



Financial Services Authority

# ***Insurance Sector Briefing***

ICAS – Lessons learned  
and looking ahead to  
Solvency 2

October 2007







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# Foreword

Since 2001 we have been reforming our domestic insurance capital adequacy framework with the aim of delivering soundly managed firms with adequate financial resources. An important part of these prudential reforms is the Individual Capital Adequacy Standards (ICAS) framework.

This sector briefing marks the completion of the first round of Individual Capital Assessment (ICA) reviews – a significant milestone for both the industry and the FSA. Reaching this milestone has involved a substantial amount of work for the industry and we welcome the progress that has been made, particularly in developing systems and modelling techniques to identify and measure risk.

As a result of this work the UK insurance sector has taken a significant step forward in delivering more risk-based capital management and is well-positioned to meet the challenges of Solvency 2. Over the next few years there is more to do to integrate risk and capital management frameworks so firms can make a successful transition from ICAS to using internal models for Pillar 1 capital requirements under Solvency 2. We will also be doing more to integrate our capital assessment and risk assessment (ARROW) reviews to help achieve this.

We hope that this briefing is useful – particularly for senior management and their advisers. It contains analysis of the key aggregate data we have collected from firms, some thoughts on lessons learned and consequent priorities for senior management, and an outline of some of the challenges ahead of Solvency 2 implementation.



**Sarah Wilson – Insurance Sector Leader**



# 1. *Executive summary*

- 1.1 This sector briefing sets out feedback from the ICAs for life and general insurance firms we have reviewed since the ICAS regime came into effect on 31 December 2004. Under this framework, firms must undertake regular assessments of the amount and quality of capital which is adequate for the size and nature of the business. Having reviewed a firm's assessment, and taking into account other information available to us, we form our own view of the capital that is adequate for the firm's risk profile and give Individual Capital Guidance (ICG).
- 1.2 The data collected from our reviews to date shows that the main components of ICAs for general insurers were underwriting and reserving risk (68%) and for life insurers, market risk (47%). The average ICG we gave was 114 % of the firm's ICA, which represents an overall capital increase of £9bn over firms' ICAs of £65.9bn. Most firms received ICG within a range of 100-110% of ICA. One of the most common reasons for adding capital to a firm's ICA is that we have not been satisfied with the degree of justification or supporting evidence for the key assumptions in the model. Other reasons include operational risk and quality of capital resources.
- 1.3 The level of capital in the insurance sector has remained broadly unchanged since December 2004 despite concerns by industry commentators that our new rules would result in the release of capital which might otherwise have been retained by firms. This is because when a firm's risk appetite is in excess of the regulatory minimum our rules require it to hold capital commensurate with that risk appetite.
- 1.4 One of the aims of the ICAS regime is to encourage a greater risk-management culture within firms. As part of our review of firms' ICAs we have observed some significant and encouraging progress in this area; the investment in modelling capability has been successful and the ICA models are very much the industry's view of how best to demonstrate adequate capital. Firms' senior management knowledge of ICA results and methodology is also improving and we have seen marked progress in the quality of their oversight and governance of the ICA process. Senior management is increasingly using the ICA as a key decision-making tool and most firms can now point to an example where the ICA helped senior management in agreeing a key decision such as a dividend payment, determining aspects of a reinsurance program or carrying out due diligence on a potential acquisition. However, significant work is still required to embed the ICA into firms' risk-management frameworks, particularly if firms are to meet the expected Solvency 2 requirements for Pillar 1 model approval.



- 1.5 If senior management is to have the confidence to use the results of the ICA to manage the business it is crucial that they understand and are able to challenge the most material actuarial judgements underlying ICA results. Our experience to date shows that senior management should, in particular:
- consider the evidence and rationale behind subjective elements of assumptions;
  - focus on the most material elements and use sensitivity testing to understand these;
  - ask for reasonableness checks to confirm the extent to which the ICA results match other information about the firm;
  - get an illustration of the loss scenarios relevant to the firm; and
  - test the robustness of operational risk assessments.
- 1.6 To date, our reviews have focused on giving individual capital guidance to regulated entities, which is the most direct way of ensuring a suitable and consistent minimum level of prudential protection for policyholders. However, risk and capital management is increasingly becoming a centralised activity in many groups, and an appreciation of a group's assessment of adequate capital – alongside that of the regulated entities – is becoming increasingly important to understanding the robustness of subsidiaries' financial security. In our experience, the key challenges of group capital assessments are:
- having a common view of realistic assets and liabilities across the group, particularly for entities outside the UK and sectors other than insurance;
  - modelling how the effect of inter-company reinsurance and financing affects capital flows from one part of the group to another, in normal and in stressed circumstances;
  - the rationale for the correlation/dependency assumptions and sensitivity checks; and
  - strong central capital and risk management.

### **Next steps**

- 1.7 We will be continuing discussions with firms, professional advisers and industry bodies to improve the effectiveness and efficiency of the ICAS process. This dialogue will also help us to achieve a smooth transition to Solvency 2. At this stage we do not expect to make any material changes to our capital adequacy regime ahead of Solvency 2.



- 1.8 Within the Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS), a new Internal Models Expert Group (IMEG) has recently been set up to take forward the work on internal models within the future Solvency 2 regime. The main immediate focus of this group is to complete a stock-taking exercise of firms' current modelling practices to establish a base-line for the follow-up work of developing detailed model validation standards. It is important that firms continue to monitor and engage in the CEIOPS process.
- 1.9 Although this sector briefing is not a Consultation Paper, and firms should not interpret its contents as general guidance, we are interested in your comments. If you would like to respond please contact us as follows. Firms who wish to discuss issues relating to their firm should speak to their usual supervisory contact.

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It is our policy to make all written responses available for public inspection unless the respondent requests otherwise. We will not regard a standard confidentiality statement in an email message as a request for non-disclosure.



## 2. Introduction

### Overview of the ICAS regime

- 2.1 In 2001, against a backdrop of sharply falling equity markets and some specific problems in individual firms, we outlined our agenda for change in the regulation of the insurance sector<sup>1</sup>. One of our key objectives was to deliver ‘soundly managed insurance firms with adequate financial resources’.
- 2.2 The new rules and guidance on prudential standards and systems and controls for insurers came into effect on 31 December 2004. They introduced a more risk-based capital requirement for both life and general insurance firms. For large firms with with-profits liabilities in excess of £500m we introduced a requirement to produce a realistic balance sheet, which included making provisions for discretionary benefits. For general insurance business we introduced the Enhanced Capital Requirement (ECR). We also updated and streamlined insurers’ annual reporting requirements.
- 2.3 An important part of these prudential reforms was the introduction of the ICAS framework. Under ICAS we require firms to undertake regular assessments of the amount and quality of capital which is adequate for the size and nature of its business – its ICA. Having reviewed a firm’s assessment, and taking into account other information available to us, we form our own view of the capital that is adequate for the risk profile and give ICG.

### Progress to date

- 2.4 When our rules and guidance on ICAS for insurers came into force we committed to completing first round reviews for all life and general insurance firms/groups within two and a half years. As at end-June 2007 we achieved this milestone with around 140 life firms and 160 general insurance firms, including Lloyd’s<sup>2</sup>, having received ICG. A small number of firms have also received a second or third assessment.

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1 *The future regulation of insurance* (November 2001).

2 A small number of recently authorised firms have yet to receive ICG.





- 2.5 In December 2006 we published PS06/14<sup>3</sup> in which we introduced a set of sub-principles and associated guidance to give firms greater clarity and certainty about our expectations as they undertook their ICAs. Our sub-principles and guidance aims to reinforce the quality and consistency of such assessments to further assist us in delivering consistent capital guidance across the industry. Alongside PS06/14, the industry published its own guidance to complement our new Handbook material<sup>4</sup>. We have also already given some feedback on ICAS issues through our November 2005 Insurance Sector Briefing<sup>5</sup> and in our quarterly insurance newsletters.
- 2.6 The aim of this sector briefing is to:
- provide analysis of the key aggregate data we have collected to date, including a breakdown of the main capital add-ons and an indication of the range of ICGs we have given;
  - provide feedback on the progress that has been made and lessons learned for future ICAs;
  - look ahead to the challenges posed by Solvency 2; and
  - outline some of the issues associated with performing group ICAs.
- 2.7 We expect firms to consider this feedback in the context of their own business and interpret it as appropriate to their risks and the way in which those risks are managed.

### **Who should read this sector briefing?**

- 2.8 This document is aimed at the senior management of insurance firms. It will also be of interest to firms' actuarial, risk management and compliance staff, analysts and those auditing firms' returns.

### **Structure of this sector briefing**

- 2.9 There are five main sections in this sector briefing. Chapter 3 gives an overview of the aggregate data we have collected during the first two and a half years of the ICAS regime. In Chapter 4 we describe the extent to which capital and risk management have been embedded and look ahead to the further work that is needed in this area in preparation for Solvency 2 implementation. In Chapter 5 we give feedback on some of the more technical issues arising from the ICAs that we have reviewed and suggest some priority areas for senior management to focus on in challenging what is provided to them. In Chapter 6 we explore the circumstances in which firms may wish to perform group capital assessments and outline the key challenges posed by group assessments. In Chapter 7 we outline our approach to future ICA reviews. Appendix A contains feedback relevant to small firms.

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3 *Policy Statement 06/14: Prudential changes for insurers* (December 2006).

4 Available on the ABI's website: *A Guide to the ICA process for insurers* (February 2007).

5 *Insurance Sector Briefing: ICAS – one year on* (November 2005).



## 3. Headline results and key observations

- 3.1 By the end of June 2007 we had issued ICG to around 140 life firms and 160 general insurance firms including the Society of Lloyd's<sup>6</sup>. In this chapter, we analyse the key aggregate data we collected from January 2005 to the end of June 2007.

### Main components of ICA

- 3.2 Table 3.1 shows the aggregate ICA capital held by the general and life insurance sectors split by risk category.

*Table 3.1: Amount of capital allocated to risk categories*

£bn	General insurance		Life insurance	
Market	1.8	13%	25.3	48%
Credit	1.1	8%	6.9	13%
Insurance	9.5	68%	13.9	26%
Liquidity	0.0	0%	0.2	0%
Operational	1.5	10%	4.7	9%
Group	0.1	1%	0.8	1%
Other (risk related)			1.5	3%
Total	14.0	100%	53.3	100%
Non-risk related			-1.4	
Total			51.9	

Source: FSA calculations based on industry ICA submissions.

Note: The non-risk related items in Table 3.1 cover management actions and non-linearity. The risks within subsidiaries have been excluded to avoid double counting.

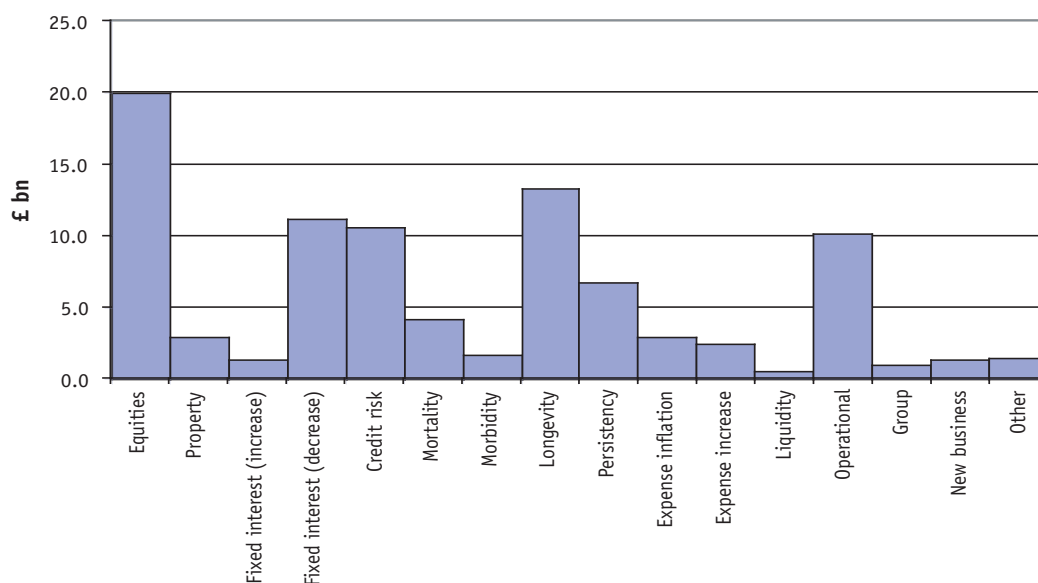
- 3.3 For the general insurance industry, insurance risk dominates the assessments. The key components of insurance risk are underwriting and reserving risk. Which of these risks dominates the ICA depends on a firm's business mix, maturity and growth strategy. For some general insurance firms market and credit risk are also reasonably significant. This may be because of the difficulty in hedging liabilities which are uncertain in amount and timing, but we have also seen some evidence of firms attempting to boost returns by following a riskier investment strategy.

<sup>6</sup> This data excludes syndicate assessments. For further information of our approach to the Lloyds market see Appendix B.



- 3.4 For the life insurance industry, market risk is far more important. A closer look at the data (as shown by Chart 3.1) demonstrates that equity, fixed interest, credit, longevity, operational and persistency risks are the main components of ICA for life firms. Chart 3.1 also shows that the industry's overall capital is more at risk from a fall in interest rates than from a rise, and the population living longer, rather than an epidemic event.

*Chart 3.1: Split of ICA capital between life insurance risks (pre-diversification)*



Source: FSA calculations based on industry ICA submissions.

## Level of ICG

- 3.5 There is still a gap between our view and firms' view of the required level of risk-based capital, but this gap is narrowing. We would expect this trend to continue as firms make further advances in their risk-identification and measurement techniques and we gain greater confidence in the robustness of the results. We also carried out a number of second and third round reviews during the period, which gave some firms the opportunity to rectify some of the issues that had led to capital loadings in the first round.
- 3.6 The average ICG (weighted by size of firm) was 114 % of a firm's ICA, which is equivalent to a capital increase of £9bn over ICAs of £65.9bn. Table 3.2 shows the split between the general and life insurance sectors.

**Table 3.2**

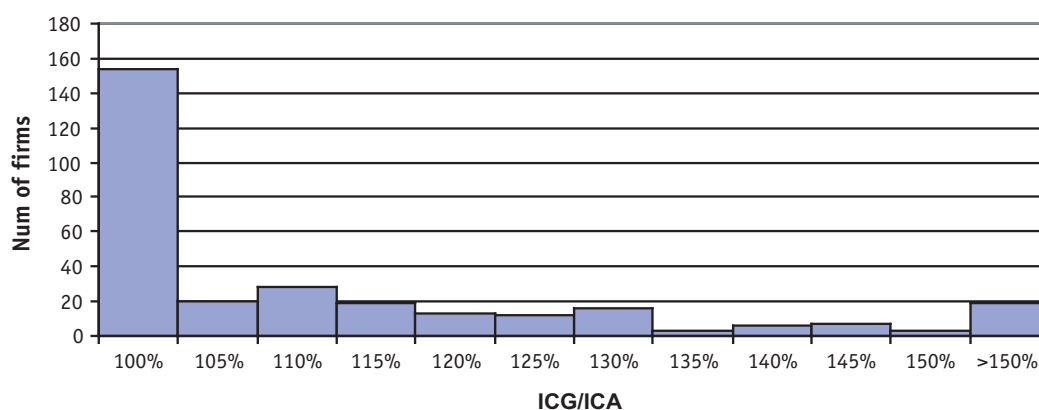
£bn	General insurance	Life insurance	Total
ICA	14.0	51.9	65.9
ICG	15.8	59.1	74.9
ICG/ICA	113%	114%	114%

Source: FSA reviews and calculations based on industry ICA submissions.



- 3.7 While the average ICG was 114% of ICA, the actual figure varied considerably from firm to firm, reflecting the varying quality of submissions we received. As Chart 3.2 shows, most firms received ICG within a range of 100-110% of ICA.
- 3.8 Over 50% of total assessments resulted in ICG being set at the same level as the firm's ICA. Many of these assessments were of small firms, whose approach tended to be more prudent than larger firms. However, from a risk-management perspective, the insights from the ICA are more meaningful if the assessment is based on realistic (rather than prudent) base liabilities with stress tests/scenarios calibrated to the required confidence level. See Appendix A for further analysis of small firms' ICAs.

*Chart 3.2: Distribution of ICG given*

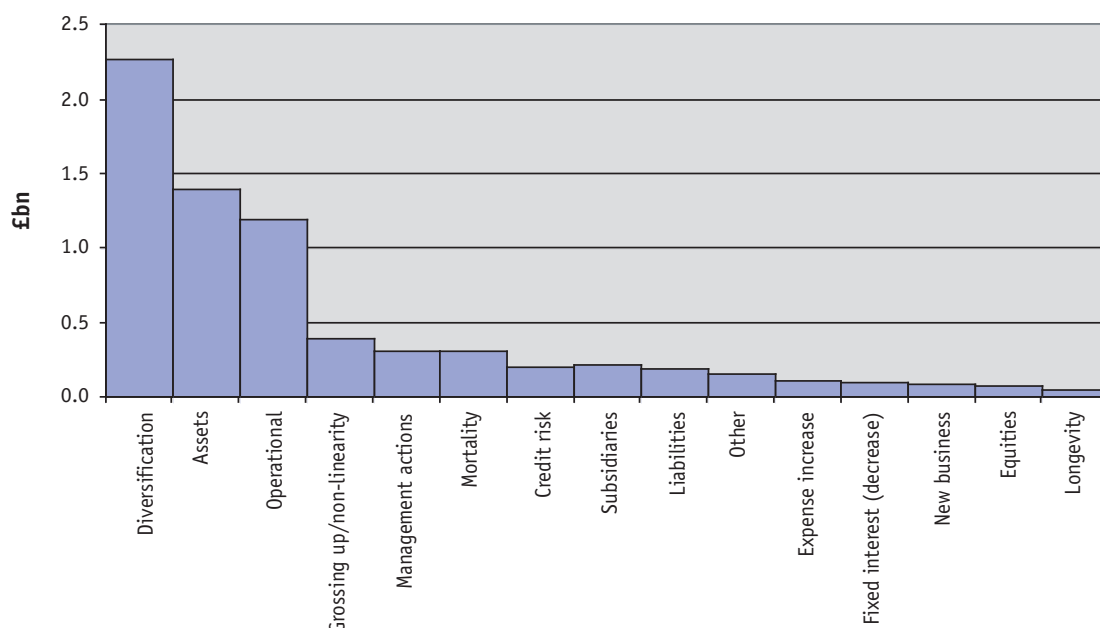


Source: FSA calculations based on industry ICA submissions.

### **Main components of ICG**

- 3.9 One of the most common reasons for adding capital to a firm's ICA is that we have not been satisfied with the degree of justification or supporting evidence for the key assumptions in the model. The most significant assumptions in an ICA model are typically those that describe the dependency between risks (correlation assumptions or risk drivers) and are used to calculate the diversification benefit. This is reflected in Chart 3.3 which shows that diversification has been the major cause of differences between ICA and ICG in the life industry.
- 3.10 We recognise that a certain amount of subjectivity is inevitable – particularly when considering dependencies in stressed scenarios. The better firms in this area have presented a clearly thought-out and argued rationale for the dependencies assumed. They have made a qualitative assessment of the main reasons why risks are dependent on one another and described the combinations of events likely to give rise to a loss of similar magnitude to the ICA.

*Chart 3.3: Difference between ICA and ICG split by category (life insurance)*

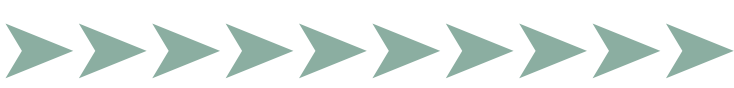


Source: FSA calculations based on industry ICA submissions.

## Level of capital in the insurance sector

- 3.11 Of the 140 life insurance firms, around 75 have a more onerous Pillar 2 than Pillar 1 (before ICG the number is 65). Following the changes we introduced in December 2006 to the Pillar 1 reserving and capital requirements<sup>7</sup>, we anticipate that more firms will have an ICA that exceeds (or gets much closer to) its Pillar 1.
- 3.12 In most lines of business, general insurers' capital assessments were higher than the regulatory minimum under Pillar 1, the Minimum Capital Requirement (MCR), and around 60% of firms submitted ICAs in excess of the Pillar 1 Enhanced Capital Requirement (ECR). In almost all instances (84%) we issued ICG that was more onerous than the ECR.
- 3.13 When we introduced ICAS some commentators were concerned that it would lead to firms releasing excess capital (capital held over and above the firm's ICG), which might otherwise have been retained by the firm. We have not found this to be the case. Table 3.3 shows the level of capital in the general insurance market has remained broadly unchanged since December 2004. There has been considerable growth in the capital available to the life insurance sector, although this is heavily influenced by rises in the equity market since 2003.

<sup>7</sup> See Policy Statement 06/14. Our new requirements released around £4bn of capital across the life insurance industry by removing many of the existing areas of superequivalence compared with the EU Life Directives.



- 3.14 This is consistent with our expectations. We give ICG at a confidence level of 99.5% over one year, which is equivalent to a BBB credit rating, and is the minimum level of regulatory capital. However when a firm's risk appetite is in excess of the regulatory minimum, our rules require it to hold capital commensurate with that risk appetite.

*Table 3.3: Level of capital in the insurance sector over time*

Capital available to meet Pillar 1 (CRR) requirements (£bn)	General insurance	Life insurance	Total
2006	43.8	112.6	156.4
2004	40.3	77.3	117.6
Change	3.5	35.3	38.8



## 4. *ICA models, risk management and Solvency 2*

- 4.1 One of the aims of the ICAS regime is to provide the industry with a better set of tools and incentives to encourage a greater risk-management culture within firms. In this chapter we set out the key successes so far and what we would see as further progress. We also consider some of the possible challenges posed by Solvency 2.

### **The investment in modelling capability has been successful**

- 4.2 Although we provided some high-level guidance, the ICA models are very much the industry's view of how best to demonstrate adequate capital. This is different from previous prudential regulatory regimes which imposed more prescriptive rules for prudential management.
- 4.3 By its nature, the ICA is risk responsive and tailored to a firm's own circumstances. Despite the variety of methods used throughout the industry, we have observed a consistency of approach and have had good quality discussions with the industry throughout our reviews. The ability of most of the industry to agree on good modelling practice formed the basis for the revision to the ICAS principles and guidance implemented in December 2006.

### **Senior management knowledge of ICA results and methodology is improving**

- 4.4 We have observed marked progress in Boards' understanding of the ICA and the quality of their oversight and governance of the ICA process. The number of firms where the senior management are not able to explain (in high-level terms) how their ICA model operates is falling, and the number of Boards who can explain their risk appetite in quantitative terms is increasing.
- 4.5 There has been a significant change in the quality of conversations we are having with firms and a stronger common understanding of the risk and capital position has enabled us to adopt a more principles-based supervisory approach.
- 4.6 We have also seen the development of a common language for the sharing of capital assessment concepts. Terms such as non-linearity, tail or stressed correlations and risk-drivers have started to enter Board conversations in order to explain concepts once considered too esoteric for the practical management of insurance companies. In addition, although the results from ICA models are not publicly disclosed several consultants have used surveys to benchmark approaches and assumptions; we hope this will lead to an even better judgement of risks by senior management.



- 4.7 There is still more that firms can do to improve the quality of the information from the ICA, particularly to align the management information from it with the way in which risks are managed. This would help firms to demonstrate they are embedding the ICA in the business and it is the starting point for senior management to use the ICA as a decision-making tool.
- 4.8 We would also expect to see firms keeping the ICA assessments up to date as the business evolves and strategy and risk appetites change.

### **Case study 1**

Firm A is a small/medium-sized life insurance subsidiary of a large overseas insurance company selling products in a relatively niche area. The recent past has seen stable, if unexciting, growth in the size of the portfolio.

The group decided to grow the UK subsidiary by expanding the product line and pricing competitively. Firm A carried out market research and profit-testing projections (including Pillar 1 capital needs) for the new products individually, but its ICA and forward-looking capital plan pre-dated the change in strategy.

The recent market turbulence has reduced the capital available within the group.

Due to the nature of the products, the UK should be less affected. However, the Group and UK Board are struggling with a lack of information. How much capital does the UK now need? How much more capital can the group supply? What does this mean in terms of the amount of new business that should be written and any revision to the pricing basis?

We were concerned that Firm A's ICA was largely a compliance exercise completed by the actuarial team. Our future supervisory work will focus on the extent to which the ICA and capital plans are used by the Board in the management of the business, and the lessons learned from this experience.

### **Case study 2**

Linked contracts are life insurance policies where the benefits are linked to a given index. In the past, we have limited the indices that may be used to those in which the firm can match the liabilities with assets of a similar nature. This manages the extent to which firms or policyholders may take on basis risk.

Many defined benefit pension schemes have liabilities which are linked to a form of earnings inflation. Our rules have meant that life insurance companies cannot take on these liabilities, making these schemes uninsurable.

One firm put forward a business case for allowing them to write earnings-linked annuities. By understanding the approach to managing the investment risk and the effect on the ICA we were satisfied that this firm's approach did not present excessive risk to the firm or its policyholders.





## **The ICA is increasingly being used as a key decision-making tool**

- 4.9 Most firms can now point to an example where the ICA helped senior management agree a key decision such as a dividend payment, reinsurance program or change in investment policy. We also understand that the ICA is now a standard request as part of many due diligence exercises. In many cases, the results from the ICA have often supported the business case (rather than represented an impediment) for firms managing their own risks.
- 4.10 More advanced firms are using the ICA to challenge key parts of the risk and capital strategy of the firm – a vital role of risk management. Those firms which have taken that extra step have shown more conviction in their position (and identified the key threats to their strategy) and an easier resolution of any challenges to implementation.

### **Case study 3**

A mutual with-profit fund currently holds a healthy multiple of the amount of capital required to cover the regulatory (Pillar 1) position. Its Board feels this is entirely consistent with its objective of offering good financial strength and the ability to invest for the long term in more volatile assets. As with the rest of the industry the amount of new with-profits business is declining, and the Board wishes to ensure that the fund's estate is used in the best interests of all the members.

The ICA enabled the Board to identify capital within the with-profit fund in excess of that required to support the existing business. Within the scope of our rules, they went on to consider alternative uses for that capital and the return required in order to justify each use. The same technique was used to consider amending the firm's investment strategy and reinsurance program. As a final step, the Board has agreed a plan for using and distributing capital as the profile of the portfolio evolves.

### **Case study 4**

A London market insurer writing a wide range of business has a solid capital model well understood by the Board. The model has been used for the past few years for capital planning. The Board has also used the capital assessment in discussions on the aggregate level of reinsurance and pricing strategy.

As part of a wider project to embed risk management throughout the business, the Board agreed to link underwriters' remuneration to key metrics from the model.



## **More work is required to embed the ICA as part of the risk management framework**

- 4.11 We recognise that developing and embedding a risk management system within a firm requires considerable investment outside the quantification/actuarial areas. And we know that cultural change requires new systems, considerable effort by Boards and experience of effective use to embed. In our November 2006 Insurance Sector Briefing<sup>8</sup> we highlighted that the industry has made significant and encouraging progress in many areas. But we said that moving from identifying and measuring risks to managing those risks in day-to-day business operations is no easy task. We would encourage firms who are interested in our thinking on risk-management practices and how the focus of our ICA/ARROW assessments will evolve, to read the November 2006 publication.
- 4.12 To date, ICA models have been built using existing systems designed for the valuation of the assets and liabilities rather than those used to make day-to-day risk management decisions. So it is not surprising that there remains a gap between ICA modelling and the ground-level risk quantification/decision making systems. We would like firms to be able to explain the relationships between the information from risk-management systems and the capital assessment, but acknowledge that this represents a considerable technical challenge.
- 4.13 This integration of risk- and capital-management frameworks is particularly important so firms can make a successful transition from ICAS to using internal models for Pillar 1 capital requirements under Solvency 2. We will help to promote this change with greater integration and synchronisation of our ICAS and ARROW assessments of firms.

## **From ICAS to Solvency 2<sup>9</sup>**

- 4.14 The Commission published its Proposal for a Framework Directive in July 2007, which also signalled the start of the formal negotiations between Member States and in the European Parliament<sup>10</sup>. The aim is to have the negotiations on the primary legislation (Level 1) concluded and the text of the Directive agreed by the end of 2009. Concurrently, the Commission has asked CEIOPS to begin developing advice on the detailed implementing measures (Level 2).
- 4.15 CEIOPS' most imminent task is to analyse the results from the recent Quantitative Impact Study 3 (QIS 3) and prepare for a QIS 4 in Spring 2008.
- 4.16 Our current estimate is that that firms will need to implement Solvency 2 by the end of 2012.

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<sup>8</sup> *Insurance Sector Briefing: Risk Management in Insurers* (November 2006).

<sup>9</sup> Our Solvency 2 work is led by the Solvency 2 Project Office in Wholesale and Prudential Policy Division. We have set up a monthly Insurance Standing Group (ISG) to discuss issues raised by Solvency 2 with a membership drawn from the trade associations, the actuarial profession and interested firms. The agendas, papers, presentations and minutes of the ISG are published on our website at: [www.fsa.gov.uk/Pages/About/What/International/solvency/isg/index.shtml](http://www.fsa.gov.uk/Pages/About/What/International/solvency/isg/index.shtml). An ISG sub-group has been formed to gather industry views on modelling questions and will inform our discussions in CEIOPS. Firms that have comments on the text of the Proposal, or an interest in the ISG, should contact Janne Lipponen in the Solvency 2 Office.

<sup>10</sup> The text of the Proposal, the accompanying Impact Assessment and other relevant documentation and news is at [http://ec.europa.eu/internal\\_market/insurance/solvency\\_en.htm](http://ec.europa.eu/internal_market/insurance/solvency_en.htm).



- 4.17 Under Solvency 2, firms will be able to use their models in place of the European Standard Formula, or replace some modules of the standard formula with partial internal models to calculate their regulatory Solvency Capital Requirement calibrated to VaR 99.5% over a 1-year time-horizon. The use of such models will be subject to supervisory approval, provided they meet the necessary standards as set out in the final Directive and in the subsequent implementing measures. Articles 109 to 124 of the Commission Proposal set out the high-level requirements concerning the use of models.
- 4.18 Under the Proposal, it will be a condition of model approval that firms can demonstrate that their internal model is widely used in, and plays an important role in, the actual running of the firm (decision making, internal controls etc.). Subject to further detailed implementing measures we expect this will mean, for example, that a firm must demonstrate it uses the model in its strategic, operational and management decision-making processes in line with its defined risk appetite. And firms would be expected to be able to demonstrate that:
- they use the same processes and data to produce the internal economic capital assessment as the regulatory assessment;
  - the internal assessment they use to make business decisions is consistent with, for example, the representations made to policyholders about the firm's financial security (for instance, decisions to distribute surplus capital should be made with reference to the internal risk appetite, not the minimum regulatory risk appetite); and
  - there is involvement in, or ownership by, firms' head office functions in the risk model used for ICA purposes in subsidiaries (whether in the UK or overseas) if such a group wishes to seek approval for a group model under Solvency 2.
- 4.19 These proposed requirements are broadly similar to what we already expect under ICAS. But under ICAS we have more scope to use supervisory discretion and we have interpreted our requirements flexibly to give firms the time and space to develop their approaches and to allow for gradual developments. It is likely that the rules under Solvency 2 will reduce our ability to offer this level of flexibility.



4.20 As a part of QIS 3, we conducted some additional qualitative analysis of firms' internal models. Our analysis of UK firms suggests that introducing and embedding an economic capital model based risk-management approach is a five year project. The dedicated resources required to implement and embed an internal capital model will vary depending on the size, nature and complexity of a firm or group. The table below provides an indication of what might be expected for a medium-sized insurer.

	Activity	Dedicated resource	Other resources
<b>Year 1</b>	<ul style="list-style-type: none"><li>• Build first take model.</li></ul>	1 x part/qualified actuary	Limited.
<b>Year 2</b>	<ul style="list-style-type: none"><li>• License a dedicated model platform.</li><li>• Build model and use for ICAS.</li></ul>	1 x qualified and experienced actuary	Support provided by finance/actuarial/reinsurance functions.
<b>Year 3</b>	<ul style="list-style-type: none"><li>• Improve model calibration.</li><li>• Apply more widely within the business.</li></ul>	1 x qualified and experienced actuary + 1 x part qualified actuary	Involvement of Chief Risk Officer (CRO)/finance/underwriting/pricing/claims/actuarial/reinsurance/treasury/risk and compliance.
<b>Year 4</b>	<ul style="list-style-type: none"><li>• Ensure wide usage in planning, pricing, reserving, capital allocation, internal and external risk reporting.</li><li>• Improve model calibration.</li></ul>	1 x qualified and experienced actuary + 1 x part qualified actuary	Embedded in all key business functions under CRO control, with resource implications throughout.
<b>Year 5</b>	<ul style="list-style-type: none"><li>• Objective is for it to be embedded to an acceptable level.</li><li>• Further development and calibration will continue as required.</li></ul>	1 x qualified and experienced actuary + 1 x part qualified actuary	Embedded in all key business functions under CRO control, with resource implications throughout.



## *5. Other lessons learned and priority areas for senior management*

- 5.1 Our ICA reviews have identified some common areas for improvement, many of which are technical in nature and involve elements of actuarial assumptions and judgements. We recognise it can be difficult for senior management to question and review actuarial judgements but it is crucial they do if they are to have the confidence to use the results of the ICA to manage the business. In this section we outline the key lessons learned and consequent priority areas for senior management.

### **Use the ICA to help manage the business**

- 5.2 The ICA is a tool which senior management should use to manage risk. For example, an ICA that indicates a high level of credit risk can also outline potential ways to reduce that exposure. We have been surprised by the number of submissions which do not go this extra step. We are also still seeing some firms taking decisions on other objectives, such as sales targets or new product development, without considering the impact on their ICA.

Using the results of the ICA is key to achieving a well-managed business and will help firms make a successful transition from ICAS to using internal models for Pillar 1 capital requirements under Solvency 2.

### **Consider the evidence and rationale behind assumptions**

- 5.3 As highlighted in Chapter 3, the most common capital add-on we applied to firms' ICAs was because we were not satisfied with the degree of justification or supporting evidence for key assumptions in the model. We accept that some areas of the capital assessment are more subjective than others, in particular, the correlation assumptions/dependency between risks are often material and lacking in clear evidence for a single figure. However, some firms have failed to present a clear rationale for the dependencies assumed.

Firms that have used clearly thought-out rationale supplemented by data analysis and benchmarking against their peers have demonstrated the most credible ICAs. They are also the firms which have demonstrated the greatest engagement by their Boards.



### **Focus on the most material elements**

- 5.4 Understanding the key assumptions in the model, the most material elements of judgement and the degree to which the model will need to evolve in response to changes in the business is necessary to understand the robustness of the ICA results and the firm's financial position.

Senior management should know the most significant assumptions and why they are so important to the firm.

### **Use sensitivity-testing**

- 5.5 Sensitivity-testing can help the Board to collectively agree the ICA by highlighting the key assumptions in the model, quantifying the sensitivity of the result to these assumptions and assessing the relative importance of any difference of opinion. Some firms have not tested the sensitivity of their results to changes in the key assumptions and, in some cases, although sensitivity-testing has been carried out, the results have not been supplied to the Board.

The results of the ICA cannot be regarded as robust without using sensitivity-testing to identify the key assumptions and the impact of these assumptions being wrong.

### **Ask for reasonableness checks**

- 5.6 Performing relatively simple calculations to evaluate whether the overall results from the ICA are consistent with information about the company from other sources is an effective means of validating the ICA results.

We have been able to gain much more confidence in the overall results of an ICA when a firm has performed sense-checks, both on the overall result and on individual aspects of the model.

### **Get an illustration of the loss scenarios**

- 5.7 Some firms have successfully described combinations of circumstances that might give rise to losses of a magnitude equivalent to the ICA. This has provided comfort around the magnitude of the ICA itself and improved firms' understanding of their main exposures. The value of the analysis can be improved if the hypothetical scenario is supplemented by other scenarios which have a similar impact on the firms' financial strength and also if they are compared with historical experience.

Firms that use loss scenarios have demonstrated the most progress in embedding an integrated capital and risk-management approach.



## Quality-assure the modelling process

- 5.8 Integrated stochastic models, Dynamic Financial Analysis (DFA), use numerous and complex calculations and many tens of assumptions. This gives rise to the risk of model specification and parameter error, as well as simple calculation error. There are a variety of ways firms can reassure themselves. For example some firms produce summary sheets for sub-sets of the model which outline the main components of the overall calculation, provide example calculations for parts of the business, or in some cases demonstrate a full set of calculations for individual simulations, with manual checks against these.

Firms that quality-assure the modelling process can have greater confidence in the accuracy of the ICA results.

## Test the robustness of operational risk assessments

- 5.9 Quantifying appropriate capital requirements for operational risk has been a challenge for many firms. Most firms have used their risk registers as part of the ICA process but we have often seen limited evidence of an objective consideration of the effectiveness of controls in stressed conditions. Firms that have started to collect and use internal and external sources of loss information are finding that this helps to inform and validate the reasonableness of key assumptions and provides a basis for more effective challenge to business areas.

Firms should be able to demonstrate that operational risk assessments have been subject to robust and objective challenge and validation, and that they are consistent with other risk-management information that is used across the business.

## Further points for firms to consider

### *Explore improvements to credit risk modelling*

- 5.10 In life firms the modelling of credit risk, while fit for current purposes, is often insufficiently refined to accurately price market instruments such as collateralised debt obligations. In addition, there are several possible interpretations of changes in credit spreads – a shift in the market's view of future defaults, a shift in the risk or liquidity premium the market demands, or a mixture of both. The result of this is that there is often greater reliance on the historical record of credit defaults than for the other market risks, where market instruments can more readily be interpreted.
- 5.11 In general insurance firms, non-investment credit risk assessment has tended to focus on default by intermediaries and reinsurers. In the context of reinsurance recoverables, firms should give more consideration to disputes and the downgrading of counterparties.



### *Give further consideration to mitigating liquidity risk*

- 5.12 Most insurance firms with a sensible approach to mitigating liquidity risk could justify a zero ICA charge against it, but we have found a large number of firms which have dismissed the potential capital strain from liquidity risk without being able to describe a sensible mitigating approach.
- 5.13 We would encourage firms to consider the circumstances that could give rise to a cash-flow problem and whether they need to revise the provisions to meet contingent liquidity requirements.

### *Mutuals able to make supplementary calls*

- 5.14 Mutuals carrying on general insurance business are permitted, subject to waiver, to include calls for supplementary contributions in the firm's capital resources up to a limit of 50% of capital resources requirement (PRU 2.2.18). For ICA purposes, we believe it is appropriate for these firms to make a corresponding allowance for supplementary calls.
- 5.15 Where a mutual is able to express and demonstrate a risk appetite with reference to the likelihood of having to make supplementary calls, it may be able to calculate its ICA based on that risk appetite. For example, if the firm intends to hold capital levels such that a supplementary call might be needed every twenty years, then its ICA might target a level of free assets estimated on the basis of a 95% confidence level.
- 5.16 We would still expect the firm to estimate potential losses on the basis of a 99.5% confidence level, and demonstrate that members would be able to meet calls up to that level.





## 6. *Group ICA assessments*

- 6.1 To date, our reviews have focused on giving ICG to regulated entities, which is the most direct way of ensuring a suitable and consistent minimum level of prudential protection for policyholders. However, risk and capital management is increasingly becoming a centralised activity in many groups, and an appreciation of the group assessment of adequate capital is becoming increasingly important to understanding the security of subsidiaries' financial position.
- 6.2 In this chapter we explain why we believe a group capital model is important to risk and capital management, outline our current approach and how this might change under Solvency 2, and outline the factors that influence our willingness to allow additional diversification benefits in a group ICG.

### **Why is a group ICA important?**

- 6.3 Many finance and treasury departments see a group assessment of adequate capital as the more natural internal tool with which to manage the capital within the business. Group assessments have typically been the focus of rating agencies and equity analysts and, commercially, it may be more efficient to operate a central pool of capital which can be used to provide capital support around the group as and when required. The financial strength of the group is often included within the marketing material and other representations made to policyholders, and in solo ICA reviews we are often asked to consider the level of explicit or implicit support offered by a group.
- 6.4 A group assessment may be necessary to gain a full understanding of the security of the group's position in the event of financial or other shocks. Quantifying the ability of the group to maintain dividend payments, repay debt and provide support to its subsidiaries throughout a business cycle or adverse trading conditions is often done through an economic capital assessment. We are comfortable in principle with firms using this type of assessment where the subsidiary relies on membership of a large group to demonstrate a higher level of security for policyholders.



## What is our current approach?

- 6.5 We are still developing our approach to ICG for groups and each new submission provides new challenges and learning opportunities. The decisions that we have taken to date indicate our willingness to recognise group diversification credit as long as a sufficiently strong case is presented. However, solo ICG remains important and we have not reduced solo ICG to reflect diversification with group entities outside a solo entity. The extent to which we give group diversification credit to FSA-regulated groups in the future will depend on how well groups demonstrate a strong, truly integrated, group-wide, risk and capital management capability.
- 6.6 Where a group does not have an FSA-regulated parent, our approach to date does not give scope for group diversification to be recognised in reduced capital requirements. Senior management may nevertheless find a group capital assessment helpful in understanding the business. (As mentioned above, they and we may also find this important in analysing the security of subsidiaries' financial position.)
- 6.7 We expect further evolution of the approach to groups as a result of Solvency 2. In particular, in addition to allowance for diversification benefits in regulatory capital requirements, the UK has proposed that groups should be permitted to manage their capital on a far more global basis.

## What are the key challenges?

- 6.8 Even if the parent company is itself an FSA-regulated insurer, our willingness to allow additional diversification benefits in a group ICG depends strongly on our view of the following issues.
- 6.9 **Common view of realistic assets and liabilities:** The ICA is based on a balance sheet which divides the future into what is expected to happen (the base provisions) and the capital required to provide financial security in the face of more adverse events. A common articulation of what is expected to happen throughout the group, and how that should be valued, is a key component of a solo or group assessment. However, the practical and technical challenges in ensuring consistency multiply as you move outside life and general insurance sectors and beyond the UK. Within the ICA regime, we are willing to accept pragmatic and proportionate solutions to this challenge. We will also increasingly rely on firms' own quality assurance in designing and producing cross-industry and cross-country assessments. For example, we would gain comfort from a model based on group Expected Value (EV) results where the group uses common EV assumptions and methodology and the results have been externally reviewed.
- 6.10 **Inter-connectedness of groups:** One of the key advantages of doing a group assessment is to understand how cross-group reinsurance, guarantees and financing work in practice. This has been one of the most financially significant areas of capital add-ons in our first round of reviews. Group models need to document all of these arrangements and, for example, recognise that a group reinsurance arrangement means that capital can – and will – flow from one business to another in specific circumstances.



- 6.11 **Diversification of risks:** We understand that the pooling of risk is fundamental to insurance business and that more diverse groups should be more robust to shocks and scenarios. However, as with solo assessments, we expect firms to demonstrate evidence and strong rationale for the correlation/dependency assumptions and sensitivity checks, and appreciate the impact of incorrect assumptions. As highlighted in Chapter 5, many firms have found justifying diversification benefits at solo level challenging, and we anticipate that this will be even more so at group level.
- 6.12 **Fungibility:** In group capital assessments firms will need to demonstrate they can exploit the diversification of risks by moving capital from a part of the business where there is an excess, to a part of the business where there is a deficit. Potential restrictions to fungibility include regulatory or other agreements to a minimum level of capitalisation for subsidiaries and shared ownership of the source of capital (for example between policyholders and shareholders within a with-profits fund, or different shareholders in a joint venture). Firms that have been successful in demonstrating fungibility of capital have presented a comprehensive analysis of their plans for moving capital around the group when necessary. We would also need to understand how capital would be deployed around the group in the normal course of events.
- 6.13 **Strong central capital management:** As well as demonstrating the ability to move capital around the group, we need to be satisfied with the firm's ability to implement this in a timely way. Evidence to support this includes a strong central team which receives appropriate up-to-date management information of the current capital position around the group and has direct access to group Boards in order to make any recommendations. We would also look for a process to communicate the group position to subsidiary Boards and to resolve any conflicts of interest.
- 6.14 **Strong central risk management:** The use of a group assessment in risk management is an indicator that the ICA is integrated into the management of the business.



## *7. Our approach to future ICA reviews*

- 7.1 Our approach to the first round reviews was to consider the reasonableness of firms' calculation methodologies and the resulting output. As we have said, we are pleased with the progress firms have made in this area and recognise the level of commitment and investment this has required.
- 7.2 In future reviews we will increase our focus on how firms are embedding the ICA in the business and put a greater emphasis on incentivising firms to use modern risk-management practices appropriate to the size and nature of the business. We expect to see firms embedding better and more comprehensive risk-management practices, a better assessment of risks and a better alignment of capital in accordance with risk profile. As outlined in Chapter 4, this progress is necessary if firms are to meet the expected model approval standards under Solvency 2.
- 7.3 We are grateful for the feedback we have had from firms about their experience of our process to date. We recognise the need to keep making improvements, especially in synchronising ICAS and ARROW work. Carrying out these assessments at the same time will help us to establish a good understanding of a firm's risks and how it manages its capital in line with its risk appetite. In most cases we will issue a joint letter to the firm explaining our findings.

# *Feedback relevant to small firms*

### **Risk appetite**

Many small firms do not have an internal risk appetite that defines the criteria within which they manage their risks. This is a very important starting point for internal risk management and helps firms to demonstrate they have properly integrated their risk and capital management approach.

### **Time horizon**

Variances in small general insurance firms' capital assessments arose as a result of firms selecting different time horizons over which to model their business. In our guidance we refer to a time horizon of one-year's new business plus the run-off of the business then in force. Some firms assessed capital required to meet medium-term business plans, which resulted in higher required capital.

### **Use test**

A fair proportion of small firms, particularly on the life side, appear to have reasonable governance and controls in place. ICAs are produced and reviewed at least annually and firms' Boards have been given training to enable them to understand and challenge the risk management process. The firms that appear to have embedded the ICA most effectively can demonstrate that the impact on their internal ICA is assessed when making strategic decisions.

### **Outsourcing/external advisors**

Small life firms tend to outsource their actuarial function. While this approach enables these firms to benefit from external peer review it can give rise to issues around the ownership of managing risk and capital, which should remain with the senior management of the firm. For example, using stress tests proposed by external actuarial advisers may be acceptable if the firm's own data is sparse or unreliable, but in our experience this may either not be the case or is inappropriate to the circumstances of the firm.



## Measurement of capital resources

Inconsistencies in measuring capital resources in small general insurance firms led to some variations in capital requirements. For example, some firms did not consider how assets in excess of market and counterparty limits, which are deducted from regulatory capital, should be reflected in their assessment of market and credit risks.

## Determination of Pillar 2 liabilities

Small firms determining Pillar 2 life liabilities tend to adopt the same methodology as for Pillar 1 but remove some of the prudence contained in the latter. Although this methodology does not strictly result in a realistic assessment of liabilities, it is generally a reasonable approach for firms writing business other than with-profits. For with-profits business such an approach can, under certain circumstances, understate the Pillar 2 liabilities. Our discussions with firms during the ICA review process have enabled them to identify the actions and controls necessary to monitor and manage this risk.

In those cases where small firms' ICAs were significantly greater or more prudent than we anticipated, we accepted those submissions but discussed with the firms our views of their assessments.

From a risk management perspective, the insights from the ICA are more meaningful if the assessment is based on realistic (rather than prudent) base liabilities with stress tests/scenarios calibrated to the required confidence level.

## Stress and scenario testing

In common with much of the rest of the industry, small firms' approach to calculating ICA risk capital tends to be to determine capital by applying a series of individual stresses and then to aggregate the total capital through a correlation matrix.

The one area of some difference for small firms compared to the larger firms is in the use of scenarios. Small firms have tended to use scenarios sparingly and, as a consequence, have potentially overlooked the insights and validation of the ICA that can be gained from considering the impact of appropriate real world scenarios.

In small cash plan providers there was a wide range of assumptions at the 1 in 200 level for the effects of pandemic scenarios.

## Use of management actions

With the possible exception of firms with with-profits business, small firms tend to take less management actions in stressed conditions compared to larger firms. This is partly due to the lower level of risk being retained, differences in business type and the complexity of modelling capability. As for any management action, firms need to be able to justify (with supporting evidence where possible) that the actions are consistent with treating customers fairly and realistic, i.e. they are likely to be taken under the stressed conditions assumed.



## Operational risk

Most small firms carried out a fair and proportionate assessment of operational risk and many of these assessments were acceptable, subject in some cases to our suggesting future refinements to the approach. The following characteristics were common to many of the assessments.

- Firms identified a wide range of operational risks they considered material for ICAS purposes. In most cases, submissions explained the underlying assessment process, but some did not, and in some cases the ICA was performed in isolation from the risk assessment. We expect firms to have proportionate risk-assessment processes that are regularly reviewed, with evidence of these risks being considered (where relevant) for ICAS purposes.
- In some firms, the range of operational risks considered by the assessments appeared incomplete.
- Although the selection of scenarios seemed reasonable in most cases, we were concerned that some firms had not considered the effectiveness of controls under adverse conditions. This may lead to an under-estimation of the residual risk. We expect assessments to consider the impact of inherent risks (i.e. before the application of controls) and to assess the effectiveness of controls under appropriate stressed conditions.
- Most firms provided weak or superficial evidence for the correlation or diversification benefits in their submissions. Even where they had considered the relationship between operational and other categories of risks, many assessments had neglected consideration of whether there was correlation or independence between individual operational risks. We expect to see further progress in this area in future submissions.

# *Our approach to ICAS in the Lloyd's market*

Our approach to ICAS in the Lloyd's market is similar to our approach to other insurance firms, with some modifications to take account of the Lloyd's structure and operations of the franchise. Implementation of ICAS in the Lloyd's market is at two levels: the Society's own ICA of central assets and the managing agents' assessment of capital requirements for each syndicate.

Managing agents are required to prepare syndicate ICAs once a year. As the Society has chosen to use ICAs to set its own economic capital requirements, they then review each syndicate ICA. In turn, we formally review a sample of syndicate ICAs to assess the adequacy of the Society's approach and, in particular, the consistency of outcomes with the companies market. This risk-based approach thereby minimises duplication while ensuring that the Lloyd's market is adequately capitalised. We discuss our findings from syndicate ICA reviews with Lloyd's where appropriate and seek to reconcile any differences where these may occur. We also compare and contrast our findings with those from the companies market to ensure consistency in approach and outcomes. We welcome the approach of the Society in implementing the ICA as part of its overall capital setting process and will continue to work with them to ensure the right regulatory outcome is achieved.



## *Useful publications*

*The future regulation of insurance*  
(November 2001)

*Insurance Sector Briefing: ICAS – one year on*  
(November 2005)

*Insurance Sector Briefing: Risk Management in Insurers*  
(November 2006)

*Policy Statement 06/14: Prudential changes for insurers*  
(December 2006)

*A Guide to the ICA process for insurers* (Available on the ABI's website)  
(February 2007)

*Life Insurance Newsletter issue 10*  
(April 2007)

*General Insurance Newsletter issue 12*  
(May 2007)



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