combined MCR was floored at 20% of the SCR standard formula in only 1 out of 14 cases. The 50% cap did not have an effect. Overall, the observed ratios did not show a marked difference between life and non-life business.

Compared to the two **internal model** results submitted, in one case the linear calculation was 11.2% of the internal model SCR (floored at 20%), in the other case it was 47.8% of the internal model SCR. This resulted from the significant differences between the standard formula and internal model outcomes.

Considering the quantitative results, however, we do not perceive a supervisory ladder problem either between the linear calculation and the SCR, or between the combined MCR and the SCR in our market. The MCR results were significantly lower than the SCR in all cases.

A caveat regarding the quantitative impact is that, although we measured the adequacy of the MCR calibration by comparing the MCR to the SCR, there are actually a number of uncertainties regarding the SCR calculations themselves as a basis for comparison. Therefore the above conclusions are to be treated with caution.

</Analysts view on 120>

121. Are there any particular types of undertakings, or lines of business, for which the 'Linear' MCR would generally be either (a) **less than 20% of the standard formula**, or (b) **more than 50% of the standard formula** SCR and/or the internal model SCR?
(Reference tables: Annex H, table 3)

</Participants view on 121>

We did not receive responses on this particular aspect.

</Participants view on 121>

</Analysts view on 121>

From the quantitative results we could not identify any type of undertaking or line of business for which the linear MCR would be either generally less than 20% or generally more than 50% of the standard formula and/or internal model SCR.

</Analysts view on 121>

122. Could you please explain whether you believe that the calculations proposed for the 'Combined' MCR and SCR are reasonably **consistent**, and likely to provide both an adequate safety net and a

sensible ladder for potential supervisory action? If not, how might they be improved?

<Participants view on 122>

Two responses expressed concern about the level of the MCR or about the supervisory ladder. In one of the two cases we consider the respondent's MCR result unreliable. In the other case the comment expresses a general concern rather than reflecting on the specific Hungarian result.

Participants did not comment on the safety net aspect.

</Participants view on 122>

<Analysts view on 122>

In our market, the corridor approach tested in QIS4 is likely to provide a sensible ladder of intervention.

On the other hand, we believe that the corridor approach would fail to provide an effective safety net, particularly in the context of the proposed group support regime. In our view, control over the ultimate trigger level should rest with the solo supervisor. Although the 50% cap did not have an effect in the present QIS exercise, we fundamentally disagree with the idea that the SCR (standard formula or internal model) should set a cap on an insurer's MCR. We believe that such an arrangement would erode policyholder safety by creating a potential single point of failure, that is, a situation where the SCR, MCR and risk margins are all calculated from the same internal model, approved at the group level by the group supervisor. Rather, we believe that it is the MCR that should set an independent solo level floor for the SCR.

Regarding the way forward, we would suggest to consider the following options:

- keep the **stand-alone linear approach** if testing results indicate that a suitable calibration across all country markets can be attained;
- if this is not possible, lower the calibration of the linear approach so that systemic supervisory ladder problems are avoided, and combine the resulting formula with a percentage of the SCR acting as a floor (a **floor-only combined approach**). With an appropriate calibration, such a design could combine fair risk sensitivity, smooth supervisory ladder and a robust stand-alone safety net.

</Analysts view on 122>

123. Please summarise the views of undertakings about the suitability of the parameters for each line of business or product type for the MCR (from question QS.6).

<Participants view on 123>

Participants did not express views about the suitability of the individual factors of the MCR calculation, nor about the level of the cap and the floor.

</Participants view on 123>

<Analysts view on 123>

Since extreme results were largely avoided, we could not identify any particular line of business as a potential problem area.

</Analysts view on 123>

12. Proportionality – Simplifications and Proxies

124. Please describe the **use of the proposed simplifications** for calculation of the SCR. Does this differ according to size or business type? (from question QS.7-8)

<Participants view on 124>

Participants did not submit qualitative feedback on SCR simplifications.

</Participants view on 124>

<Analysts view on 124>

Most participants did not use simplifications to calculate the standard formula. Two small participants used a simplification to calculate a single sub-module (life catastrophe risk, counterparty default risk). One small participant used simplifications extensively (to calculate counterparty default risk and several sub-modules of market risk and life underwriting risk).

</Analysts view on 124>

125. Please comment on the **quantitative impact of this use**, per subsection, including how the results of the simplified approach compare with the results from application of the standard approach. (*Reference tables: Annex E, table 3*)

<Participants view on 125>

Participants did not submit qualitative feedback on SCR simplifications.

</Participants view on 125>

<Analysts view on 125>

In most cases, participants used either only the standard method, or only the simplification, allowing no comparison between the two. One small participant calculated life revision risk by the simplified method parallel to the standard method: in this particular case the simplified result was significantly higher than the standard result (the absolute amounts were however low).

</Analysts view on 125>

126. Please describe the **use of simplifications and proxies** for the calculation of best estimate provisions and risk margins in your markets. Does this differ according to size or business type? In the case of non-life insurance, please also refer to the relevant LOB where proxies have been used. Please also indicate to which extent the discounting proxy or one of the gross-to-net proxies to derive

discounted (respectively, net) provisions were used. (from question QS.7-8)

<Participants view on 126>

Some participants did not use simplifications or proxies. Other participants used some of the provided simplifications and proxies: these included the simplifications and proxies to determine risk margins; the *expected loss based proxy* and the *premium-based proxy* to determine the best estimate of premium provisions; the *case-by-case based proxy* for claims provisions; the *claims handling cost reserves proxy*; the *gross-to-net proxy*; the *discounting proxy* and the *annuity proxy*.

Proxies were used in the following lines of business: Health short term; Health other; Motor third party liability; Motor other classes; Marine, aviation, transport; Fire and other damage to property; Third party liability; Credit and suretyship; Assistance; Miscellaneous non-life insurance. This included nearly all lines of business present in our market.

The *discounting proxy* was used by one small participant in the Credit and suretyship and Assistance lines. The *gross-to-net proxy* was used by one medium participant in all of its lines of business.

Some participants noted that the simplifications and proxies provided for QIS4 sometimes yielded divergent results.

</Participants view on 126>

<Analysts view on 126>

</Analysts view on 126>

127. Please describe which kind of **market data proxies you have proposed** for QIS4 within your market, what market data have been provided for those proxies and how these market data have been calibrated for QIS4. Please give details for the different LoBs.

<Participants view on 127>

We did not provide market data for proxies for QIS4 purposes.

</Participants view on 127>

<Analysts view on 127>

We did not provide market data for proxies for QIS4 purposes.

</Analysts view on 127>

128. Please describe how **annuities arising from non-life insurance contracts** were taken into account, and how they were assessed.

Were the obligations arising from such annuities valued separately as life insurance obligations or was such a separation normally omitted? Are there any comments on the threshold considered in this proxy? (QS 9)

<Participants view on 128>

One small participant reported that it used the annuity proxy in the Third party liability line. From the responses however it appears that at least two other participants (one small, one medium-sized) followed the same method without recognising that they were applying a QIS4 proxy. They both argued that the amounts involved were negligible. A number of participants, however, had no difficulty valuing annuities separately as life provisions.

</Participants view on 128>

<Analysts view on 128>

</Analysts view on 128>

129. Please describe the **views of undertakings** with respect to the practicability, suitability and consistency of the simplifications and proxies. Further, summarise firms' views on the materiality thresholds set out for the use of simplifications (from question QS.10-11, FINREQ.4).

<Participants view on 129>

There were only a few comments on the practicability, suitability and consistency of the simplifications and proxies. Some participants noted that the simplifications and proxies provided for QIS4 sometimes yielded divergent results.

Participants did not comment on the appropriateness of the materiality thresholds.

As a general comment, one participant who did not use simplifications or proxies expressed its view that it is a good idea that some companies are able to use simplified approaches, although it is advised that they move as soon as possible to the more complex standard approaches or to their own internal models. In this participant's view, it would be a good task for the actuarial profession to set up education on this point. Regarding simplified models it is also important that cherry picking should be prevented.

</Participants view on 129>

<Analysts view on 129>

</Analysts view on 129>

13. Groups solvency

13.1 Impact of QIS4 on overall financial position of groups

130. Please provide a broad description of the potential quantitative impact on the **overall financial position of groups** from applying the SCR and the MCR. Please differentiate between standard formula and internal (partial) model outcomes.

<Participants view on 130>

</Participants view on 130>

<Analysts view on 130>

</Analysts view on 130>

131. Are there any groups that would have to **raise** significant new amounts of capital in order to meet either the standard formula SCR or the MCR?

<Participants view on 131>

</Participants view on 131>

<Analysts view on 131>

</Analysts view on 131>

132. Are there any groups that would see the excess of available capital over the standard formula SCR either (i) decrease by more than 50% or (ii) increase by more than 50%, as compared to their current Solvency I position?

<Participants view on 132>

</Participants view on 132>

<Analysts view on 132>

</Analysts view on 132>

133. How does the SCR vary according to **consolidation basis**, i.e. depending on the inclusion of non-EEA entities, with profit business, other financial services, etc.?

<Participants view on 133>

</Participants view on 133>

<Analysts view on 133>

</Analysts view on 133>

13.2 Practicability, suitability and resource issues

134. *Have groups generally applied a consistent approach across subsidiaries for the valuation of assets, technical provisions and own funds, and the calculation of solo MCRs and SCRs (FINREQ.9)?*

<Participants view on 134>

</Participants view on 134>

<Analysts view on 134>

</Analysts view on 134>

135. Please summarize the views of groups about the suitability and appropriateness of the QIS4 methodology for the calculation of the group SCR and the group own funds. In your answer, please refer to the comprehensibility of definitions, the incentives for risk management and about any simplifications required (from question QG.5 and 16)?

<Participants view on 135>

</Participants view on 135>

<Analysts view on 135>

</Analysts view on 135>

136. Please summarise the views of groups about the suitability of the correlation factors and aggregation methods for the assessment of the group SCR (from question QG.15).

<Participants view on 136>

</Participants view on 136>

<Analysts view on 136>

</Analysts view on 136>

137. Group standard formula: for those components of the group standard formula which are different from the solo standard formula, what are the views of groups regarding the following components of the group standard formula to assess (from questions QG.9 and QG.14):

- market risk;
- counterparty default risk; [is the group standard formula different from the solo standard formula as regards this risk?]
- life underwriting risk; [is the group standard formula different from the solo standard formula as regards this risk?]
- non-life underwriting risk; [is the group standard formula different from the solo standard formula as regards this risk?]
- operational risk;
- the loss-absorbing capacity of technical provisions and deferred taxes.

<Participants view on 137>

</Participants view on 137>

<Analysts view on 137>

</Analysts view on 137>

138. Please describe the views of groups on the method for calculating the solo adjusted SCRs (from question QG.20).

<Participants view on 138>

</Participants view on 138>

<Analysts view on 138>

</Analysts view on 138>

139. Please fill in table G below for **groups** and elaborate on the estimated additional resources (in person months) needed by undertakings to develop group systems and controls consistent with the Solvency II framework and carry out validation of the group SCR. Please also elaborate on the level of resources needed to complete the group

aspects of QIS4, and on especially demanding parts of the QIS4 exercise (from question QG.3-4).

<Participants view on 139>

</Participants view on 139>

<Analysts view on 139>

</Analysts view on 139>

Table H: Estimated additional resources for complying with Solvency II

	Additional resources (estimate, in person months) for one-off introduction of systems and controls	Additional resources (estimate, in person months) for yearly valuation	Resources (in person months) utilised to complete QIS4
Groups			

13.3 Diversification benefits and capital transferability issues

140. What are the outcomes of the alternative approaches to **geographical diversification** and what are groups' views on these alternatives? According to groups, are additional adjustments to the standard model correlations needed, for instance due to country specific risks, size of entities, etc. (from question QG.7)?

<Participants view on 140>

</Participants view on 140>

<Analysts view on 140>

</Analysts view on 140>

141. Please describe the views of groups on the allocation of diversification effects, in particular regarding the treatment of minority interests and non-transferable assets (from question QG.17)?

<Participants view on 141>

</Participants view on 141>

<Analysts view on 141>

</Analysts view on 141>

142. What are groups' views on the approach for deferred taxes (from question QG.11)? *Please describe also any differences in valuation for deferred taxes across entities and the impact on the calculation of the adjustment in the QIS4 exercise (FINREQ.14).*

<Participants view on 142>

</Participants view on 142>

<Analysts view on 142>

</Analysts view on 142>

143. Please describe how groups generally cover group specific risks (contagion, conflict of interest, legal risk, reputation risk). What do groups consider to be the main risks and how they need to be addressed in a risk capital charge (from question QG.13)?

<Participants view on 143>

</Participants view on 143>

<Analysts view on 143>

</Analysts view on 143>

144. Please provide a short summary description of any legal or other barriers that groups encountered for the free transfer of surpluses to and from non-EEA countries (from question QG.18).

<Participants view on 144>

</Participants view on 144>

<Analysts view on 144>

</Analysts view on 144>

145. Please elaborate on the diversification effects between EEA and non-EEA businesses, and how these effects can be quantified (from question QG.19)

<Participants view on 145>

</Participants view on 145>

<Analysts view on 145>

</Analysts view on 145>

13.4 Operational risk

146. Please elaborate on the views of groups in your country on the approach for operational risk, including the views on diversification effects (from question QG.14). In your answer, please address the correlation across different group entities, any double counting arising from intra-group transactions and any adjustments proposed by groups (from question QG.10).

<Participants view on 146>

</Participants view on 146>

<Analysts view on 146>

</Analysts view on 146>

13.5 Group support

147. Please provide a brief description of groups' views on (from question QG.21):

- potential barriers for the transfer of assets, especially those pledged under group support;
- intra-group support arrangements;
- the type of instruments potentially used in group support ;
- factors that may influence the decision to mobilise group support;
- the link between group support and capital management;
- the way group diversification benefits are distributed over individual group entities;
- positive and negative effects of group membership.

<Participants view on 147>

</Participants view on 147>

<Analysts view on 147>

</Analysts view on 147>

13.6 Group Internal models

13.6.1 Questions concerning all insurance groups

(Reference tables Annex G2 and G3)

148. What is the percentage of participants which already use an internal model? What is the percentage of participants which intend to develop, or are currently developing, an internal model in the future? Do they intend to develop or a full internal model? In the case of partial internal models, what risk categories do they intend to model? What are the main reasons for developing an internal model, according to participants?

(Reference tables: Annex G2, tables 1 to 9)

<Participants view on 148>

</Participants view on 148>

<Analysts view on 148>

</Analysts view on 148>

149. Concerning those groups that are either using or actively developing internal models, please indicate in which business areas they intend to develop internal models (from question IMQ.3.c).

(Reference tables: Annex G2, table 20)

<Participants view on 149>

</Participants view on 149>

<Analysts view on 149>

</Analysts view on 149>

150. What is participants' view on the costs associated with internal models? To what extent are those costs purely Solvency II related? (Reference tables: Annex G2, tables 10, 11 and 12)

<Participants view on 150>

</Participants view on 150>

<Analysts view on 150>

</Analysts view on 150>

151. Concerning those groups that are either using or actively developing internal models, please describe their progress in internal model development during past few years and where they are at this stage compared to their longer term goals (from question IMQ.3.a)?

<Participants view on 151>

</Participants view on 151>

<Analysts view on 151>

</Analysts view on 151>

152. Concerning those groups that have plans to use a full or partial internal model in the future for calculating the SCR what additional steps do they foresee to make their current internal models suitable for Solvency 2 purposes (from question IMQ.3.d).

<Participants view on 152>

</Participants view on 152>

<Analysts view on 152>

</Analysts view on 152>

Questions concerning insurance groups using an internal model for assessing capital needs

13.6.2 Full and partial internal models (art. 110)

153. Please compare the structure of groups' internal model with that of the standard formula. For instance, which risk modules of the standard SCR approach are a) combined, b) divided in groups internal model? Are there risks included in groups' internal model, but not

covered by the standard SCR approach? And the other way around (from question IMQ.4-6)?
(Reference tables: Annex G2, tables 21 and 22)

<Participants view on 153>

</Participants view on 153>

<Analysts view on 153>

</Analysts view on 153>

154. Concerning those internal models that have been purchased please indicate by using the table in the questionnaire the name, function/use of the main models and the providers (from question IMQ.9).

<Participants view on 154>

</Participants view on 154>

<Analysts view on 154>

</Analysts view on 154>

Specific group questions

13.6.3 Scope of the group internal model

155. Do group internal models cover all entities forming part of the group concerned? Please indicate what kind of entities are not covered by the internal models and why (from question IMQ.12).

<Participants view on 155>

</Participants view on 155>

<Analysts view on 155>

</Analysts view on 155>

156. Please indicate how undertakings consider the impact of entities not covered by internal models on the group as a whole (from question IMQ.13).

<Participants view on 156>

</Participants view on 156>

<Analysts view on 156>

</Analysts view on 156>

157. Please indicate how undertakings consider the impact of entities in other financial sectors on the group as a whole (from question IMQ.15).

<Participants view on 157>

</Participants view on 157>

<Analysts view on 157>

</Analysts view on 157>

158. Please indicate to which extent does the internal models take account of the existence of non-regulated entities in the scope of the group (IMQ.17).

<Participants view on 158>

</Participants view on 158>

<Analysts view on 158>

</Analysts view on 158>

159. If the internal model does not take into account all of the entities within the group, please indicate which part of the business the internal models cover (as a proportion of premiums of the group and the technical provisions and the proportion in terms of solvency capital requirements as determined by the solo SCRs calculated with the standard formula) (from question IMQ.18).

<Participants view on 159>

</Participants view on 159>

<Analysts view on 159>

</Analysts view on 159>

160. Please describe if current internal models cover all the material risks that are borne by a group? What kind of group specific risks do groups consider and in what practical way do they take them into account (from question IMQ.19).

<Participants view on 160>

</Participants view on 160>

<Analysts view on 160>

</Analysts view on 160>

161. Concerning those groups that identify and assess risks like group risks, reputation risks, and strategic risks etc. only in a qualitative way, please indicate in which way do groups consider these risks to fit into the group risk profile (from question IMQ.20)?

<Participants view on 161>

</Participants view on 161>

<Analysts view on 161>

</Analysts view on 161>

13.6.4 Use test (art. 118)

162. Please describe to which extent internal models are used in undertakings (from question IMQ.21-24b).
(Reference tables: Annex G2, tables 28 to 33)

<Participants view on 162>

</Participants view on 162>

<Analysts view on 162>

</Analysts view on 162>

13.6.5 Statistical quality (art. 119)

163. Concerning those groups that consider that their internal model has the ability to rank risk sufficiently for risk management purposes, please briefly describe the criteria that they have applied to risk ranking (from question IMQ.29).

<Participants view on 163>

</Participants view on 163>

<Analysts view on 163>

</Analysts view on 163>

164. Please indicate by using the table in the questionnaire what the groups main sources (name or description of time series) of input data for key risk modules/drivers within their internal models are. What are the sampling periods for each main input data? What are the sampling frequencies for each main input data? Specify for each main input data if it is publicly available, entity-specific or external but not publicly available (from question IMQ.31.a-c).

<Participants view on 164>

</Participants view on 164>

<Analysts view on 164>

</Analysts view on 164>

165. What approaches do groups use to model dependencies (from question IMQ.32-33)?
(Reference tables: Annex G2, tables 40-42)

<Participants view on 165>

</Participants view on 165>

<Analysts view on 165>

</Analysts view on 165>

166. What risk mitigation techniques do groups take into account in their internal models (from question IMQ. 34-35)?
(Reference tables: Annex G2, tables 43-44)

<Participants view on 166>

</Participants view on 166>

<Analysts view on 166>

</Analysts view on 166>

167. Do groups take account of management actions in their internal models (from question IMQ.36-37).
(Reference tables: Annex G2, tables 45 – 46)

<Participants view on 167>

</Participants view on 167>

<Analysts view on 167>

</Analysts view on 167>

13.6.6 Calibration (art. 120)

168. What kind of risk measure / time horizon do groups use in their internal model? Is it very different from the 99.5% one-year Value-at-Risk measure to be used for SCR purposes? Does it provide for a higher or a lower level of protection?

<Participants view on 168>

</Participants view on 168>

<Analysts view on 168>

</Analysts view on 168>

169. If different risk measures, confidence levels or time horizons for different modules or risk drivers are used, briefly describe how results coming from different calibrations are aggregated (from question IMQ.40).

<Participants view on 169>

</Participants view on 169>

<Analysts view on 169>

</Analysts view on 169>

13.6.7 Documentation (art. 123)

170. If circumstances under which the internal model does not work effectively are documented, please describe those circumstances (from question IMQ.48).

<Participants view on 170>

</Participants view on 170>

<Analysts view on 170>

</Analysts view on 170>

171. Briefly describe to what extent groups are currently disclosing information publicly about the input, modelling and output issues of their internal models (from question IMQ.51).

<Participants view on 171>

</Participants view on 171>

<Analysts view on 171>

</Analysts view on 171>

13.6.8 Other questions

172. Please provide information about the original risk measures, calibrations and time horizons used by undertakings in their internal models. To the extent possible provide the information per risk module accordingly to the standard SCR formula.

<Participants view on 172>

</Participants view on 172>

<Analysts view on 172>

</Analysts view on 172>

173. Please provide information (mean and standard deviation) about reported parameters derived from internal models that can be compared / benchmarked with parameters used in the standard SCR formula. Please carefully indicate the parameter in question and group the information according to the standard SCR risk classification. Indicate the key lessons to be drawn as regards the structure of the standard formula, the correlation parameters and the calibration of other parameters (i.a. underwriting risk parameters).

<Participants view on 173>

</Participants view on 173>

<Analysts view on 173>

</Analysts view on 173>

174. Please comment on the outcomes of the internal model results relative to standard SCR calculations.
(Reference tables: Annex G2, tables 73 – 75)

<Participants view on 174>

</Participants view on 174>

<Analysts view on 174>

</Analysts view on 174>

14. Other issues

175. Please provide comments on the extent to which the approach to the following issues present a significant risk to your industry:

- Collective investment schemes
- Treatment of option strategies, hedging and other forms of short-term protection.
- Collateral.

<Participants view on 175>

Responses did not identify the above points as significant outstanding issues.

</Participants view on 175>

<Analysts view on 175>

</Analysts view on 175>

176. Are there any other significant issues or results not included above that you would like to report?

<Participants view on 176>

No other major issues were identified.

</Participants view on 176>

<Analysts view on 176>

No other major issues were identified.

</Analysts view on 176>

15. Country specific issues

Please provide your views on issues of particular importance for your country / (re)insurance companies.

<Analysts view on 177>

No major country-specific issues were identified.

</Analysts view on 177>

16. Annexes / Proposed quantitative tables to include in the country report

16.1 Size classes in QIS4

Small and large undertakings are likely to be affected differently by Solvency II, for instance because of differences in the ability to diversify risks or differences in resources to establish elaborate risk quantification and management systems. A classification of the QIS4 sample according to size classes should provide a first indication of its representativeness in size.

Please find below guidance on the QIS4 size classification for the European market, based on the questionnaire on size classes conducted in May/June 2006 and already used during QIS2 and QIS3. In case of uncertainty, a principle based approach should be chosen.

16.1.1 Non-life insurers

Non-life insurers are classified according to the following table:

size class	gross written premiums (million €)
large	> 1 000
medium	100 – 1 000
small	< 100

16.1.2 Life insurers

Life insurers are classified according to the following table:

size class	gross technical provisions (million €)
large	> 10 000
medium	1 000 – 10 000
small	< 1 000

This classification should also be applied to health insurers in case their business is practised on a similar technical basis to that of life insurance².

² health insurance within the meaning of Article 16a (4) of the EU-directive 73/239/EEC (as amended by EU-directive 2002/13/EC)

16.1.3 Reinsurers and composite insurers

Apart from non-life insurers and life insurers for which the classification above can be applied directly, there are reinsurers and composite direct insurers which write both non-life business and life business. It is up to the national supervisor to decide on the size class of reinsurers and composite insurers, but the chosen classes should be in line with the set classification of non-life insurers and life insurers described above. For instance,

- a reinsurer that only conducts non-life business should be classified like a non-life insurer;
- a composite insurer who conducts medium non-life business and small life business should be classified at least medium;
- a composite insurer who conducts medium non-life business and medium life business should be classified medium or large.

The matrix below shows how to determine the size classification of a composite insurer based on the sizes of the life and non-life parts. Should both parts be small/small or medium/medium respectively, national supervisors have the discretion either to stick to this classification also for the composite or to "upgrade" to the next level.

		Non-life insurance		
		small	medium	large
Life insurance	small	small	medium	large
	medium	medium	large	large
	large	large	large	large
Composite size		small	medium	large

16.1.4 Groups

The size class of a group should be determined based on the gross written premiums of its consolidated business. In case of cross-sectoral groups, the contribution of the banking part should be measured by using net revenues.

size class	gross written premiums (million €)
large	> 10 000
medium	1 000 – 10 000
small	< 1 000

16.2 Other conventions

The figures in the tables should be in Euro currency. The local currency in other currencies should be converted in Euro currency based on the exchange rate for the last day of the reporting reference year.

“Gross” means gross of reinsurance and commission. “Net” means net of reinsurance but gross of commission.

Each table would contain columns showing the mean, inter-quartile range, median, and weighted average ratios for each country, along with columns showing the number of EEA undertakings with ratios falling in particular bands (e.g. 80-90% etc) and number of outliers (e.g. with ratio higher than X% or lower than Y%).

16.3 Annex A – Representativeness, Suitability and Overall financial impact

Table 1A	Number of participating firms by type and size class, and proportions of all authorised firms taking part in QIS4
Table 1B	Proportions of firms completing particular sections of the spreadsheet
Table 1C	Estimate of resources needed by undertakings, both for undertakings using the standard formula, an internal model and for groups, for: <ul style="list-style-type: none">- Estimate of additional resources needed to comply with Solvency II requirements- Estimate of resources needed for yearly valuation- Estimate of resources invested to complete QIS4
Table 1D	Reliability and accuracy of data
Table 2A	Appreciations regarding QIS4
Table 2B	Expectations for the future regulatory regime
Table 3A	Simplified balance sheet for Solvency I and Solvency II
Table 3B	Ratios of New Capital Requirements to Solvency I 'Capital Requirement' (i.e. RMM plus valuation differences, with separate evidence of adjustments on the asset side and on the liabilities side)
Table 3C	Solvency Ratios: Ratios of Available/Eligible Capital to SCR and MCR Capital Requirements and Solvency I requirements
Table 3D	Capital surplus ratios: e.g. Ratio of Capital Surplus in QIS4 to Capital Surplus in Solvency I; ratio of capital surplus/required capital in Solvency I and Solvency II; ratio of capital surplus/available capital in Solvency I and Solvency II; ratio of capital surplus/total assets in Solvency I and Solvency II
Table 3E	Table of firms with capital needs

16.4 Annex B – Valuation of Assets and Liabilities (other than provisions)

Table 1	Comparison by types of assets of Solvency I and QIS4 values as a % of current bases value
Table 2	Comparison by types of liabilities of Solvency I and QIS4 values as a % of current bases value
Table 3	Comparison for intangibles of Solvency I and economic value as a % of current bases value
Table 4	Percentage of assets valued at Mark to market, Mark to model and others
Table 5	Percentage of liabilities valued at Mark to market, Mark to model and others

16.5 Annex C – Technical Provisions

a) Life technical provisions

Table 1	Compare net life technical provisions QIS4 (best estimate + risk margin and hedgeable) with net life technical provisions - current basis for each company
Table 2	Calculate the ratio of non- hedgeable obligations for each company
Table 3	Compare the Risk margin (net risk margin + additional net risk margin) with Life technical provisions for non-hedgeable risks (best estimate + net risk margin) for each company
Table 4	Compare the Risk margin (net risk margin + additional net risk margin) with net best estimate (hedgeable and non-hedgeable) for all risks for each company
Table 5	Compare the total value of future discretionary benefits for each company
Table 6	Calculate the ratio of guaranteed and allocated benefits, and other future benefits which relate to a legal or contractual obligation, and future discretionary benefits in excess of previous items, and 'surplus funds' for with profit policies, for each company
Table 7	Calculate the ratio of surrender values to best estimate provisions (gross of reinsurance) for contracts which include the rights to lapse for each company
Table 8	Calculate the ratio of the technical provisions that include the rights to lapse to total provisions for each insurance company and for each class of business.
Table 9	Calculate the ratio of net technical provisions for supplementary non-life insurance technical provisions as a percentage of net life technical provisions QIS4 (best estimate + net risk margin and hedgeable)
Table 10	Compare the Risk margin (net risk margin + additional net risk margin) calculated with standard formula and with internal models for those undertakings which provide the risk margin calculated with internal model

b) Non-life technical provisions

Table 1	Compare net non-life technical provisions QIS4 (best estimate + risk margin) with net non-life technical provisions - current basis for each company
Table 2	Calculate the rate of the premium provision, claims provision and the provisions for which life principle was used

Table 3A	Present the premium provision ratio in a table for small/medium/large/all undertakings separate for non-life and composite insurance companies, reinsurance companies and captives.
Table 3B	Present the claim provision ratio in a table for small/medium/large/all undertakings separate for non-life and composite insurance companies, reinsurance companies and captives.
Table 3C	Present the ratio of provisions for which life principle was used in a table for small/medium/large/all undertakings separate for non-life and composite insurance companies, reinsurance companies and captives.
Table 4	Calculate the ratio of non-hedgeable obligations
Table 5	Calculate the ratio of direct business obligations
Table 6	Compare the Risk margin for non-hedgeable obligations with net non-life technical provisions for non-hedgeable obligations for each company
Table 7	Compare the Risk margins for non-hedgeable obligations and additional market-consistent risk margin for hedgeable risk where the remaining risk is considered material (Risk margin (net risk margin + additional net risk margin)) with net non-life best estimate for all obligations (hedgeable and non-hedgeable) for each company
Table 8	Compare the historical net loss ratio ³ for last year for each line of business for small/medium/large/all undertakings so that you present the average, minimum and maximum historical net loss ratio. The table should be produced separately for non-life and composite insurance companies, reinsurance companies and captives.
Table 9	Compare the Risk margins for non-hedgeable obligations and additional market-consistent risk margin for hedgeable risk where the remaining risk is considered material (Risk margin (net risk margin + additional net risk margin)) calculated with standard formula and with internal models for those undertakings which provide the risk margin calculated with internal model
Table 10	Present the percentage of the undertakings using the same calculation method for determining risk margin for small/medium/large/all undertakings separate for non-life insurance companies, composite insurance companies ⁴ , reinsurance companies and captives.

³ The historical net loss ratio is calculated in accordance with paragraphs TS.XIII.B.12 and TS.XIII.B.13 of QIS4 Technical Specifications (MARKT/2505/08) TS.

⁴For entities which write non-life and life business, the size class shall be assigned in line with the set classification of non-life insurers and life insurers as prescribed for QIS3.

16.6 Annex D – Own funds

Table 1	Composition of Capital by Component in QIS4 (tier 1, tier 2 basic and ancillary, tier 3) and in Solvency I, both in value and as a %.
Table 2A	Ratio of tier 1-3 to SCR based on limit structure in the framework directive proposal and number of entities that hold insufficient tier 1 or excessive tier 3 based on these calculations
Table 2B	Ratio of tier 1-2 BOF to MCR based on limit structure in the framework directive proposal and number of entities that hold insufficient tier 1 BOF or excessive tier 2 BOF based on these calculations
Table 3	High-level specification of own funds under Solvency I and Solvency II
Table 4	High-level specification of tier 1 under Solvency I and Solvency II (Composition of different capital items under tier 1)
Table 5A	High-level comparison of tiering of issued capital instruments using issue date, reporting date or a combination of issue date and reporting date
Table 5B	High-level specification of issued capital instruments, other than common equity capital
Table 5C	High-level specification of issued capital instruments with an issuer call option to redeem
Table 5D	Dated - % with call options, % with step-ups and % with no call option or step-up
Table 5E	Analysis of time periods to legal maturity, call date and step-up (for Dated instruments – Undated instruments)
Table 6	High-level analysis of unbudgeted supplementary mutual members calls – short descriptive analysis

16.7 Annex E – SCR Standard Formula

Table 1	Composition of SCR by component
Table 2	Composition of Basic SCR by component
Table 3	Comparison of simplified and standard approach to calculation of SCR components, per module
Table 4	Ratio of own firm standard deviations to market standard deviations for premium and reserve risk for each line of business, and information about the number of years historical data available. (TS.VI.F.2 or TS.XIII.B.38)
Table 5	Impact on SCR Non-life underwriting risk of substituting own firm standard deviations for market standard deviations
Table 6	Impact on SCR components and total SCR of proposed alternative methods: <ul style="list-style-type: none">- dampener (Annex SCR8),- alternative correlations (TS.IX.A.9), and of the- three methods for treatment of participations (“differentiated equity stress”, “across the board”, “look-through”).
Table 7	Impact on SCR Non-life underwriting risk module of Geographic diversification;
Table 8	Differentiation of Non-life underwriting risk module per line of business in view of calibration
Table 9A-B	Adjustment for the risk absorbing properties of future profit sharing, alternatives and options and adjustment for the risk absorbing properties of deferred taxation
Table 10	Comparison of the calibration derived from Internal Model results with the standard parameters of the SCR Standard Formula, by components

16.8 Annex F – Operational risk

Table 1	Number of firms that keep a non-quantified record of risk events and near misses (by size class and % market)
Table 2	Number of risk events registered (by size class)
Table 3	Number of firms that keep a quantified record of risk events and near misses (by size class and % market)
Table 4	Number and impact (quantitative) of risk events registered (by size class and measured against the SCR)

16.9 Annex G – Internal Models

16.9.1 Annex G1 – Internal Models (solo)

Table 1	Are undertakings already using internal models for some aspects of their business or not? (IMQ.1.a)
Table 2	Are undertakings actively developing and managing internal models for use in their business or not? (IMQ.1.b)
Table 3	Do undertakings plan to use internal models in the future for calculating the SCR at least partially? (IMQ.2)
Table 4	Concerning those undertakings that do not plan to use an internal model in the future for calculating the SCR at least partially, why is that the case? (IMQ.2.a)
Table 5	Concerning those undertakings that do have plans to use an internal model in the future for calculating the SCR at least partially, do they have plans to seek full internal model or partial internal model approval? (IMQ.2.b.i)
Table 6	Concerning those undertakings that do have plans to use an internal model in the future for calculating the SCR at least partially, what are the main reasons for planning to seek full or partial internal model? (IMQ.2.b.ii)
Table 7	Concerning those undertakings that plan to seek partial internal model approval, for which risk modules, sub-modules or business lines in the SCR do undertakings plan to substitute internal models for the standard model? (IMQ.2.b.iii)
Table 8	Given the current state of development of undertakings' internal models, how long do undertakings expect it will take to have the envisaged model at the point where Solvency II approval standards might be met? (IMQ.2.b.iv)
Table 9	What is undertakings' view on their understanding of that their internal modelling work, even in the absence of Solvency II, would enable them to develop a reliable assessment of their capital needs, including the embedding of their capital model within the business and the maintenance of auditable documentation? (IMQ.2.b.v)
Table 10	What is undertakings' believe in that they will incur costs in respect of Solvency II model approval requirements in addition to costs that would otherwise be incurred? (IMQ.2.b.v)
Table 11	Concerning those undertakings that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the total cost in absolute amounts that is expected to relate purely to Solvency II approvals activity of the internal model?</u> (IMQ.2.b.vi)

Table 12	Concerning those undertakings that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the total cost relative to annual expenses that is expected to relate purely to Solvency II approvals activity of the internal model?</u> (IMQ.2.b.vi)
Table 13	Concerning those undertakings that believe that they will incur costs in respect of solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the total upfront cost in absolute amounts that is expected to relate purely to Solvency II activity of the internal model?</u> (IMQ.2.b.vi)
Table 14	Concerning those undertakings that believe that they will incur costs in respect of Solvency 2 model approval requirement in addition to costs that would otherwise be incurred, what is <u>the total upfront cost relative to expenses in that is expected to relate purely to Solvency II activity of the internal model?</u> (IMQ.2.b.vi)
Table 15	Concerning those undertakings that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the annual cost in absolute amounts on a going concern basis of the internal model that is expected to relate purely to Solvency II activity?</u> (IMQ.2.b.vi)
Table 16	Concerning those undertakings that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the annual cost relative to annual expenses on a going concern basis of the internal model that is expected to relate purely to Solvency II activity?</u> (IMQ.2.b.vi)
Table 17	Why do undertakings think that it would be inappropriate to apply the standard formula for calculating the SCR? (IMQ.2.c) Please specify what kind of other reasons why it would be inappropriate to apply the standard formula for calculating the SCR.
Table 18	Concerning those undertakings that have indicated that it would be inappropriate to apply the standard formula for calculating the SCR because their risk profile deviates from the assumptions underlying the standard formula, what are the possible reasons for this? (IMQ.2.d)
Table 19	What is a tentative view of the potential increase/decrease in SCR caused by the application of internal models? (IMQ.2.e)
Table 20	Concerning those undertakings that are either using or actively developing internal models, in which areas are internal models already used? (IMQ.3.b)
Table 21	Which risks or activities are included in undertakings' partial internal models? (IMQ.4)
Table 22	Which relevant risks are not included in undertakings' internal models, but covered by the standard formula? (IMQ.7)

Table 23	Have the internal models used been created in-house or licensed from an external software supplier? (IMQ.8)
Table 24	Which different areas or processes can be identified that make use of the internal models? (IMQ.21)
Table 25	To what extent do undertakings' risk management strategies consider the results produced by their internal models? (IMQ.22)
Table 26	Are the outputs of the internal models included in regular reporting for the Board of directors or not? (IMQ.23.a)
Table 27	Are the outputs of the internal models included in regular reporting for other senior management or not? (IMQ.23.b)
Table 28	Are internal models approved by the Board of directors or not? (IMQ.24.a)
Table 29	Are internal models approved by other senior management or not? (IMQ.24.b)
Table 30	Do undertakings' internal models produce by way of output a probability distribution forecast or not? (IMQ.25)
Table 31	Concerning those undertakings whose internal models produces probability distribution forecasts, do the probability distribution forecast indicate the variation of own funds with respect of a 12 months horizon or not? (IMQ.26)
Table 32	Are the methods used to calculate the probability distribution forecast consistent with the methods used to calculate Solvency II technical provisions or not? (IMQ.27)
Table 33	Do undertakings consider that their internal models have the ability to rank risk sufficiently for risk management purposes? (IMQ.28)
Table 34	Do undertakings consider that the data used by their internal model is sufficiently accurate, complete and appropriate? (IMQ.30)
Table 35	For which risk or activity do undertakings consider that the data used by their internal model is sufficiently accurate, complete and appropriate? (IMQ.30)
Table 36	Do undertakings' internal models take dependencies into account within risk categories or not? (IMQ.32.a)
Table 37	Do undertakings' internal models take dependencies into account across risk categories or not? (IMQ.32.b).
Table 38	If dependencies are taken into account, what are generally the bases of the correlation measures or other dependency measures? (IMQ.33)
Table 39	To which extent do undertakings take into account risk mitigation techniques in their internal models? (IMQ.34)

Table 40	Concerning those undertakings that use risk mitigation techniques in which risk categories and for each such category what kinds of techniques are taken into account? (IMQ.35)
Table 41	To which extent are future management actions taken into account in internal models? (IMQ.36)
Table 42	If future management actions are or are partly taken into account, what kinds of future management actions are considered in internal models? (IMQ.37)
Table 43	What kind of risk measures do undertakings use in their internal models? (IMQ.38.a)
Table 44	What are the confidence levels used by undertakings in their internal models expressed as a percentage confidence level? (IMQ.38.b)
Table 45	What are the confidence levels used by undertakings in their internal models expressed as a rating confidence level? (IMQ.38.b)
Table 46	Are other confidence levels than percentage and rating confidence levels used in internal models? (IMQ.38.b)
Table 47	What is the time horizon used in internal models? (IMQ.38.c)
Table 48	Can a recalibration of the internal models be done in line with the SCR standards to a calibration of 99.5% VaR over a 1 year horizon or not? (IMQ.38.d)
Table 49	If recalibration of the internal model output can be done, how was the recalibration performed? (IMQ.38.e).
Table 50	Are different risk measures, confidence levels or time horizons for different modules or risk drivers used or not? (IMQ.39)
Table 51	To which extent do undertakings have a process in place that demonstrates how the categorisation of risk chosen in the internal model explains the causes and sources of profits and losses? (IMQ.41)
Table 52	To which extent do undertakings have a validation process in place for their internal models? (IMQ.42)
Table 53	Concerning those undertakings that have or partly have a validation process in place, to what extent is the unit that is responsible for the validation task also responsible for a) design b) implementation c) documentation and d) the use of the internal model? (IMQ.43.a)
Table 54	Concerning those undertakings that have or partly have a validation process in place, to which extent are the people responsible for the validation task are a) independent from the persons who take operational decisions and b) independent from the area/departments where risk activities are exercised? (IMQ.43.b)
Table 55	Concerning those undertakings that have or partly have a validation process in place, to which extent is the validation task done

independently from the a) design b) implementation c) testing d) documentation and e) use of the internal model? (IMQ.43.c)

- Table 56 Concerning those undertakings that have or partly have a validation process in place, to which extent do undertakings have a process in place to monitor the appropriateness of the calibration of their internal model? (IMQ.43.d)
- Table 57 Concerning those undertakings that have or partly have a validation process in place and the appropriateness of the probability distribution forecasts and their underlying assumptions, to which extent do undertakings compare probability distribution forecasts and their underlying assumptions with actually observed and available statistical data? (IMQ.43.e.i)
- Table 58 Concerning those undertakings that have or partly have a validation process in place and the appropriateness of the probability distribution forecasts and their underlying assumptions, do undertakings use additional stability analysis regarding changes in key underlying assumptions and/or the impact on the shape of the probability distribution tails – including sensitivity of the results or not? (IMQ.43.e.ii)
- Table 59 Concerning those undertakings that have or partly have a validation process in place, to which extent do undertakings have a process in place to monitor the rank-ordering ability of their internal model? (IMQ.43.f)
- Table 60 Concerning those undertakings that have or partly have a validation process in place, to which extent do undertakings validate how accurate, complete and appropriate the data used by their internal model is? (IMQ.43.g)
- Table 61 Concerning those undertakings that have or partly have a validation process in place, to which extent do undertakings have a process in place to review what the outputs of their internal model would be under circumstances that are different (e.g. stressed) from those prevailing on the valuation date? (IMQ.43.h)
- Table 62 Concerning those undertakings that have or partly have a validation process in place, which extent do undertakings have a process in place to review how volatile the outputs of their internal model are across economic cycles? (IMQ.43.i)
- Table 63 To what extent does undertakings' documentation give a detailed outline of the theory, assumptions, and the mathematical and empirical basis underlying the internal models? (IMQ.44)
- Table 64 To what extent are the internal models documented considering the design and the operational details of the models? (IMQ.45)
- Table 65 To what extent does undertakings' documentation demonstrate the compliance of the internal model with the Articles 118 to 122 that is the use test, statistical quality standards, calibration standards, profit and loss attribution and validation standards? (IMQ.46)

Table 66	To what extent does undertakings' documentation indicate circumstances under which the internal model does not work effectively? (IMQ.47)
Table 67	To what extent are subsequent changes of the models documented? (IMQ.49)
Table 68	To what extent are responsibilities and accountabilities documented for each position related to the internal modelling system in place? (IMQ.50)
Table 69	Internal model results compared with standard SCR results for overall risks
Table 70	Internal model results compared with standard SCR results for market risks
Table 71	Internal model results compared with standard SCR results for non-life underwriting risks
Table 72	Internal model results compared with standard SCR results for health underwriting risks
Table 73	Internal model results compared with standard SCR results for life underwriting risks

16.9.2 Annex G2 – Internal Models (groups)

Table 1	Are groups already using internal models for some aspects of their business or not? (IMQ.1.a)
Table 2	Are groups actively developing and managing internal models for use in their business or not? (IMQ.1.b)
Table 3	Do groups plan to use internal models in the future for calculating the SCR at least partially? (IMQ.2)
Table 4	Concerning those groups that do not plan to use an internal model in the future for calculating the SCR at least partially, why is that the case? (IMQ.2.a)
Table 5	Concerning those groups that do have plans to use an internal model in the future for calculating the SCR at least partially, do they have plans to seek full internal model or partial internal model approval? (IMQ.2.b.i)
Table 6	Concerning those groups that do have plans to use an internal model in the future for calculating the SCR at least partially, what are the main reasons for planning to seek full or partial internal model? (IMQ.2.b.ii)
Table 7	Concerning those groups that plan to seek partial internal model approval, for which risk modules, sub-modules or business lines in the SCR do groups plan to substitute internal models for the standard model? (IMQ.2.b.iii)
Table 8	Given the current state of development of groups' internal models, how long do groups expect it will take to have the envisaged model at the point where Solvency II approval standards might be met? (IMQ.2.b.iv)
Table 9	What is groups' view on their understanding of that their internal modelling work, even in the absence of Solvency II, would enable them to develop a reliable assessment of their capital needs, including the embedding of their capital model within the business and the maintenance of auditable documentation? (IMQ.2.b.v)
Table 10	What is groups' believe in that they will incur costs in respect of Solvency II model approval requirements in addition to costs that would otherwise be incurred? (IMQ.2.b.v)
Table 11	Concerning those groups that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the total cost in absolute amounts that is expected to relate purely to Solvency II approvals activity of the internal model?</u> (IMQ.2.b.vi)
Table 12	Concerning those groups that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the total cost</u>

	<u>relative to annual expenses that is expected to relate purely to Solvency II approvals activity of the internal model? (IMQ.2.b.vi)</u>
Table 13	Concerning those groups that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the total upfront cost in absolute amounts that is expected to relate purely to Solvency 2 activity of the internal model? (IMQ.2.b.vi)</u>
Table 14	Concerning those groups that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the total upfront cost relative to expenses in that is expected to relate purely to Solvency II activity of the internal model? (IMQ.2.b.vi)</u>
Table 15	Concerning those groups that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the annual cost in absolute amounts on a going concern basis of the internal model that is expected to relate purely to Solvency II activity? (IMQ.2.b.vi)</u>
Table 16	Concerning those groups that believe that they will incur costs in respect of Solvency II model approval requirement in addition to costs that would otherwise be incurred, what is <u>the annual cost relative to annual expenses on a going concern basis of the internal model that is expected to relate purely to Solvency II activity? (IMQ.2.b.vi)</u>
Table 17	Why do groups think that it would be inappropriate to apply the standard formula for calculating the SCR? (IMQ.2.c)
Table 18	Concerning those groups that have indicated that it would be inappropriate to apply the standard formula for calculating the SCR because their risk profile deviates from the assumptions underlying the standard formula, what are the possible reasons for this? (IMQ.2.d)
Table 19	What is a tentative view of the potential increase/decrease in SCR caused by the application of internal models? (IMQ.2.e)
Table 20	Concerning those groups that are either using or actively developing internal models, in which areas are internal models already used? (IMQ.3.b)
Table 21	Which risks or activities are included in groups' partial internal models? (IMQ.4)
Table 22	Which relevant risks are not included in groups' internal models, but covered by the standard formula? (IMQ.7)
Table 23	Have the internal models used been created in-house or licensed from an external software supplier? (IMQ.8)
Table 24	Do internal models cover all the entities within the scope of the group or not? (IMQ.10)

Table 25	Do internal models take into account all re-insurance undertakings or not? (IMQ.11)
Table 26	Do internal models take into account activities in other financial sectors or not? (IMQ.14)
Table 27	Are similar risk types are aggregated across financial sector borders or not? (IMQ.16)
Table 28	Which different areas or processes can be identified that make use of the internal models? (IMQ.21)
Table 29	To what extent do groups' risk management strategies consider the results produced by their internal models? (IMQ.22)
Table 30	Are the outputs of the internal models included in regular reporting for the Board of directors or not? (IMQ.23.a)
Table 31	Are the outputs of the internal models included in regular reporting for other senior management or not? (IMQ.23.b)
Table 32	Are internal models approved by the Board of directors or not? (IMQ.24.a)
Table 33	Are internal models approved by other senior management or not? (IMQ.24.b)
Table 34	Do groups' internal models produce by way of output a probability distribution forecast or not? (IMQ.25)
Table 35	Concerning those groups whose internal models produces probability distribution forecasts, do the probability distribution forecast indicate the variation of own funds with respect of a 12 months horizon or not? (IMQ.26)
Table 36	Are the methods used to calculate the probability distribution forecast consistent with the methods used to calculate Solvency II technical provisions or not? (IMQ.27)
Table 37	Do groups consider that their internal models have the ability to rank risk sufficiently for risk management purposes? (IMQ.28)
Table 38	Do groups consider that the data used by their internal model is sufficiently accurate, complete and appropriate? (IMQ.30)
Table 39	For which risk or activity do groups consider that the data used by their internal model is sufficiently accurate, complete and appropriate? (IMQ.30)
Table 40	Do groups' internal models take dependencies into account within risk categories or not? (IMQ.32.a)
Table 41	Do groups' internal models take dependencies into account across risk categories or not? (IMQ.32.b).

Table 42	If dependencies are taken into account, what are generally the bases of the correlation measures or other dependency measures? (IMQ.33)
Table 43	To which extent do groups take into account risk mitigation techniques in their internal models? (IMQ.34)
Table 44	Concerning those groups that use risk mitigation techniques in which risk categories and for each such category what kinds of techniques are taken into account? (IMQ.35)
Table 45	To which extent are future management actions taken into account in internal models? (IMQ.36)
Table 46	If future management actions are or are partly taken into account, what kinds of future management actions are considered in internal models? (IMQ.37)
Table 47	What kind of risk measures do groups use in their internal models? (IMQ.38.a)
Table 48	What are the confidence levels used by groups in their internal models expressed as a percentage confidence level? (IMQ.38.b)
Table 49	What are the confidence levels used by groups in their internal models expressed as a rating confidence level? (IMQ.38.b)
Table 50	Are other confidence levels than percentage and rating confidence levels used in internal models? (IMQ.38.b)
Table 51	What is the time horizon used in internal models? (IMQ.38.c)
Table 52	Can a recalibration of the internal models be done in line with the SCR standards to a calibration of 99.5% VaR over a 1 year horizon or not? (IMQ.38.d)
Table 53	If recalibration of the internal model output can be done, how was the recalibration performed? (IMQ.38.e).
Table 54	Are different risk measures, confidence levels or time horizons for different modules or risk drivers used or not? (IMQ.39)
Table 55	To which extent do groups have a process in place that demonstrate how the categorisation of risk chosen in the internal model explains the causes and sources of profits and losses? (IMQ.41)
Table 56	To which extent do groups have a validation process in place for their internal models? (IMQ.42)
Table 57	Concerning those groups that have or partly have a validation process in place, to what extent is the unit that is responsible for the validation task also responsible for a) design b) implementation c) documentation and d) the use of the internal model? (IMQ.43.a)
Table 58	Concerning those groups that have or partly have a validation process in place, to which extent are the people responsible for the validation task are a) independent from the persons who take

operational decisions and b) independent from the area/departments where risk activities are exercised? (IMQ.43.b)

- Table 59 Concerning those groups that have or partly have a validation process in place, to which extent is the validation task done independently from the a) design b) implementation c) testing d) documentation and e) use of the internal model? (IMQ.43.c)
- Table 60 Concerning those groups that have or partly have a validation process in place, to which extent do groups have a process in place to monitor the appropriateness of the calibration of their internal model? (IMQ.43.d)
- Table 61 Concerning those groups that have or partly have a validation process in place and the appropriateness of the probability distribution forecasts and their underlying assumptions, to which extent do groups compare probability distribution forecasts and their underlying assumptions with actually observed and available statistical data? (IMQ.43.e.i)
- Table 62 Concerning those groups that have or partly have a validation process in place and the appropriateness of the probability distribution forecasts and their underlying assumptions, do groups use additional stability analysis regarding changes in key underlying assumptions and/or the impact on the shape of the probability distribution tails – including sensitivity of the results or not? (IMQ.43.e.ii)
- Table 63 Concerning those groups that have or partly have a validation process in place, to which extent do groups have a process in place to monitor the rank-ordering ability of their internal model? (IMQ.43.f)
- Table 64 Concerning those groups that have or partly have a validation process in place, to which extent do groups validate how accurate, complete and appropriate the data used by their internal model is? (IMQ.43.g)
- Table 65 Concerning those groups that have or partly have a validation process in place, to which extent do groups have a process in place to review what the outputs of their internal model would be under circumstances that are different (e.g. stressed) from those prevailing on the valuation date? (IMQ.43.h)
- Table 66 Concerning those groups that have or partly have a validation process in place, which extent do groups have a process in place to review how volatile the outputs of their internal model are across economic cycles? (IMQ.43.i)
- Table 67 To what extent does groups' documentation give a detailed outline of the theory, assumptions, and the mathematical and empirical basis underlying the internal models? (IMQ.44)
- Table 68 To what extent are the internal models documented considering the design and the operational details of the models? (IMQ.45)

Table 69	To what extent does groups' documentation demonstrate the compliance of the internal model with the Articles 118 to 122 that is the use test, statistical quality standards, calibration standards, profit and loss attribution and validation standards? (IMQ.46)
Table 70	To what extent does groups' documentation indicate circumstances under which the internal model does not work effectively? (IMQ.47)
Table 71	To what extent are subsequent changes of the models documented? (IMQ.49)
Table 72	To what extent are responsibilities and accountabilities documented for each position related to the internal modelling system in place? (IMQ.50)
Table 73	Internal model group results compared with standard SCR results by using the default method
Table 74	Internal model group results compared with standard SCR results by using variation method 1
Table 75	Internal model group results compared with standard SCR results by using variation method 2

16.9.3 Annex G3 – Internal Models qualitative questions to Annex G1-G2

I - Solo

1. Concerning those undertakings that do not plan to use an internal model in the future for calculating the SCR at least partially, please specify other reasons than mentioned in IMQ.2a.why undertakings do not plan to use an internal model in the future for calculating the SCR at least partially.
(Reference tables: Annex G1, table 4)

<Participants view on G3.I.1>

Only one participant does not plan to use an internal model. The reasons are the following: too expensive, too demanding, too large administrative burden and the standard SCR works well.

</Participants view on G3.I.1>

<Analysts view on G3.I.1>

</Analysts view on G3.I.1>

2. Concerning those undertakings that do have plans to use an internal model in the future for calculating the SCR at least partially, please specify what kind of other reasons than mentioned in IMQ.2b.ii were given for planning to seek full or partial internal model.
(Reference tables: Annex G1, table 6)

<Participants view on G3.I.2>

6 of responders plan to use an internal model, but two of them only partially. All of them hopes better risk management, better capital management and more transparent decision-making, two of them would like lower regulatory capital, and one responder mentioned, that developing full internal model is would improve flexibility in managing versus one capital measure.

</Participants view on G3.I.2>

<Analysts view on G3.I.2>

</Analysts view on G3.I.2>

3. Concerning those undertakings that plan to seek partial internal model approval, please describe any information given concerning partial internal modelling across business lines, in addition to the risk modules, sub-modules or business lines in the SCR that undertakings plan to substitute internal models for the standard model for (IMQ.2.b.iii).
(Reference tables: Annex G1, table 7)

<Participants view on G3.I.3>

Those two undertakings who plan to seek partial internal model design it for operational risk, for non-life premium risk and non-life catastrophe risk. Either of them plans to use internal model almost everywhere such as market risk, interest, equity and spread sub risks, life underwriting risk, mortality, longevity, disability, lapse and cat sub risks.

</Participants view on G3.I.3>

<Analysts view on G3.I.3>

</Analysts view on G3.I.3>

4. Concerning those undertakings that have indicated that it would be inappropriate to apply the standard formula for calculating the SCR because their risk profile deviates from the assumptions underlying the standard formula, please specify what kind of other reasons than those in IMQ.2.d were given for the inappropriateness to apply the standard formula for calculating the SCR.

(Reference tables: Annex G1, table 18)

<Participants view on G3.I.3>

Two participants think that their risk profile deviates from the assumptions underlying the standard formula in terms of volatility and because non-linear dependency of risks. Every reasons mentioned in IMQ.2.d were given either of responders, except deviations in terms of risk exposure.

</Participants view on G3.I.3>

<Analysts view on G3.I.3>

</Analysts view on G3.I.3>

5. Concerning those undertakings that are either using or actively developing internal models, in which areas are internal models already used? (IMQ.3.b) Please specify in what kind of other areas than mentioned in IMQ.3.b internal models are used.

(Reference tables: Annex G1, table 20)

<Participants view on G3.I.4>

All of 6 responders already use the internal models in product development; five of them use it in pricing, in performance analysis, for reinsurance and in investment policy; four of them use it in asset and capital allocation and for ALM. Except management compensation every reason was mentioned from IMQ.3.b.

</Participants view on G3.I.4>

<Analysts view on G3.I.4>

</Analysts view on G3.I.4>

6. Which other risks or activities are included in undertakings' partial internal models than mentioned in IMQ.4?
(Reference tables: Annex G1, table 21)

<Participants view on G3.I.5>

Except market concentration risk and life revision risk every risk and activities are included in two internal models than mentioned in IMQ.4.

</Participants view on G3.I.5>

<Analysts view on G3.I.5>

Those two undertakings who answered this question have full internal model. Participants possessing partial internal model did not answer this question.

</Analysts view on G3.I.5>

7. Which other areas or processes than mentioned in IMQ.21 can be identified that make use of the internal models?
(Reference tables: Annex G1, table 24)

<Participants view on G3.I.7>

See under template question 107.

</Participants view on G3.I.7>

<Analysts view on G3.I.7>

</Analysts view on G3.I.7>

8. Please specify to which extent undertakings consider that the data used by their internal model is sufficiently accurate, complete and appropriate for other risks not mentioned in IMQ.30.
(Reference tables: Annex G1, table 35)

<Participants view on G3.I.8>

Both participants who reported results about their full internal model partially agreed that the data used is sufficiently accurate, complete and appropriate; but just one of them detailed its answer concerning to accurateness.

</Participants view on G3.I.8>

<Analysts view on G3.I.8>

</Analysts view on G3.I.8>

9. If dependencies are taken into account, please describe other approaches for modelling dependencies than mentioned in IMQ.33.
(Reference tables: Annex G1, table 38)

<Participants view on G3.I.9>

N/A

</Participants view on G3.I.9>

<Analysts view on G3.I.9>

</Analysts view on G3.I.9>

10. Concerning those undertakings that use risk mitigation techniques, please specify per risk category additional risk mitigation techniques than those mentioned in IMQ.35 that undertakings use in their internal models.
(Reference tables: Annex G1, table 40)

<Participants view on G3.I.10>

See under template question 111.

</Participants view on G3.I.10>

<Analysts view on G3.I.10>

</Analysts view on G3.I.10>

11. If future management actions are or are partly taken into account, please describe other management actions than mentioned in IMQ.37 that are used by undertakings in their internal models.
(Reference tables: Annex G1, table 42)

<Participants view on G3.I.11>

See under template question 112.

</Participants view on G3.I.11>

<Analysts view on G3.I.11>

</Analysts view on G3.I.11>

12. Please describe other risk measures than mentioned in IMQ.38.a that undertakings reported to use in their internal models.
(Reference tables: Annex G1, table 43)

<Participants view on G3.I.12>

One of them used VaR risk measures only, other one of them used both (VaR and Tail VaR).

</Participants view on G3.I.12>

<Analysts view on G3.I.12>

</Analysts view on G3.I.12>

13. Please describe other approaches than a percentage confidence level and a rating confidence level indicated by undertakings than mentioned in IMQ.38.b.
(Reference tables: Annex G1, table 46)

<Participants view on G3.I.13>

They used confidence level higher than or equal to 99.5% percentage, and AA in rating.

</Participants view on G3.I.13>

<Analysts view on G3.I.13>

</Analysts view on G3.I.13>

14. If recalibration of the internal model output can be done, please describe other ways to recalibration than mentioned in IMQ.38.e.
(Reference tables: Annex G1, table 49)

<Participants view on G3.I.14>

One of responders would recalibrate of its internal model directly from the probability distribution forecast. The other participant who reported about its full internal model just mentioned that the recalibration to SCR standards is possible, but did not say how.

</Participants view on G3.I.14>

<Analysts view on G3.I.14>

</Analysts view on G3.I.14>

II - Groups

15. Concerning those groups that do not plan to use an internal model in the future for calculating the SCR at least partially, please specify other reasons than those in IMQ.2.a why groups do not plan to use an internal model in the future for calculating the SCR at least partially.
(Reference table: Annex G2, table 4)

<Participants view on G3.II.15>

</Participants view on G3.II.15>

<Analysts view on G3.II.15>

</Analysts view on G3.II.15>

16. Concerning those groups that do have plans to use an internal model in the future for calculating the SCR at least partially, please specify what kind of other reasons than those in IMQ.2.b.ii were given for planning to seek full or partial internal model.

(Reference table: Annex G2, table 6)

<Participants view on G3.II.16>

</Participants view on G3.II.16>

<Analysts view on G3.II.16>

</Analysts view on G3.II.16>

17. Concerning those groups that plan to seek partial internal model approval, please describe any additional information given concerning partial internal modelling across business lines than in IMQ.2.biii.

(Reference table: Annex G2, table 7)

<Participants view on G3.II.17>

</Participants view on G3.II.17>

<Analysts view on G3.II.17>

</Analysts view on G3.II.17>

18. Please specify what kind of other reasons than in IMQ.2.c why groups think it would be inappropriate to apply the standard approach for calculating the SCR.

(Reference table: Annex G2, table 17)

<Participants view on G3.II.18>

</Participants view on G3.II.18>

<Analysts view on G3.II.18>

</Analysts view on G3.II.18>

19. Concerning those groups that are either using or actively developing internal models, please specify in what kind of other areas than those in IMQ.3.b internal models are used.

(Reference table: Annex G2, table 20)

<Participants view on G3.II.19>

</Participants view on G3.II.19>

<Analysts view on G3.II.19>

</Analysts view on G3.II.19>

20. Please indicate which other risks than those mentioned in IMQ.4 have been included in group internal models.
(Reference table: Annex G2, table 21)

<Participants view on G3.II.20>

</Participants view on G3.II.20>

<Analysts view on G3.II.20>

</Analysts view on G3.II.20>

21. Please specify in what kind of other areas internal models than those mentioned in IMQ.21 are used.
(Reference table: Annex G2, table 28)

<Participants view on G3.II.21>

</Participants view on G3.II.21>

<Analysts view on G3.II.21>

</Analysts view on G3.II.21>

22. Please specify to which extent groups consider that the data used by their internal model is sufficiently accurate, complete and appropriate for other risks not included in IMQ.30.
(Reference table: Annex G2, table 39)

<Participants view on G3.II.22>

</Participants view on G3.II.22>

<Analysts view on G3.II.22>

</Analysts view on G3.II.22>

23. If dependencies are taken into account, please describe other approaches for modelling dependencies than those in IMQ.33.
(Reference table: Annex G2, table 42)

<Participants view on G3.II.23>

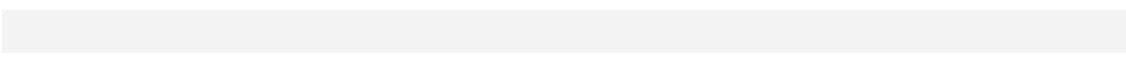
</Participants view on G3.II.23>

<Analysts view on G3.II.23>

</Analysts view on G3.II.23>

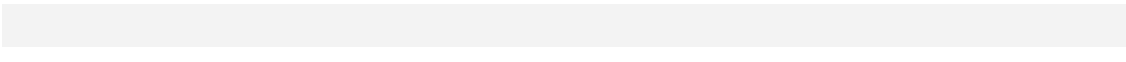
24. Concerning those groups that use risk mitigation techniques, please specify per risk category additional risk mitigation techniques than in IMQ.35 that groups use in their internal models.
(Reference table: Annex G2, table 44)

<Participants view on G3.II.24>



</Participants view on G3.II.24>

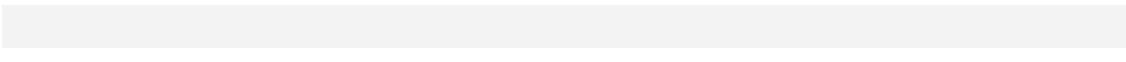
<Analysts view on G3.II.24>



</Analysts view on G3.II.24>

25. If future management actions are or are partly taken into account, please describe other management actions than mentioned in IMQ.37 that are used by group internal models.
(Reference table: Annex G2, table 46)

<Participants view on G3.II.25>



</Participants view on G3.II.25>

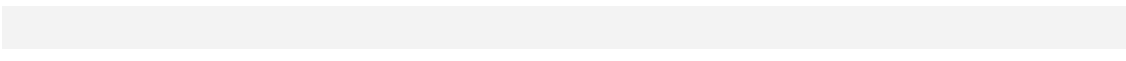
<Analysts view on G3.II.25>



</Analysts view on G3.II.25>

26. What kind of risk measures do groups use in their internal models? (IMQ.38.a) Please describe other risk measure than mentioned in IMQ.38.a reported.
(Reference table: Annex G2, table 47)

<Participants view on G3.II.26>



</Participants view on G3.II.26>

<Analysts view on G3.II.26>



</Analysts view on G3.II.26>

27. Please describe the use of any other approaches than a percentage confidence level and a rating confidence level in internal models indicated by groups.
(Reference table: Annex G2, table 50)

<Participants view on G3.II.27>



</Participants view on G3.II.27>

<Analysts view on G3.II.27>

</Analysts view on G3.II.27>

28. If recalibration of the internal model output can be done, please describe other ways of the recalibration of internal model output than described in IMQ.38.e.
(Reference table: Annex G2, table 53)

<Participants view on G3.II.28>

</Participants view on G3.II.28>

<Analysts view on G3.II.28>

</Analysts view on G3.II.28>

16.10 Annex H – MCR

Table 1 Ratios of MCR to SCR, for non-life, life, composite companies and all, per quartile

All tables divided into

- i) MCR to SCR (standard formula)
- ii) MCR to SCR (internal model)
- iii) MCR_combined to SCR (standard formula)
- iv) MCR_combined to SCR (internal model)
- v) MCR_linear to SCR (standard formula)
- vi) MCR_linear to SCR (internal model)
- vii) MCR_linear to BSCR – Adj_FDB + SCR_Op
- viii) MCR_linear (gross of FDB) to BSCR + SCR_Op

Table 2 Number of firms, for non-life, life, composites companies and all, for ratios of MCR to SCR in 5% steps till 50%

All tables divided into

- i) MCR to SCR (standard formula)
- ii) MCR to SCR (internal model)
- iii) MCR_combined to SCR (standard formula)
- iv) MCR_combined to SCR (internal model)

Table 3 Number of firms, for non-life, life, composites companies and all, for ratio of MCR to SCR in the linear approach in 10% till >100%

All tables divided into

- v) MCR_linear to SCR (standard formula)
- vi) MCR_linear to SCR (internal model)
- vii) MCR_linear to BSCR – Adj_FDB + SCR_Op
- viii) MCR_linear (gross of FDB) to BSCR + SCR_Op