



**The Actuarial Profession**

making financial sense of the future

consultation response

**Financial Services Authority**

**Discussion Paper 08/04**

***Insurance Risk Management:  
the path to Solvency II***

**January 2009**

## The Actuarial Profession's detailed comments on FSA Discussion Paper DP08/04 *Insurance Risk Management – the path to Solvency II*

### Introduction

This response has been prepared by the General Insurance Solvency II Working Party and the Life Insurance Solvency II Working Group and has been endorsed by both the General Insurance Practice Executive Committee and the Life Practice Executive Committee.

### General comments on the paper

#### General Insurance:

We welcome the discussion paper DP08/4 "Insurance Risk Management: The Path To Solvency II". It gives a clear outline of the challenges that will be faced by companies as they prepare for Solvency II, and highlights the process for pre-approval of company's internal models. We think that the internal model approval is vital for a large number of general insurance companies, and therefore any further clarification of the exact requirements would be of immense value to the general insurance industry.

#### Life

We would like to thank the FSA for the discussion paper. We think it provides a useful summary at a suitably high level for executives on Solvency II and gives a helpful road map of the future. We commend the paper to anyone coming to the subject anew especially chapters 1-4. The internal models part is more technical and esoteric and may have been better done as a different, more technical, DP. However, again, the issues are usefully summarised.

We would suggest to the FSA that we need to be careful not to encourage over-reliance on models. Models give a start but they can never replace common sense judgements based on experience in the management of a financial institution. Models can often give a false sense of comfort to senior management especially if the models are complex and their limitations are not grasped by management. A number of high profile failures recently may have been, in part, due to complex models encouraging management to take extreme risk positions whilst believing that the position was benign and "hedged" (reference the "Model Myopia" speech by Thomas Huertas of the FSA on 8 December 2008).

Therefore, we would suggest that the FSA should put more emphasis on boards understanding the limitations of the models used by the organisation. In this regard, we do note that the FSA has always been keen on simple models acting as checks on the more complex models in use by the technicians.

One point that has been raised is the likely duplication that may arise between the FSA validating internal models for use in Solvency II and the audit profession's requirement to make sure that any Pillar 1 number comes from models that they can check. We would suggest that the FSA needs to consider whether its validation of the model (which is likely to be extensive) could be relied upon by auditors and whether the FSA's opinion would be expressed in such a way that auditors could use the opinion. If not, the FSA may need to think about whether to remove the calibration and the calculation of the internal model from the scope of audit.

## **The Actuarial Profession's attitude to Solvency II**

### Life

We would like to take this opportunity to place on record that the UK Actuarial Profession welcomes Solvency II. We believe that, if supervision under Solvency II is in line with the stated high aims, the new standard will generate a better informed supervisor, better informed Boards and a better informed public. We also believe that the reduction in arbitrary requirements for prudence in favour of more risk based methods should help minimise perverse incentives and the opportunity for regulatory arbitrage.

## **Responses to the FSA's specific questions for feedback**

### Life

Please note that we do not think it appropriate for us to answer most of the questions on firms' specific experience and have given a "no comment" response here.

## **Chapter 3 – Systems of governance and reporting requirements**

### **Q1: What views do firms have on the process for the transition from ICA to ORSA?**

#### General Insurance:

As mentioned, the ICAS process in the UK has brought internal risk and capital management to the forefront of the industry over the past few years. To smooth the transition process informal discussions with firms based on the nature and degree of enhancements required over ICA to meet ORSA and Solvency II standards would be helpful. These would take place prior to the 'dry run' period described in Annex 1 and be based on firms' latest ICAS submissions and other evidence such as ARROW visits.

We are concerned that paragraph 3.9 talks about a higher confidence level for the ORSA than the SCR. Although economic capital is typically higher than regulatory capital, the ORSA should not necessarily just target a higher probability in the internal model, for what is already an extreme event subject to material model and parameter uncertainty. Rather, it could depend on the SCR in some fashion, e.g. 20% higher than the SCR. This would help companies better understand the risk appetite they are working to, rather than focusing on a number coming out of an internal model.

### Life

We believe that the ORSA could easily be confused with the ICA. However, we believe that it is more akin to Financial Condition Reports and Dynamic Solvency Testing as outlined in the old Guidance Note 2 of the UK Actuarial Profession (and possibly the stress and scenario testing requirements outlined in the recent FSA consultation paper). Although short term tests are required to demonstrate current solvency, it is a requirement to carry out longer term tests tied into the long term business plan of the organisation. We believe most firms will be able to meet this requirement, although the requirement to project the SCR may prove challenging for many if simple "driver" based methods are not permitted (e.g. using sum at risk as a driver for projecting the mortality risk component of the SCR).

**Q2: How do firms consider supervisors should respond to breach of targeted economic capital requirements?**

General Insurance:

Both the firm and the regulator should understand the overall position before determining a response, in particular they should first consider the difference between the target economic capital and the regulatory level of capital. The degree of urgency relating to any response by the supervisor should reflect the size of the margin over the statutory capital level.

The typical ladder of intervention approach is as appropriate under Solvency II as under the current regime. The action taken should take account of the specific nature of the breach.

When a company breaches their economic capital level, it should trigger senior management to either raise further capital or change the overall strategic plan for the company (e.g. reduce some of the high risk exposures that it writes, buy more reinsurance). At this point, regulators should be made aware of the breach, although supervisors should not become directly involved unless the breach is caused by a systemic effect that is likely to arise in a breach of the solvency capital.

Life

Target economic capital requirements are set in different ways and with different meanings in each firm and it will be important for the supervisor to understand the approach of each organisation in advance of any breach as this will influence the appropriate response by the insurer and the supervisor.

**Chapter 4 – Demonstrating adequate financial resources (Pillar 1)**

**Q3: What steps are firms taking to develop the appropriate valuation systems to calculate technical provisions under Solvency II? How is this work linked to the implementation of IFRS standards?**

General Insurance:

Asset valuation systems are typically well set up in UK general insurance companies, specifically since they are typically based upon market values, and do not require mark-to-model valuation methods.

Liability valuation systems will require updating, particularly given the new basis for reserving. A “probability weighted average” reserve is conceptually difficult to satisfy, and the Actuarial Profession has set up internal working groups to look at this issue. The risk margin appears less problematic although it is unlikely to have been incorporated in valuation systems yet.

We understand the IFRS valuation is going to be based upon exit valuations, which is akin to underwriting year accounting. This will cause systems issues for companies that currently do not reserve on this basis. It would be desirable for Solvency II and IFRS 2 to have a common realistic liability basis to simplify overall calculations.

Life

No comment.

**Q4: What steps have firms taken to consider whether they have the right quality capital to meet the capital requirements?**

General Insurance:

No specific comments.

Life

No comment.

**Q5: What further guidance, in addition to that in the QIS4 technical specification, would be useful for firms on the application of the SCR standard formula for their business?**

General Insurance:

QIS4 was quite well documented, albeit relatively complicated to actual calculate. This documentation should suffice in order for companies to understand how to calculate the standard formula SCR.

Life

We think that the specification was a useful starting point but that additional guidance could be given on the treatment of deferred taxes, the allowance for dynamic policyholder behaviour and risk mitigation.

**Q6: How do you think firms could best demonstrate compliance with the Pillar 1 requirements on a real-time and prospective basis?**

General Insurance:

Whether a company uses a standard formula SCR or an internal model approach, it is likely to be difficult to re-run these in real-time and prospectively. We would expect companies to develop suitable risk measures that are proxies for capital that can be monitored on a regular/real time basis

In the absence of any major loss activity or material change in business strategy, we would suggest an annual requirement to re-run these models, with a clear, well documented method to re-forecast the capital requirements over each quarter end.

Where there has been major loss activity or a material change in the business strategy, we would suggest the re-calculation of the SCR is required.

Life

A key issue is proportionality. While the accurately determined Pillar 1 Solvency position remains strong and circumstances have not changed significantly, then relatively crude models may be used to demonstrate continued Pillar 1 Solvency.

Accurate models for technical provisions are complex and take time to update. Approximations can be achieved through not updating in-force policy data and run times can be reduced for stochastic runs through the use of control variates. Other approximations can be used such as fitted free capital formulae, replicating portfolios and sensitivities to changes in key parameters.

## Chapter 5 – Use and Approval of internal models

### **Q7: To what extent does this description reflect firms' current and planned future internal models?**

#### General Insurance:

Most companies that have an internal model satisfy the second part of the definition, a system that determine capital requirements based upon the risk profile of the company.

Where most internal models currently fail is in the integration with the overall risk management framework. This is a complicated area, and something that the general insurance and enterprise risk management practice areas of the Actuarial Profession will be considering more fully over the 2009.

One area that UK general insurance companies have made significant progress over the past couple of years is in the use of the internal model for decision making purposes. Such models are regularly used as an input for capital allocation to set targets and possibly remuneration strategies, for reinsurance optimisation and other risk-related decision making.

#### Life

No comment

### **Q8 Solvency II is likely to require clear and demonstrable integration between capital measurement systems and capital management. How should firms demonstrate the link between or integration of their internal model and their risk management framework?**

#### General Insurance:

As mentioned above, this is a difficult area, and something that the Actuarial Profession will be considering in more detail over 2009. In general, we would expect risk measures derived from the model to be used as inputs into business decisions.

#### Life

It is important to distinguish between “capital management” and the “risk management framework” (and also to recognise that these two terms can be interpreted in a number of different ways).

We would distinguish the concepts as follows, but stress that this is only one possible interpretation (and there are also potential areas of overlap):

#### Capital Management:

##### Definition:

This is the process of allocating capital to business activities (using a system to measure the risk and reward profile) and monitoring how that capital is used on an ongoing basis. The focus here is on business strategy and performance measurement.

##### Demonstrating the link to the internal model:

The physical allocation of capital to business may be based on the higher of economic (Pillar 2) and regulatory (Pillar 1) capital, given that the latter is a binding minimum. An internal model could be used to measure both of these capital measures at the legal entity level.

Firms should ensure that any capital allocation carried out at a granular level (e.g. by product) links back to capital assessments performed using the internal model at legal entity level.

Risk Management Framework:

Definition:

This is the framework for identifying, measuring, monitoring, controlling and mitigating risks.

Demonstrating the link to the internal model:

Identification: There should be consistency between the list of risk types covered by an internal model and the list of risk types identified in its risk management framework. (However, it should be accepted that some risks, such as strategic risk or reputation risk, cannot be modelled quantitatively in an internal model or may have limited or no role in the assessment of the capital required to cover the risks to the in-force business).

Measurement: An internal model would be used primarily to measure the required capital in respect of each risk category. Other metrics would also be used in conjunction with economic capital required for risk measurement (e.g. breakdown of asset portfolio by credit rating), but these are not necessarily outputs of an internal model. Furthermore, for some risk types the required capital may not be the chief barometer of risk (e.g. reputation risk).

Monitoring: The required capital in respect of relevant risks should be monitored at a frequency that allows risk management decisions to be made appropriately. The “right” frequency will depend on how frequently the relevant management decisions to control exposures actually need to be made and how quickly risk exposures and risks may change.

Control: Risk control is usually achieved through risk appetite thresholds that are applied at an aggregate (strategic) level or a granular (operating) level. The output of an internal model (i.e. required capital) may be a useful input into strategic thresholds, but would be less so for operating thresholds. Nevertheless, there should be a link between strategic and operating thresholds (although this is a considerable challenge to achieve).

Mitigation: The potential impact of possible hedging strategies on required capital should be assessed using the internal model as and when material transactions are proposed.

As a general comment, we view an internal model as being primarily a tool to measure capital requirements, and this is just one of a range of tools that are required in a risk management framework.

**Q9 i. Does this outline cover all the key dimensions of capital management activities within the industry?**

**ii. How does this compare with current industry practice?**

General Insurance:

Capital allocation is one of the key uses of the capital model for capital management purposes. This is difficult to do, and the Actuarial Profession has set up a working party to look at the practicalities of capital allocation (as well as several other working parties looking at some of the technical aspects).

It is current industry practice to allocate capital for target setting and performance management purposes, although it is not very common to allocate capital for strategic remuneration within the company.

As an aside, we would comment that 5.19 implies economic capital will be allocated to business lines in line with the corresponding 'inherent' or stand alone capital. It is not clear if 5.19 has considered approaches to capital allocation that take account of the marginal capital impact of business lines (which may be nil or negative).

Life - re: Question 9 (i)

The description in 5.19 is a reasonably comprehensive description of the concept of capital management. We only have the following comments:

- The Directive does not prescribe that capital management will be performed by the risk management function. The “capital management” may not always be performed by the risk management function currently, depending on the organisation structure. For example, risk management in some firms may be purely a risk oversight role without the responsibility of capital allocation decisions. This heterogeneity should be recognised and we do not feel that it is necessary to stipulate under Solvency II how an organisation might structure itself to perform these different activities.
- The term “capital management” could in theory encompass other related objectives including:
  - optimising the tax efficiency of capital allocation
  - managing regulatory capital volatility
  - dividend policy
  - deciding on sources/types of capital (e.g. subordinate debt issuance)

Whether these are strictly “capital management” activities or overlap with other spheres is a matter of terminology.

Life – re: Question 9 (ii)

No comment.

**Q10: i. What are firms doing to evaluate and improve data?**

**ii. What further work (including industry-wide initiatives) might be helpful (for example, flood claims, large motor claims) to improve the completeness of firm data along the lines of the Operational Risk Insurance Consortium (ORIC)?**

General Insurance:

Data quality is one of the key issues for Actuaries, and the Board for Actuarial Standards currently has a consultation paper on data issues, BAS PN 11. In the summary it notes “Data is a crucial ingredient in the calculations that arise in actuarial work, and it is important that the data used is as reliable as possible and thoroughly understood. The consultation paper sets out the principles that the BAS believes should apply to the use of data in actuarial work and the rationale for them.” By actuaries adhering to these requirements, data standards will be significantly improved in their workings.

Other industry-wide initiatives may be helpful. For example, for weather related catastrophes many firms are reliant on external firms such as RMS, Equecat & AIR to model events correctly and accurately. It would be helpful for validation purposes under Solvency II for an industry-wide or regulatory scrutiny or system test to be carried out. This would provide assurance that these Catastrophe models are appropriate and carry out their internal calculations correctly.

The results from any such initiatives would need careful consideration before application by companies as they may lack relevance to the specific operating environment for the company...

Life – re: Question 10 (i)

No comment.

Life – re: Question 10 (ii)

Further industry data analysis of persistency and morbidity experience would be of value for the life sector. While there are some industry sources available (e.g. ABI surveys) these analyses do not have same depth as data available for other risk types (e.g. CMI studies, historical data from equity indices). Persistency data is always dependent on the policy structure, distribution channel and the administration methods employed by the firm and may be less capable of general use but would still be useful.

Our view is that the perceived shortfall in standards referred to in 5.26 probably reflects the lack of available data much more than it reflects a lack of investment by firms in systems and processes.

Collecting and collating information on implied volatility would also be useful for improving consistency in the calibration of risk neutral economic scenario generators and the calculation of technical provisions. We also believe that the industry wide results should be public information (as is the results of the CMI studies) so that all participants can benefit from the research. We would suggest that the FSA should encourage this.

**Q11: What further guidance would be useful on good practice in respect of data?**

General Insurance:

Illustrative examples would be useful for the bullet points listed, in particular to understand how regulators will interpret good data and adherence to the data quality standards. However, the BAS guidelines are much stronger, and offer a useful framework for actuaries, as well as non-actuaries, when considering the data they are using.

Life

Detailed case studies showing specific examples of current practice and comparison to target best practice would be very useful to help industry understand exactly what the perceived gaps are.

- More clarification of what is meant by “back-testing” would also be helpful – this term has a specific interpretation originating from the banking sector which may not be appropriate in the context of insurance business.
- Consultation on how frequently the analysis to support a calibration of tail stresses and/or tail correlations may be helpful. Our opinion is that this kind of calibration is inherently subjective and updating the data analysis on a very frequent basis (e.g. monthly) would not add much value.

**Q12: Which approaches do firms use within their capital model? How and why are these approaches used? ('Approaches' can be defined or applied at a high level, eg, stochastic/deterministic)**

General Insurance:

No specific comments.

Life

No comment

**Q13: Do you consider that there are areas where industry or the professions should be focusing their research capabilities to improve internal models? Please provide examples.**

General Insurance:

The non-life practice area of the Actuarial Profession will be publishing a paper on Internal Models during the first half of 2009, and this highlights a number of areas where further research is required for internal models. At a high level, the three key areas for research are the link between risk management and the internal model, the valuation of reserves under Solvency II, and the correlation between combinations of risks at appropriate probability levels.

Life

We support 5.36 and believe that the aggregation of risk/capital requirements is a particular important area for the actuarial profession and industry to focus its research. However, as a cautionary note we should consider the following:

- Smaller firms may not have the resources to invest in sophisticated models of non-linear co-dependency.
- Complex models of non-linearity (such as copulas and "big bang" scenarios) are often as reliant on subjective views as simpler solutions (such as the CEIOPS standard model variance covariance matrix approach).
- Any research into the area of non-linearity should consider practical solutions that could actually be applied in a commercial setting.

Some of the ideas referred to in the DP (including: "back-testing", "profit and loss attribution", and the analysis of "ripple effects") may be unfamiliar for some firms. Research showing worked examples of what some of these new concepts actually might look like in practice would be beneficial.

Further areas for research would include models of policyholder behaviour and reliable proxy solutions.

**Q14: i. Firms are invited to comment on how explicitly their risk appetite links to their credit rating, where applicable.**

**ii. How do you think we should test the adequacy of internal models – for example, should we require evidence of peer review, benchmark by industry sector, require external audit, run benchmark portfolios or develop our own capital model? What other possibilities do you consider appropriate?**

General Insurance:

No specific comments on (i).

Developing and testing of internal models is a complicated area, and there is no one solution that will satisfy all needs.

Internal peer review (and evidence that it was carried out) is an effective way of ensuring that business owners own the key assumptions relevant to their area.

Internal audit is an important part of the process, particularly since there is a requirement for an internal audit function under the Directive. Where performed well, they can validate the data and processes around the capital model, albeit they are unlikely to have the necessary skills to validate the actual assumptions and output from the model.

Benchmarking should be useful, although putting together a peer group, particularly for commercial lines general insurance, may be difficult due to the heterogeneity of risks that each company writes.

External peer review is a more difficult subject, since an external reviewer is unlikely to have sufficient company specific knowledge to do a good quality review of the model at a reasonable cost to the company. However, it does offer regulators (and the Board) of a company significant additional assurance, within the terms and scope of the review undertaken, that the model is valid. Overall, we think that enforcing external peer review would not be helpful to the industry, particularly for smaller companies where the additional costs may be disproportionate.

Life – re: Question 14 (i)

No comment.

Life – re: Question 14 (ii)

We believe a combination of peer review, benchmark portfolios and an FSA industry model would be appropriate. However, the approach should be flexible and not adhere rigidly to any particular criteria - the FSA should form a balanced view based on a consideration of several factors.

External audit (in the same detailed sense as the audit of the current Pillar 1 Solvency requirements) has not hitherto been commonplace for ICA models because these models are not used for published regulatory returns. Under Solvency II, external audit could play a useful role in approving internal models where they are used for Pillar 1. To avoid regulatory arbitrage, similar external audit requirements should also apply to firms reporting on the standard model basis.

The use of industry benchmarking may provide some insights but should be applied carefully to avoid indirectly causing “standardisation” of internal model calibrations. For example, if the process involved benchmarking of 1-in-200 stresses, this may cause firms to “herd” into using

the same stress (e.g. 40% equity stress) to set capital requirements. The recent financial crisis in the banking sector highlights the dangers of promoting herd mentality unless tempered by an active Pillar 2 within the prudential regulatory structure.

We would highlight that, while attractive in principle, the use of benchmark portfolios is complex in practice. The relative heterogeneity of life insurance products and investment portfolios, not to mention exercise of management discretion in areas such as bonus setting, will require a very detailed specification for benchmark portfolios and some firms may find it difficult to adapt their models to accommodate this (particularly if the benchmark portfolio were to change frequently).

**Q15: How do firms presently carry out this activity [profit and loss attribution] and how will it be developed towards Solvency II implementation?**

General Insurance:

Profit and loss attribution or back-testing (which is what is referred to in the paragraph above) is an important part in the overall validation of internal models, although it is probably not done very well at the moment. This is due to the lack of data – banks have access to daily movements that they can carry out such analysis, but general insurance companies typically operate on monthly, quarterly or annual data.

Life

No comment.

**Q16: How do firms validate internal models currently and to what extent do their processes meet the indicated criteria?**

General Insurance:

Actuaries have been helping their companies review models since the inception of ICAS. This typically involves reviews by underwriters, finance, risk management, reserving and pricing actuaries, senior management, and any other relevant business expert. The reviews typically satisfy the criteria indicated, in particular, the Actuarial Profession place great importance on the independent and objective challenge that actuaries can offer to the process.

Life

No comment.

**Q17(i) One simple guideline for documentation might be that it is extensive enough for the firm to replicate its model in a different platform and in the absence of original developers. To what extent do firms already have this in place?**

General Insurance:

The requirement in (i) is quite high, and some caveats need to be put around it. Firstly, the person replicating the model should have experience in capital modelling. Secondly, the original model should be available to the person rebuilding the model, and they should be assumed to have some knowledge of the software platform. This would ensure that all of the micro detail of the model does not require documentation, but a slightly higher level, albeit still detailed, documentation can be targeted. An example of this would be to detail the calculation a rate change index as “last year’s index modified for the planned rating change in

2009” rather than having to detail all of the separate components of this calculation. As part of good practice, assumptions going into the model should also be documented for material assumptions. Other than these caveats, the aim of being able to rebuild the model using the documentation is reasonable.

Life

In general, we agree with this guideline. The key to this question is proportionality. It is probably inappropriate and not cost effective for the organisation for detailed coding specifications to be kept so that the model could be replicated without the necessary technical skill sets (actuarial or statistical). However, we do agree that the model should be capable of being rebuilt to provide substantially the same results by another team of technicians if the first team is not available.

This means that, if extensive models are used by the firm that use extremely specific and tailored methods to carry out the work, the documentation should cover the model method and the statistical assumptions made, the data extracted from administration systems, the basic process employed, which variables are stochastic (and how) and the assumptions made behind each of the variables. Descriptions of grouping, model points and whether results are carried out monthly or using different projection periods would also be useful.

**Q17(ii) What do you consider should be the balance between hard and soft copy documentation?**

General Insurance:

(ii) In today’s working environment, almost all documentation should be maintained in soft-copy version rather than hard-copy. Where papers are needed they can be printed. Companies should have robust back-up procedures to ensure that electronic files are subjected to a thorough disaster recovery process.

Life

We see this as an anachronism. Whether the documentation is soft or hard copy, the important thing is that it should be protected by appropriate security controls and backup facilities. Most scientific and engineering manuals are now completely web based.

**Q17 (iii) Where do you consider the balance should rest between internal model documentation and the ORSA requirement – for example, should use test compliance be primarily a matter for internal model documentation or for the ORSA?**

General Insurance:

(iii) If documentation is in soft-copy, then there should be no balance of documentation required since it can be easily duplicated between the two sets of documents. Both the internal model and the ORSA require in the information on the model, such as how it satisfies the use test, and therefore it should be replicated in both places.

Life

The purpose of the internal model approvals process is in the context of Pillar 1, to ensure that firms are not able to manipulate the regulatory capital requirement through use of internal models.

We do not agree that these approval requirements should extend into the realms of ORSA which is a separate concept to the Pillar 1 assessment. However, one of the “use tests” to

approve an internal model for Pillar 1 is to verify that it is also used in the ORSA (this is subtly different from imposing documentation requirements as part of ORSA itself).

**Q18: Should the internal model be subject to formal independent challenge? If so, what form should this take – for example, peer review, internal audit or external audit?**

General Insurance:

As mentioned above, this is a difficult area due to cost implications and the lack of numbers of skilled individuals with sufficient company knowledge that could carry out an external audit.

We think that peer review and internal audit should be a required part of the formal challenge process. However, we think that external audit should not be a requirement placed upon companies.

Life

Yes, absolutely. As a bare minimum, regular internal audit should be performed. Peer review should also be used where this is a viable option, bearing in mind cost considerations.

The use of external audit is discussed in the response to Q14(ii). We believe it has a role in the verification of published Pillar 1 returns, but of a comparable nature to the audit requirements for “standard model” firms publishing Pillar 1 returns. External audit would seem to be less appropriate in the context of Pillar 2 and ORSA.

**Q19: How might firms ensure that senior executives acquire the relevant knowledge and understanding to fulfil the duties imposed upon them in respect of internal models review under the risk management framework? How might this be demonstrated?**

General Insurance:

Clear and concise documentation is the first step to helping people understand the internal model (not just senior management, but the whole of the company). Alongside this, regular educational presentations on the internal model would be useful. Finally, making senior executives sign-off on the model will ensure that they make sure they have sufficient understanding of the internal model.

The easiest way to demonstrate this understanding is through regulatory interview, for example it could be part of the FSA’s ARROW visit. The FSA may also consider providing some industry-wide training for senior executives.

Life

It should be noted that it is commonplace for senior executives (e.g. board members of blue chip firms) to delegate the technical aspects of risk and capital management (e.g. design of model, setting assumptions). In this situation, the level of understanding required will be relatively high-level.

A build up of the required knowledge can be achieved through teach-in sessions and regular dialogue on the model outputs. This can be evidenced by confirming with the relevant people that these sessions have taken place and examining the relevant written communications.

It should also be noted that non executive directors for most insurers are now required to keep Continuing Professional Development records and we would expect executive directors to do the same. The structure of internal models and an understanding of their limitations could be made part of the CPD. This would, necessarily, be at a high level, but could be tested from time to time

The challenge for risk and actuarial staff is to communicate the information in an accessible manner to lay persons. Furthermore, when senior executives are replaced, risk and actuarial should take the initiative to “re-educate” the new individuals.

It would also be helpful for the FSA to visit the relevant senior executives to provide them with face to face sessions on what is expected of them. This will ensure that senior executives take the internal communications more seriously and invest the necessary time to understand them.

## **Annex 2 – Impact assessment – scope and process.**

**Q20: Which of these issues do you expect to generate additional costs of more than minimal significance for firms and how do you intend to approach quantification of those costs?**

### General Insurance:

Our understanding of internal models in the UK is that documentation will be a significant cost (and if required at a micro level, then we think it may offer minimal benefit to the company, regulators or policyholders). Companies with a robust ICAS process and model should not incur too much additional cost, however, firms that need to purchase and develop new models to meet the generally enhanced requirements of Solvency II may incur significant extra cost.

### Life

We believe that the industry has not yet fully grasped the materiality of the changes from ICA and realistic balance sheets to Solvency II. We believe that there will probably need to be fundamental rewrites of valuation systems to generate the technical provisions.

The SCR on the current standard formula approach should be straightforward to apply once the appropriate models for technical provisions are in place. However, this may be complicated by the final treatment of deferred tax risk mitigation and allowance for future discretionary benefits. The counterparty risk model will have to be simplified from the specification in QIS4.

Internal model verification will be expensive and extremely time consuming and should only be contemplated by large insurers who have considerable spare actuarial resources.

ORSA should just reflect current planning systems and modelling of future cashflows but this will depend on the accuracy with which the SCR is required to be projected. If the SCR is expected to be accurately projected, then major changes will need to be carried out to existing software.

Supervisory review should be straightforward although frequent requests for reconciliations and analyses would clearly add considerably to costs.

More frequent reporting than annually (especially if to audit standard) will be a major additional burden on insurers when they should be spending their actuarial and accounting resources on managing risks rather than reporting.

**Q21: Which of these issues do you expect will generate the most significant additional costs for firms?**

General Insurance:

As noted above, documentation is one of the key areas. Also, there is the overall cost of embedding of risk throughout the business, whether through explicit training, staff getting used to operating under the new approach and the increased general communication around risk issues; these will entail substantial, though not always quantifiable, additional cost. Additionally, if firms are required to have an external audit of the internal model, depending on the required scope, this could be a significant additional cost to the company.

Life

Supervisory approval of internal models.

**Q22: Where these issues are likely to generate additional requirements to your firm's current regulatory commitments, what do you think the benefits are to firms and their customers?**

General Insurance:

In light of the recent 'credit crunch' it is clear that customers will expect a more robust risk management regime from the financial services industry. Much of Solvency II is consistent with sound business and risk management expected for normal insurance firms and the cost aspect is not specific to Solvency II.

The main increase of regulatory commitment is the production of the ORSA and review of this with the FSA. This is an important step, and having a single document that details the entire risk framework for the company should offer a benefit to the internal management of the company, and therefore to its external customers.

Life

No comment.

## **About The Actuarial Profession**

The Actuarial Profession is governed jointly by the Faculty of Actuaries in Edinburgh and the Institute of Actuaries in London, the two professional bodies for actuaries in the United Kingdom. A rigorous examination system is supported by a programme of continuing professional development and a professional code of conduct supports high standards reflecting the significant role of the Profession in society.

Actuaries' training is founded on mathematical and statistical techniques used in insurance, pension fund management and investment and then builds the management skills associated with the application of these techniques. The training includes the derivation and application of 'mortality tables' used to assess probabilities of death or survival. It also includes the financial mathematics of interest and risk associated with different investment vehicles – from simple deposits through to complex stock market derivatives.

Actuaries provide commercial, financial and prudential advice on the management of a business's assets and liabilities, especially where long term management and planning are critical to the success of any business venture. A majority of actuaries work for insurance companies or pension funds – either as their direct employees or in firms which undertake work on a consultancy basis – but they also advise individuals, and advise on social and public interest issues. Members of the Profession have a statutory role in the supervision of pension funds and life insurance companies as well as a statutory role to provide actuarial opinions for managing agents at Lloyd's.

The Profession also has an obligation to serve the public interest and one method by which it seeks to do so is by making informed contributions to debates on matters of public interest.