



Society of Actuaries in Ireland

---

# Creating Effective Actuarial and Risk Management Functions under Solvency II

---

29<sup>th</sup> April 2013

---

## Agenda

---

- Introduction
  - Actuarial & Risk Management roles
  - Responsibilities of Solvency II Actuarial and Risk Management Functions
  - Governance Challenges under Solvency II
  - A 'year in the life' of the actuarial & risk management cycles
  - View from Practitioners
  - Competencies & Skills Required
  - Conclusions
-

# Preface

---

- SAI Cross-practice working to consider:
  - How the Actuarial Function (AF) & Risk Management Function (RMF) might operate under Solvency II
  - The challenges in transitioning to new structures
  - What competencies and skills required
- The members of the working party were:

Gerard Bradley	Niamh Crowley
Paul Dalton	Tracy Gilbert
Ciaráin Kelly	Sinéad Kiernan
Yvonne Lynch	Jim Murphy (Chair)

## Preface

---

- Solvency II is designed to be a risk-based prudential supervisory regime involving an enterprise-wide view of risks and a risk-based capital system.
- Will be a more complex regime than the current regime (Solvency I) with greater oversight requirements.
- Requirements of Solvency II will be enshrined at three different levels:

Level 1: Solvency II Directive adopted by European Council and Parliament

Level 2: Delegated Acts issued by the European Commission

Level 3: Technical Standards and Guidelines issued by EIOPA

## Actuarial & Risk Management Roles

Actuaries have long played roles in management of insurance companies

- Reserves
- Pricing
- Capital
- Risk Management
- Statutory roles, direct support roles and indirect support roles
- Recently greater focus on risk management – Corporate Governance Code
- Many different organisational structure exist at present

### **Under Solvency II**

- No external annual certification from AF – reporting to Board
- Formal requirement for RMF – current risk functions might have narrower brief
- SII Framework envisages close working relationship between AF and RMF

## Responsibility of Actuarial Function

---

- Formally set out in Level 1 (Article 48) and expanded on in Levels 2 and 3





Area of work	Scope
1. Technical Provisions	<ul style="list-style-type: none"><li>- Co-ordination of calculation</li><li>- Methodologies &amp; assumptions</li><li>- Data sufficiency &amp; quality</li><li>- Experience Analysis</li><li>- Report to the Board on reliability &amp; adequacy</li></ul>
2. Opinions	<ul style="list-style-type: none"><li>- Underwriting policy</li><li>- Reinsurance arrangements</li></ul>
3. Risk Management	<ul style="list-style-type: none"><li>- Contribute to the effective implementation of risk management system, in particular:<ul style="list-style-type: none"><li>- Risk modelling underlying the SCR and MCR calculation</li><li>- Assisting the risk management function in relation to the internal model</li><li>- Contributing to the ORSA process</li></ul></li></ul>

- Draft EIOPA guidelines on 'system of governance' published since paper was finalised

# Responsibility of Actuarial Function

- Currently formal statutory roles are different between life and non-life, direct & reinsurance
- AA continuous role in monitoring and reporting on solvency & assessing consequences of management decisions & uncertainties of the external (& internal) environment
- Signing Actuary an annual opinion on PH liabilities (& solvency Margin calculation for RI cos.)

Solvency II Actuarial Function Responsibilities	Life Insurers	Non-Life Insurers	Reinsurers
1. Work relating to technical provisions	Green	Green	Green
2a. Underwriting (including pricing) opinion	Green	Yellow	Yellow
2b. Reinsurance opinion	Green	Yellow	Yellow
3. Effective implementation of risk management system	Purple	Blue	Blue

-  = Overlap with current Appointed Actuary/Signing Actuary statutory responsibilities
-  = Not currently a statutory responsibility but Actuaries typically involved
-  = Overlap with some aspects of current Appointed Actuary/Signing Actuary statutory responsibilities
-  = Not currently a statutory responsibility but Actuaries involved to varying degrees across the industry

## Responsibility of Actuarial Function

---

- The current AA responsibilities extend beyond those of the Actuarial Function as follows:
  - Bonus and surrender value recommendations for with-profits business
  - Annual certification in relation to policyholder illustrations
  - A ‘gate-keeper’ role in relation to dividend declarations for life assurance companies
  - Whistle Blowing (applies to non-life Signing Actuary also)
- It is not yet clear how will be dealt with under Solvency II
  - One approach would be to extend the role of the Actuarial Function under Solvency II in local legislation
  - Alternatively, allocate to a new designation of actuary e.g. a With Profits Actuary role exists in the UK (in addition to the UK Actuarial Function role).



## Responsibility of Risk Management Function (Article 44)

---

*“Insurance and reinsurance undertakings shall provide for a risk-management function which shall be structured in such a way as to facilitate the implementation of the risk-management system.”*

- A close working relationship is envisaged between the
  - RMF: responsibility to “*facilitate the implementation of the risk-management system*” and the
  - AF: responsibility to “*contribute to the effective implementation of the risk-management system*”.
- Effective RMS should comprise strategies & processes to identify, measure, monitor, manage and report risks on a continuous basis ...
- RMS should cover the risks to be included (and not) in the calculation of the SCR
- Written policies are required in respect of various risk management areas
- RMS responsible for a range of activities regarding the internal models (full or partial).

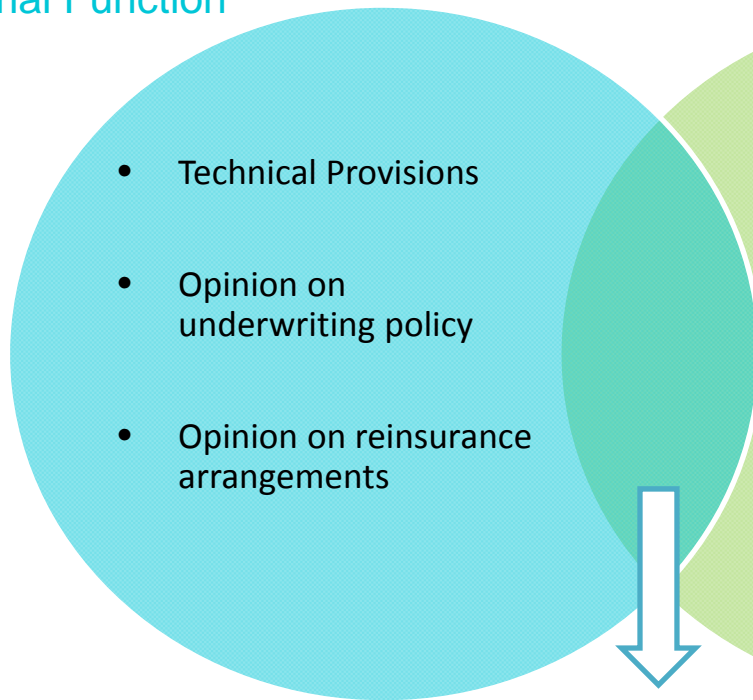
# Risk Management System

---



# Interaction between AF & RMF

## Actuarial Function



- Technical Provisions
- Opinion on underwriting policy
- Opinion on reinsurance arrangements

## Risk Management Function

- Facilitate implementation of risk management system
- Develop risk policies
- Demonstrate compliance with investment rules
- Internal Model

Contribute to effective implementation of risk management system including:

- SCR and MCR risk modelling, Internal Model, ORSA

## Governance Challenges under Solvency II

---



- Flexibility in structuring, provided companies comply with governance and fitness and probity requirements of both Solvency II and of the Central Bank of Ireland.
- We draw a distinction between ‘*departments*’ & ‘*functions*’
- We explore:

Conflicts of interest (including checklist)

3 lines of defence model

Outsourcing

## Conflicts of Interest – Solvency II functions

---

- Actuarial department could perform other roles outside those outlined in Solvency II
- Need to consider conflicts of interest that may arise
  - e.g. pricing versus reserving
  - opining on underwriting policy versus carrying out pricing activities
  - opining on reinsurance adequacy versus determining reinsurance arrangements
- What checks and balances are in place to manage conflicts of interest?
  - e.g. Executive/Board Committee oversight, external review
  - consider proportionality
- Opining on underwriting policy should not preclude the actuarial department from advising on pricing ex-ante

## Conflicts of Interest – Solvency II Functions

---

- We explore 4 scenarios:

**Option 1:** A person with responsibility for the Actuarial Function only

**Option 2:** Same person responsible for the Actuarial Function and other business activities (but not risk management control activities),

**Option 3:** Same person responsible for both the Actuarial Function and the Risk Management Function - but with no other responsibilities

**Option 4:** Same person is responsible for both the Actuarial Function and the Risk Management Function - and with other responsibilities

## Conflicts of Interest – Solvency II Functions

---

**Option 1:** A person with responsibility for the Actuarial Function only

- Don't see conflicts of interest between different responsibilities set out in Article 48
- Don't see conflict of interest if the Actuarial Function calculates technical provisions, as well as co-ordinating.
- Ensuring integrity of calculation is important e.g. 'two pairs of eyes principle'
- We envisage processes that support healthy challenge to modelling and assumption setting



## Conflicts of Interest – Solvency II functions

---

**Option 2:** Same person responsible for the Actuarial Function and other business activities (but not risk management control activities),

- Need to consider conflicts of interest that could arise and manage these accordingly.
- Consideration should be given to whether his/her personal performance is based on measures that could conflict with, for example, the technical provisions-related role of the Actuarial Function.
- Conflicts could potentially be managed through executive or Board committee oversight, external review or a combination.
- Undertaking should be satisfied it can evidence conflicts were identified and the controls agreed and introduced were deemed proportionate to the risks perceived.



## Conflicts of Interest – Solvency II functions

---

**Option 3:** Same person is responsible for both Actuarial Function and Risk Management - and with no other responsibilities

- ‘Two pairs of eyes principle’ important even if person responsible for the integrated function has no other responsibilities or is not conflicted via performance assessment.
- Independence within structure is important e.g. if an internal model is used, different people should be responsible for (a) designing and implementing the model compared with (b) testing and validating the model.

## Conflicts of Interest – Solvency II functions

---

**Option 4:** The same person is responsible for both the Actuarial Function and the Risk Management - and with other responsibilities

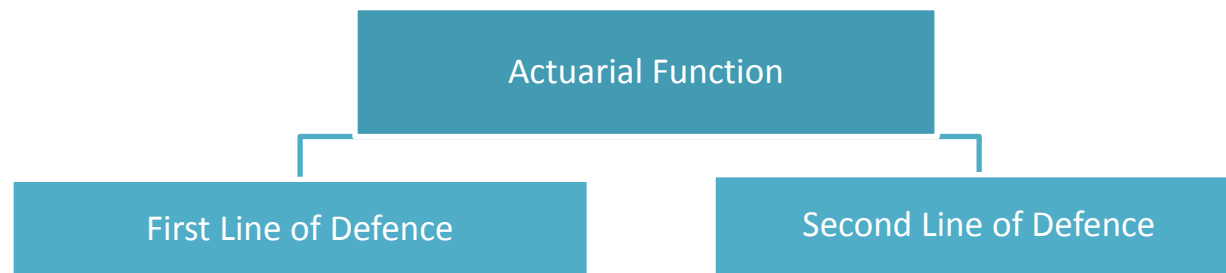
- Again, undertaking should consider potential conflicts and manage these
- Is personal performance based on measures that could conflict with the risk and control operations role of the Actuarial and Risk Management Functions?
- Examples of other responsibilities include:
  - Product Pricing, Business Planning/Strategy, Investment Strategy, Asset/Liability Management, Reinsurance, Embedded Values

# Conflicts of Interest: Three Lines of Defence Risk Management Model



## Conflicts of Interest: Three Lines of Defence Risk Management Model

---



- Different views on whether AF sits in 1<sup>st</sup> or 2<sup>nd</sup> line of defence
  - More important point is that conflicts are managed appropriately
- As a general rule, conflicts of interest can arise where a department or function is involved in both the first line and the second line of defence.
  - In an ideal world, would be complete separation of activities between the first and second lines of defence
  - In practice, there may be instances where it is better from a risk management perspective for the second line of defence to have some input into first line of defence activities, operating in a pre-emptive control role

## Conflicts of Interest






---

- In the event of an adverse occurrence, could the undertaking demonstrate and evidence that it had addressed conflicts and that a reasonable person would conclude that the controls in place were proportionate to the risks assumed in relation to the potential conflict?



## Conflicts of Interest: Checklist

---

What could go wrong?	
How much would such an event cost to rectify?	
Are there vested interests materially conflicting with responsibilities?	
Is there a misalignment between performance measurement/remuneration & responsibilities?	
Are the personnel responsible subject to professionalism requirements e.g. Code of Conduct?	

## Conflicts of Interest: Checklist

---

Are there executive/Board oversight committees in place?	
Is periodic external review in place?	
Could the organisation defend the conflicts of interest if issues arise?	
Would the structure withstand regulator or media scrutiny?	
What would be the cost of full segregation of duties?	

## Outsourcing

---



- Under Solvency II, all functions and activities can be outsourced, but the Board retains ultimate responsibility for discharging its obligations
- Level 3 guidelines will specify further requirements where critical or important functions are outsourced
- Undertakings will still need to ensure that conflicts of interest are managed appropriately where activities outsourced
- Managing conflicts of interest may be easier or harder, depending on the circumstances



## A Year in the Life

---



- We look at the combined responsibilities of the Actuarial and Risk Management Functions in terms of activities to be undertaken over the course of the financial year.
- While a (re)insurer may have separate Actuarial and Risk Management Functions, we have chosen to illustrate the combined activities given the significant interaction that is envisaged between the two functions.
- The following chart shows activities categorised under the different headings that are shown down the left hand side.
- We have shown when the different activities might take place over the financial year although clearly individual (re)insurers might choose to undertake different activities at different times to those illustrated.

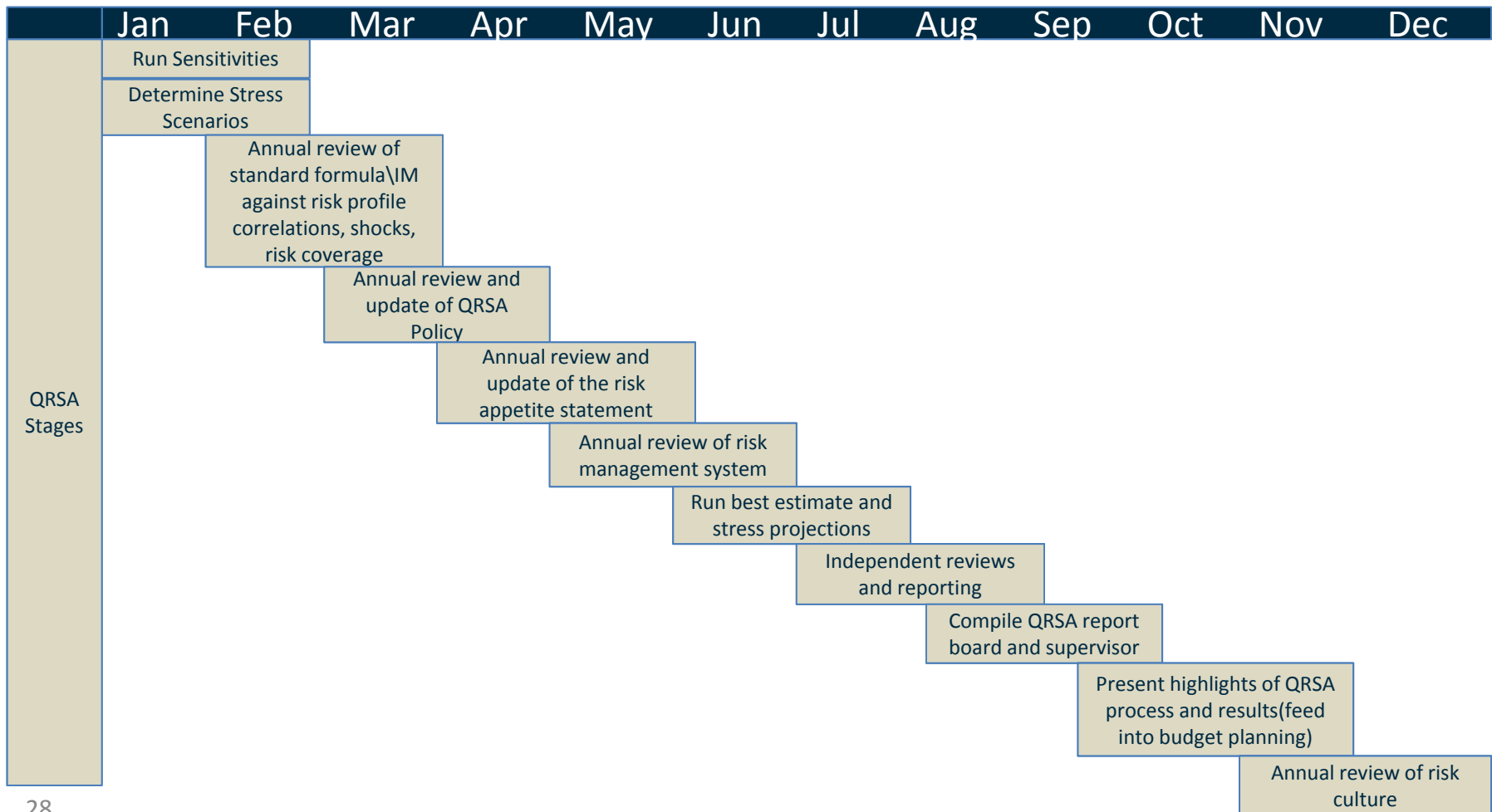
# A Year in the Life

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Risk appetite reporting</b>		Risk Appetite Report Q4			Risk Appetite Report Q1			Risk Appetite Report Q2			Risk Appetite Report Q3	
<b>Risk policies review and sign off</b>	Operational Risk policy	Internal Audit Policy	Investment Policy	Liquidity Risk Policy	Compliance Policy	Re-Insurance Policy	Under-Writing Policy	ALM Policy	Reserving Policy	Out-Sourcing Policy	Credit Risk Policy	Risk Mgt. Policy
<b>Risk reports/ Policy Compliance</b>			Review of compliance with Investment Policy	Review of compliance with Liquidity Policy		Re-Insurance Risk Report	Review of compliance with under-writing Policy	Annual Review ALM Options			Credit Risk Report	
<b>Actuarial Opinions</b>						Reinsurance Arrangements	Underwriting Policy					

# A Year in the Life

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Technical Provisions</b>	Data quality, sufficiency, and assessment	Set methodologies and assumptions	Board update on reliability and adequacy of Technical Provisions		Set methodologies and assumptions	Comparison of Best Estimates vs Experience		Set methodologies and assumptions			Set methodologies and assumptions	
		Calculate Technical Provisions			Calculate Technical Provisions			Calculate Technical Provisions			Calculate Technical Provisions	
		Review Technical Provisions			Review Technical Provisions			Review Technical Provisions			Review Technical Provisions	
<b>Solvency Capital Req</b>		Calculate SCR and MCR			Calculate SCR and MCR			Calculate SCR and MCR			Calculate SCR and MCR	
<b>Internal Model</b>		Review Design of IM	Test & validate changes		Document IM changes			Board Update on IM			Analyse Performance of IM	

# A Year in the Life



## A Year in the Life - Risk Appetite

---



- The CBI Corporate Governance Code requires undertakings to carry out an annual review of the RA by the Board
- Expect that the Actuarial Function & Risk Management Function would work closely together in reviewing performance against the Risk Appetite
- In practice, the Risk Management Function is likely to co-ordinate the review of risks to which the company is exposed and the monitoring of exposure to those risks
- The Actuarial Function provides input to the identification and quantification of risks

# A Year in the Life - Risk Policy Reviews & Risk Updates

---

- (Re)insurance companies are required to have written policies in relation to
  - risk management
  - internal control
  - compliance
  - internal audit
  - outsourcing, where relevant
- Each of which have to be reviewed at least annually.
- In addition, an undertaking will need to have other written policies in place including:
  - operational risk
  - investment and derivatives
  - liquidity, reinsurance
  - underwriting
  - asset liability management
  - reserving
  - credit risk



## A Year in the Life – Actuarial Opinions



### Opinions

Underwriting Policy

Reinsurance Policy

- The Actuarial Function is required to opine on the underwriting policy and reinsurance arrangements of the undertaking.
- The Actuarial Function should not have primary responsibility for developing the underwriting policy and reinsurance arrangements, but may input.
- In our view, we believe **ex-ante** input is appropriate.
- The opinion on underwriting includes an analysis of the sufficiency of premiums to cover future losses, and the most appropriate strategies to be followed by the undertaking.

## A Year in the Life – Capital Requirements

---

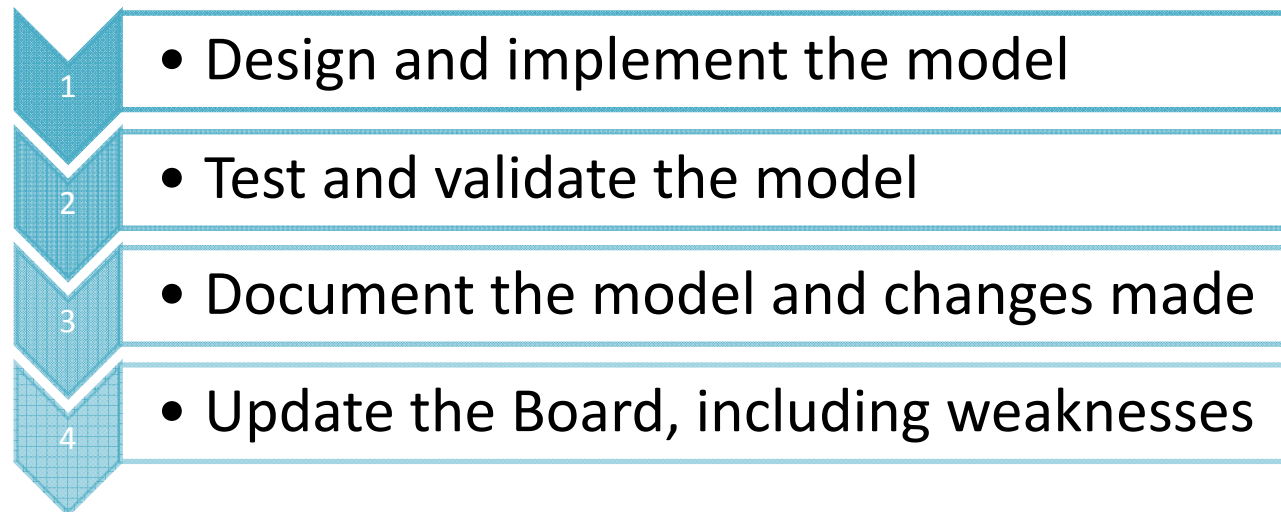
- The Risk Management Function has a responsibility to facilitate the effective implementation of the Risk Management System
- The Risk Management System should cover the risks to be included in the calculation of the SCR as well as the risks which are not or not fully included in the calculation
- The Actuarial Function is required to contribute to the effective implementation of the Risk Management System => it is envisaged that the Actuarial Function will play a role in calculating the SCR and the MCR
- The Actuarial Function could alternatively review the calculations of the SCR and the MCR, where it has not been involved in the calculations of these amounts



## A Year in the Life – Internal Model

---

- The key stages (not sequential) of the internal model process are:



- The design and implementation of the internal model should be separated from the testing and validation of the model.
- The design of appropriate stress and scenario tests is part of the internal model process. While the RMF will be responsible for taking the lead on this, it would also require significant input and oversight from the AF.

## A Year in the Life – ORSA Process

---

- The ORSA should be an integral part of the business strategy and should be performed regularly
- The responsibility for the ORSA lies with the Risk Management Function, although it is envisaged that the Actuarial Function will provide significant input
- The ORSA is not a single report, prepared once each year. Instead it is a documented process, carried out throughout the year.
- There is a requirement to report on this process each year to the Board and the Supervisor



## View from Practitioners on Challenges in Transitioning to SII

---

- Holistic Nature of Risk Management. Focus of Risk Management may need to change for some companies.
- Under Solvency II, the Chief Risk Officer(CRO) will be responsible for decisions on how risks should be managed. Thus risk management will need to be seen as a key factor in the success of the business.
- In addition, the Risk Management Function should balance managing downside risks with taking profitable risks.
- The process of developing the risk appetite statement and building the processes around this to regularly monitor, measure and manage risks has been a progressive development for many companies in transitioning towards Solvency II.

## View from Practitioners on Challenges in Transitioning to SII

---

- Finding a CRO with the required competencies is an important objective. Key competencies include:
  - Strong understanding of the business, including good practical knowledge of operations, underwriting etc,
  - Strong quantitative skills, including a good understanding of risk-based capital models,
  - Strong communication skills
  - Strong leader who is prepared to challenge decisions
- The CRO's team should include a mix of disciplines e.g. actuaries, chartered accountants and legal professionals
- At present, the AA for life insurers is probably closest to the CRO role - it is a broad role encompassing many aspects of financial risk management in particular.
- Though the new Chief Actuary title may have a broader remit

## View from Practitioners on Challenges in Transitioning to SII

---

- Interaction of Actuarial and Risk Management Functions
  - It will be very important that they work closely together.
  - However, independence of the two functions is also crucial.
  - Understanding what the requirements are to achieve independence and structuring the organisation accordingly are key challenges.
- Internal Models & Use Test
  - Solvency II requires the Board members to understand the workings on the internal model.
  - This represents a big increase in responsibilities and what is expected of the Board in terms of knowledge, skills and time.
- Documentation
  - Preparing for Solvency II requires a lot of documentation.
  - It is important that the principle of proportionality is applied. “The right balance needs to be struck between high value risk management practices and low value ‘form filling and report writing’ practices”.

## View from Practitioners on Challenges in Transitioning to SII

---

- Outsourcing

- For smaller companies in Ireland, outsourcing may be a key part of the business model.
- If they are to continue to outsource functions, they may need sufficient staff in place to provide appropriate monitoring and control of outsourced activities.

- Operational Risk

- Operational risk can be challenging to develop and manage.
- Operational risk will need to be integrated into the overall risk management system, moving it away from the “silo” approach where it is looked at in isolation.

- There will be significant challenges in developing methods to quantify the level of exposure to operational risk in particular to meet the demands of Pillar II.

## Competencies & Skills Required

---



- Fitness & Probity
  - Solvency II & CBI Requirements
- Actuarial Functions
  - Currently Appointed Actuary or Signing Actuary must be a FSAI who holds the relevant practising certificate issued by the Society.
  - No longer a requirement under Solvency II
- Under Solvency II, it will be a matter for insurance undertakings to satisfy themselves that persons discharging key roles meet the fitness and probity
- It is likely that there will continue to be an expectation of membership of a professional body for persons working in the Actuarial and Risk Management Functions.

## Competencies & Skills Required

### Actuarial Function

- The transition for actuaries who currently discharge or support Appointed Actuary or Signing Actuary roles to discharging or supporting an Actuarial Function role should not be an enormous leap.
- The Signing Actuary role is not as broad as the Appointed Actuary role. There could be a greater transition for some non-life or reinsurance signing actuaries where they do not currently opine on pricing policies or reinsurance arrangements.
- Solvency II will require greater formalisation of processes and documentation and this is likely to be an area where actuaries will need to focus their efforts in transitioning from current actuarial roles to the Solvency II Actuarial Function role.



## Competencies & Skills Required

### Risk Management Function

- The new formal Risk Management Function, and the associated Chief Risk Officer (CRO) role, is significantly enhanced in Solvency II relative to the current formal responsibilities.
- The level of direct involvement of the CRO in the day-to-day elements of all areas of Risk Management will depend on the operating model of individual companies.
- Discharging or supporting a robust Risk Management System will require a wider range of competencies than might typically be associated with these roles at the moment.
- In the following slides, we look at the required skills and competencies by outlining the principle responsibilities of the Risk Management Function under Solvency II

# Competencies & Skills Required

---

- **Internal Model**

*For (re)insurers using a partial or full internal model, skills and capabilities to:*

- Design and implement the internal model
- Test and validate the internal model
- Document the internal model and any subsequent changes made to it
- Analyse the performance of the internal model and to produce summary reports
- Report on the performance of the internal model

- **Solvency Capital Requirements**

*Skills and capabilities to:*

- Calculate current statutory solvency position (SCR, MCR and Capital Position)
- Projection of overall solvency needs through stress and sensitivity tests
- Dividend and capital injection considerations

# Competencies & Skills Required

---

- **ORSA**

*Skills and capabilities to:*

- Develop and embed an ORSA process in the business's strategy setting, business planning and decision making processes
- Review the system of governance taking into account the company's risk profile
- Define and document the ORSA process and supporting ORSA report

*This includes evaluating the use of the Internal Model or Partial Model in the following areas:*

- Description of risk profile
- Description of Model and Model Governance
- Review of risks covered/not covered by Model
- Assumptions and limitations of the Internal Model
- Assessment of emerging risks
- Review of statistical quality and calibration of Model
- Review P&L attribution
- Review performance of Model vs Use Test

# Competencies & Skills Required

---

- **Risk Strategy**

*Skills and capabilities to define a risk strategy including definition of:*

- Risk management culture
- Risk management governance, roles and responsibilities
- Process for embedding risk management in business planning and performance management
- Process for establishing minimum requirements for the management of the portfolio of risks
- Process for the conduct of the ORSA

- **Risk Appetite**

*Skills and capabilities to define a risk appetite:*

- Process to review existing and emerging risks
- Where the company has a Internal Model using Internal Model output to shape the risk appetite
- Establishment and statement of the (re)insurers risk appetite and risk tolerances
- Leading to Qualitative and Quantitative assessment of risks
- Review of risk limits at a risk category
- Process to ensure (re)insurer behaves within stated risk tolerances

# Competencies & Skills Required

---

- **Risk Policies**

*Skills and capabilities to define, review and refine risk policies including, but not limited to:*

- Underwriting and reserving
- Asset-Liability management
- Investment
- Liquidity and concentration risk
- Operational risk
- Reinsurance

- **Risk Reporting**

*Skills and capabilities to:*

- Provide key information to management through risk committee structures
- Explain complex risk concepts to management and staff across the organisation
- Engage with regulators
- Engage with other professionals with key roles across the business (Actuaries, Lawyers, etc.)

## Conclusions

---

- New Solvency II responsibilities assigned to the Actuarial Function do not mark a large departure from the existing actuarial responsibilities for life insurers, non-life insurers and reinsurers.
- The transition for those involved in Risk Management Function could be more significant
- An effective risk management system will require input from the Actuarial Function
- A full or partial integration of these functions could be possible subject to meeting the requirements of Solvency II framework and addressing any conflicts of interest.
- It's important to demonstrate that conflicts of interest arising are formally acknowledged, managed and mitigated appropriately

## Conclusions

---

- Solvency II will require greater formalisation of processes and documentation
- This is likely to be an area where actuaries will need to enhance their skill-sets in transitioning from current actuarial roles to the Solvency II Actuarial Function role.
- From a Risk Management perspective, it is evident that a significantly broader range of skillsets will be required within this function than would typically exist currently.
- The formal Risk Management Function, and the associated Chief Risk Officer role, is significantly enhanced in Solvency II relative to the current formal responsibilities in these areas.

## Questions

---

