



Solvency II

How much is enough? Setting the standards for model approval within an integrated approach to risk management

The internal model approval process (IMAP) under Solvency II is becoming clearer with second wave advice published on detailed standards

Immediately following agreement on the Framework Directive, CEIOPS released the first 12 papers on Level 2 implementing measures for consultation. One of the most critical of these papers sets out how internal model approval is expected to work in practice (CP37).

On 2 July 2009, this was followed by a second wave of papers (see page 4) that include the tests and standards internal models should meet including risk management governance (CP56), group

solvency assessment (CP60) and further detail on the approval process for group models (addendum to CP37).

The consultation paper on the integration of partial internal models has been delayed to the third wave of advice, due in October 2009.

This is a crucial time to comment and lobby through associations, for areas that need improvement as well as to affirm supported areas.

The timely release of these consultation papers, post the gap analysis exercise that most firms have undertaken, provides greater clarity around the priority areas for development and implementation. It is important that you understand the implications of these proposals on the activities you are planning to undertake for Solvency II compliance in the next year.

Key messages

Act now to be prepared for internal model approval

Internal model approval represents a significant challenge, not least in terms of resources, for both firms and supervisors. In response, the FSA has put in place a tightly defined process for model pre-approval, with the first wave (or 'dry-run') opening from Spring/Summer 2010. In CP37, CEIOPS went some way in supporting the UK's position, proposing a model pre-approval process across all European territories. Although European regulators have not yet reacted, we expect significant movements by 2010.

A successful application for model approval ahead of October 2012 cannot be taken for granted. Model approval is onerous and we spell out some of the potential consequences of rejection later. Firms need to start planning for model

approval now if they have not done so already, as well as putting in place contingency plans should model approval not be successful.

Internal models need to be part of an integrated approach to risk management

Firms need to have in place a robust governance and risk management framework, with the internal model at its core. For example, the internal model might be used to assist management in articulating a firm's risk appetite (aligned to business strategy) and set and monitor corresponding risk limits. The risks identified need to be understood, their effects analysed (both in terms of losses and opportunities) and steps should be taken to mitigate these risks in line with the overall risk appetite.

This has sometimes been referred to by the regulator and industry practitioners informally as 'Test Zero' for internal model approval.

CP56: Tests and Standards for internal models approval

For firms that wish to seek internal model approval from the FSA, CP56 becomes a key paper for consideration. The paper outlines the principles for internal model approval – putting the onus very much on firms to develop a 'best fit' approach to meeting these principles, and justifying this approach to the regulator. Highlights of the paper are considered further below.

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CP56: Highlights

Use test

This remains principles-based, with CEIOPS having rejected a more prescriptive approach, listing defined uses of the model. The foundation principle is that use of the model should be evidenced by a desire by management to constantly improve the model to assist their business decision-making.

Nine principles then flow from the foundation principle. These cover senior management understanding, fitness for purpose (i.e. fit with business model and risk management), ability to capture risk sufficiently, integration with risk management, consistency, included in decision-making, frequency and aspects of accessibility of results.

CEIOPS recognise three key realities, as follows:

1. Supervisors need to see evidence that management's 'skin is in the game' with regard to the model – that management trust the model sufficiently to use it as a core driver through business planning, strategy, risk management and governance. Though not formally prescribed, capital allocation and business planning are cited as a key example of the use test. However, CEIOPS propose legislating against users 'blindly following the output of the model' – highlighting that in using the model, management must understand the models strengths and weaknesses, and tailor their decisions accordingly.
2. A full calculation of the internally modelled solvency capital requirement (SCR) is only mandated for the year end. As the minimum capital requirement (MCR) must be calculated quarterly, and can be partly driven by percentages of the SCR, this is a useful concession for medium and small firms. Larger firms will be looking to more regular full calculations, given their complexity of operations. All firms will be looking to improve the speed of their processes to deliver the SCR within the year end timetable. Firms will also need to introduce, or improve, proxies to monitor the SCR between each full recalculation. Overall, this is a sensible position for CEIOPS to reach, with the reasonable caveat that exceptional shifts in risks (crashing equity markets, for example) will cause the firm, or the regulator, to require a full up to date recalculation of the SCR.

3. Review of a group's internal models will be driven by the structure the group follows. A group where models are built and maintained within each major business unit will see review at this business unit level. A group using an overarching model from the centre will see most of the review at group level. The situation for non-EU entities remains unresolved.

Firms may feel the principles do not go far enough in defining the use test hurdle. However, in the development of CP56, CEIOPS have performed significant work in investigating and setting down examples of good practice for use of the model in the areas of risk management, decision-making and governance. These examples may yet translate into Level 3 guidance.

For example, under risk management, CEIOPS highlights use of the model in developing and monitoring risk appetite, developing risk strategies including exposure management and risk limit setting, production of key risk management information and in quantifying and ranking risk.

Model governance

As lessons continue to be learnt from the performance of models in the banking sector, the requirements for governance over the internal model have been elevated above the other tests within the CEIOPS paper (with the notable exception of the use test). The proposals are for firms to put in place two layers of robust governance:

1. High level – overall responsibility of board and senior management including model approval, model strategy, alignment to risk and business strategy, as well as putting in place an adequate system of independent review and challenge.
2. Detailed model governance – including design, testing, validation, control, communication and reporting to senior management.

CEIOPS envisage an ongoing feedback loop between the layers, whereby board and management can demonstrate appropriate understanding and oversight of the model results and their use; and the risk management/modelling team work to deliver on management's expectations and advise management accordingly.

Statistical quality and data

CEIOPS recognises that sound control over data analysis and collection, i.e. a data policy, is needed rather than seeking to set a hurdle that is unachievable in practice for some insured risks.

Two subjective areas are picked out as needing robust processes and challenge:

1. CEIOPS recognise that expert judgement is often critical to setting key assumptions when little, or no, external or internal data is available. In these circumstances, CEIOPS require at least a robust process of independent challenge of expert judgement used to parameterise the model. All key assumptions must be identified, and significant assumptions should be fully understood – considering the sensitivity of model results to alternative assumptions and the limitations this may have on the model's use or performance.
2. CEIOPS also recognise that risks, such as longevity, may not be modelled as full probability distribution functions. However, in our view, firms will need to consider at least a number of estimation points (or possible outcomes) for each risk – to enable management to plan for potential variations in profit, as well as to consider realistic stresses and scenarios, taking into account relationships and dependencies between risks.

Calibration, validation and profit and loss attribution

While calibration is relatively straightforward, the need to validate the model, and for management to demonstrate they have taken appropriate action on the results, is an important part of the approval process. Level 3 material is likely to guide supervisors as to what validations should be undertaken. As a core part of model governance, management are required to put adequate independent review procedures in place. CEIOPS confirm that independent review can be undertaken internally (possibly under the remit of an appropriately skilled internal audit function) or externally. We note that it is important for management to decide on the appropriate channel for independent review and build this into implementation planning at an early stage, to avoid undermining core parts of the model design or build at a late stage in the pre-approval process.

Profit and loss attribution will need to be at a 'business unit' level, a term that has not yet been defined by CEIOPS. The granularity of reporting needs to capture major lines of products and, perhaps also, major geographies.

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Documentation

The FSA has long emphasised the typical failing seen in the industry over documenting the capital model, the 'calculation kernel' in CEIOPS terminology, as well as the risk governance systems.

CEIOPS recognises that documentation is needed at various levels and senior management are not expected to sign off a vast and technical specification.

However, they are required to approve a level of documentation that describes the main attributes of the model as well as its main limitations.

The full documentation required can be best described as that needed for business continuity purposes, with the aim that rebuilding the calculation kernel from this documentation would lead to materially similar results. This does clarify, in a helpful way, the depth of the Directive requirements.

External models and external data

An area of concern has been the ability of users to apply the Directive tests to proprietary models without jeopardising external providers' intellectual property. CEIOPS requirements appear sensibly judged; firms must understand, document and validate their use of an external model. We anticipate this will include an understanding of key methodologies, assumptions and an assessment of the models fitness for purpose. External providers must now act to meet these demands.

The submission for internal model approval is onerous

The earlier consultation on model approval (CP37) set down the process firms should go through to submit the model. Supervisors could potentially test models on site. The submission will need to contain at least:

- Cover letter requesting approval
- Confirmation that all clarifications and documentation have been provided
- Application approval from the administrative or management body
- Results of the latest ORSA and details of business and risk strategies
- Scope of application – full or partial model approval
- Risk management process and risk profile
- Self-assessment including strengths and weaknesses of model
- Technical characteristics of the internal model

- Use of external models and data
- Model governance, systems and controls including documentation
- Relevant organisation charts
- Up-to-date independent review/validation report
- Change policy for the full/partial model and other model governance policies
- Plan for future model improvement
- Capital requirement, including an estimate of the SCR using the standard formula

What are the consequences of 'getting it wrong'?

Standard formula: Firms will have to calculate their SCR using the standard formula if their internal model approval request is refused – and there will be a waiting period before they can reapply. Using the standard formula could leave many insurers with a substantially higher regulatory capital requirement, particularly non-life, monoline and reinsurers, if the QIS4 results are anything to go by. Reputational damage could result from a market perception that rejection means the firm's own economic capital assessment is flawed. While we understand that public disclosure of rejections is not intended, the lack of positive disclosure of acceptance will be visible.

Capital add-ons and/or model approval delays while firms make the changes required by the supervisor:

If the supervisor wants modifications to the model, these will need to be done before model approval application proceeds. Delays might be significant and capital add-ons may be required in the meantime. The supervisor will have six months from the date of receipt to assess the application. If the supervisor recommends major modifications, a new six-month period will begin, following resubmission of the model.

What does this mean for firms?

The momentum behind the approved use of internal models is now clear, both within Europe and overseas (e.g. S&P, AM Best, Bermuda Monetary Authority stated positions on internal model approval, as well as the NAIC's recent position paper on Solvency II).

So what does this mean?

Firstly, model scope and definition remains a critical first step.

Firms need to clearly define their desired 'end state' for risk management and internal model usage in managing the business, and ensure that these overriding objectives are built into Solvency II implementation planning. Firms need to

consider which key risks and/or business units will be included in the model (i.e. whether to apply for full or partial model approval) as well as how to define and maintain the link between the internal model calculation kernel and the surrounding risk management framework. Management also need to consider whether resources are better spent on bringing the bulk of the model, and risk governance, up to the new standard, or ensuring the model is universal by geography and risk. Indeed, there are indications that CEIOPS is moving to the more pragmatic view that a fully embedded partial model may be appropriate in the long term, if it captures key elements of a firm's risk profile more effectively. Decisions here clearly rest also with how the firm can most efficiently run its own economic capital assessment.

Early and open dialogue with regulators and industry bodies is recommended. The approval process is likely to be new for most regulators (although they will draw lessons from their Banking colleagues) – an iterative dialogue will improve mutual understanding of the implications. Clearly, as we get closer to Solvency II implementation, regulators will appreciate 'no surprises' in terms of their workload and their expectations.

Finally, this is not a done deal. CEIOPS is working not just on Level 2 technical advice for the Commission, but it is also laying the foundations for Level 3 standards and guidance. These could become binding if, as proposed in the de Larosière report on the recent financial crisis and its implications for supervision in the EU, CEIOPS, like the other Level 3 Committees, is converted to a European 'authority'.

Thinking around the use of internal models in the context of Solvency II continues to evolve. It is important to stay abreast of, and contribute to as much as possible, the CEIOPS consultation process.

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Other CEIOPS papers released in July 2009

We encourage firms to respond to these consultation papers while there is still an opportunity to influence the debate.

Approval of a Group internal model

- Addendum to CP 37-09 for the approval procedures for group internal models

Technical provisions – Best estimate (CP 39-09, adding to the earlier CP-26-09)

- Advice on the valuation techniques that will be considered as appropriate methodologies for the calculation of the best estimate

Technical provisions – Risk free interest rate (CP 40-09)

- Advise what is meant by the risk free interest rate; crucially important to annuity writers among others

Technical provisions – Calculation method (CP 41-09)

- Advice on situations where TPs should be calculated as a whole rather than as a separate best estimate and risk margin

Technical provisions – Risk margin (CP 42-09)

- Specifies the calibration of the margin and the projection of SCR

Technical provisions – Standards for Data Quality (CP 43-09)

- Considers what is meant by the appropriateness, completeness and accuracy of data, and when approximations are appropriate

Technical provisions – Counterparty default adjustment (CP 44-09)

- Advice on allowing for reinsurance and SPV default

Technical provisions – Simplifications (CP 45-09)

- Initial advice on possible simplifications, to be expanded in the third wave

Own funds – Classification and eligibility (CP 46-09)

- Advice on these areas

SCR Standard Formula – Market Risk (CP 47-09)

- Advice on the design of the module for risks bar equity risk. Equity risk will be addressed in the third wave of advice

SCR Standard Formula – Non-Life underwriting risk (CP 48-09)

- Advice on methods, assumptions and standard parameters to be used in this module

SCR Standard Formula – Life underwriting risk (CP 49-09)

- Advice on design, structure and calibration of this module

SCR Standard Formula – Health underwriting risk (CP 50-09)

- Advice on this module

SCR Standard Formula – Counterparty Default Risk (CP 51-09)

- Advice on this module, following on from CP 28-09

SCR Standard Formula – Reinsurance mitigation (CP 52-09)

- Advice on the qualitative criteria to be met by reinsurance and securitisations. This complements CP 31-09

SCR Standard Formula – Operational Risk (CP 53-09)

- Advice on this module

SCR Standard Formula – Loss absorbency of TPs (CP 54-09)

- Advice on the adjustments necessary

SCR Standard Formula – MCR (CP 55-09)

- Advice on the MCR, the calibration advice will follow in the third wave of advice

SCR Standard Formula – Capital add-ons (CP 57-09)

- Advice on circumstances leading to capital add-ons

Supervisory reporting and disclosure (CP 58-09)

- Covers public disclosure as well as supervisory reporting

Group Solvency Assessment (CP 60-09)

- Addresses the scope of the group assessment including fungibility and issues relating to third-country entities

Intra Group transactions and risk concentrations (CP 61-09)

- Advice on the issues such transactions pose for supervisors

Cooperation and Colleges of Supervisors (CP 62-09)

- Advice on the coordination of supervisors for groups

If you would like to discuss any of the areas covered in this paper as well as the implications for yourself and your firm, please contact:



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