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The possibility of best estimate valuation and risk margin calculation of technical provisions as set out in Solvency II Framework Directive by general insurance companies in Armenia and the need for additional actuarial guidance

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Technical provisions

Some of the most important and challenging requirements under Solvency II and the issues of the Armenian general insurance market that is worth to be mentioned in advance are listed below:

Solvency II pillar I requirements	Current issues in the Armenian non-life insurance market
Cashflow basis for valuation of business (gross, reinsurance)	Significant part of the actives and liabilities doesn't have defined cashflow patterns or aren't registered in computer atomized systems (e.g. cashflows under contracts with counterparties other than policyholders such as reinsurers, intermediaries, claims for a class of business with sparse development data, etc.)



Technical provisions

Solvency II pillar I requirements

“True best estimate” valuation - without implicit or explicit margins of technical provisions

Current issues in the Armenian non-life insurance market

- Challenging to make the calculations separately for different currencies for obligations
- Also challenging to quantify and validate the inflation implicitly especially regarding to the precise measures of inflation
- There are no previous serious practice of prediction of lapse rates



Technical provisions

Solvency II pillar I requirements	Current issues in the Armenian non-life insurance market
“Binary events”	Current methods do not adequately allow for extreme claims
UPR replacement with “premium provisions”	<ul style="list-style-type: none">• Challenging in the first phase of introduction of the method to calculate both the premium provisions and their sufficiency• Earned and unearned business are considered separately• Prediction of the expected profits for the remaining periods (to be included in the calculation) may be not realistic as market practices change/develop rapidly



Technical provisions

Solvency II pillar I requirements	Current issues in the Armenian non-life insurance market
Recognizing contracts on a “legal obligation basis”	Includes significant changes in the entire accounting policy (not only the part of provisions)
Discounting	For not all relevant currencies, all relevant maturities and all insurers term structures are available: contradiction of the principle of the realism, as there is low possibility for all undertakings to earn the rates in practice in a risk-free manner, thus increased volatility in reserves



Technical provisions

Solvency II pillar I requirements	Current issues in the Armenian non-life insurance market
The principle of a market consistent basis and calculation of a Risk Margin	<ul style="list-style-type: none">• Probably need intensive computing power, which leads to significant costs compared to the business volume of the companies operating in the market• Uncertainty about the adoption to and integration of the software mentioned above and the current systems• Need for use of suitable simplifications
Valuation of liabilities segmented by Solvency II lines of business	<ul style="list-style-type: none">• Data may not currently be collected at the level required• Due to comparatively simple products the issue of unbundling multiple lines of business not significant



Technical provisions

Solvency II pillar I requirements

The governance requirements for an explicit “actuarial function”

Current issues in the Armenian non-life insurance market

Despite of the fact that the regulator of the insurance market the Central bank of Armenia changed the requirements for internal control system of insurance companies in a fundamental manner (which suppose some structural and functional changes and introduction of new measures which are essential for meeting Solvency II requirements (as well as prototype of “actuarial function”)) due to be met on the second half of the year 2014, they require huge financial resources compared to the market volume and are considered to be implemented in a situation of lack of qualified professionals



Technical provisions

Solvency II pillar I requirements	Current issues in the Armenian non-life insurance market
Explicit data requirements	<ul style="list-style-type: none">• Need for detailed actuarial function concerning assessment of the appropriateness, accuracy and completeness of the data and internal audit function concerning the data auditing• Require changes to current methods and data sources
Increases to documentation and validation requirements	<ul style="list-style-type: none">• It can be onerous due to the potential volumes involved• Difficulties in making proper and sufficient documentation so as to be reproduced by other suitably skilled individual parties alone



General requirements

Use of adequate techniques - The responsibility for the choice for the adequate techniques for the best estimate liability calculation rests with the insurance company and specifically the actuarial function: *main requirements:*

- Robustness of the techniques and assumptions,

Having regard to the nature, scale and complexity of risks. Show the strengths of the chosen technique compared to other relevant techniques

- Realism regarding to

Reflecting the uncertain nature of the cash-flows

Possibility of carrying out actions in the considered circumstances

Time taken and costs associated with changes in different scenarios

- Identification of risks materially affecting cash-flows

Based on the nature of the liability being valued



General requirements

- Auditing

Capability of auditing any valuation technique and its results

- Homogeneous risk groups

Ability to demonstrate that the grouping process has been done appropriately

- IT systems

Corresponding to the techniques used

- Correspondence to Probability weighted average

Reflecting the uncertainty inherent in the cashflows

Best estimate – the average of the discounted cashflows



General requirements

- Objectivity

Reflecting future management actions which may be used and the extent/circumstances to which they can be expected to be used

- Verifiability

Ability to demonstrate objectiveness and realism of the future management actions

Comprehensive plan and documentation

- Proportionality by taking the following steps

The assessment of nature, scale and complexity

Assessing model error

Back-testing



Segmentation

Introduction

Our view of the fundamental split – the calculation of the best estimate within technical provisions is a split into homogeneous risk groups (minimum lines of business, currency groups)

Potential practical issues

- High level of segmentation may not match the way the business is managed
- Data may not be collected at the level required
- Unbundling multiple lines of business
- Possible methodologies

Suggested approaches

- Technical provisions should be calculated with the level segmentation detailed
- At this stage homogeneous risk groups can be defined at a low of granularity



Calculation of best estimate and cashflows

Introduction

- The best estimate must be calculated gross
- The cashflow projection used in the calculation of the best estimate shall take account of all potential cash in- and out-flows required to settle the insurance and reinsurance obligations over their time

Potential practical issues

- Challenging to make the calculations separately for different currencies for obligations
- Also challenging to quantify and validate the inflation implicitly especially regarding to the precise measures of inflation
- There are no previous serious practice of prediction of lapse rates



Calculation of best estimate and cashflows

Suggested approaches

- Some general considerations relating to cashflows
- ✓ Selection of the time interval for cashflow projections
- ✓ Calculation and projection of technical provisions on a cashflow basis
- ✓ Separation of large and catastrophe-type claims



Gross outstanding claims provisions

Introduction

The main difference from the current methodology in our market- best estimate must not include margins for optimism or conservatism

Potential practical issues

- There is no issue regarding accident year calculation basis
- Also there is low probability for latent claims due to relatively new insurance market, poor policy wording beneficial from the point of view of insurance company, low degree of awareness which leads low claiming attitude
- Current methods do not adequately allow for extreme claims
- Regulation mainly requires usage of deterministic models, however actuaries in insurance companies currently use commonly used stochastic actuarial methodology

Suggested approaches

- Regulation should include change the standards from deterministic to stochastic



Gross premium provisions

Introduction

- Provisions should be calculated as best estimates and must not include margins.
- Contracts are included in the provisions on a legal obligation basis.

Potential practical issues

- It requires further calculation on sufficiency of premium provisions compared to current techniques
- It requires separate consideration for the payments patterns of earned and unearned business
- Inclusion of expected profits over the remaining periods
- During the inclusion of unaccepted business there is a need to have a link to the capital calculation core

Suggested approaches

- Premium provisions are reduced by the amount of expected future premium cash inflows
- There is a need of investigation of the legal position regarding cancellation of contracts and creation of a definition for valuation.



Reinsurance recoveries

Introduction

- Calculation of amounts recoverable from reinsurance contracts must be performed under the same principles as for calculation of the gross best estimates
- Reinsurance recoveries can be calculated assuming no counterparty default

Potential practical issues

Allowance for counterparty default will be time-consuming and potentially complex

Suggested approaches

Stochastic methodologies that allow explicitly for uncertainty in timings and amounts of reinsurance will develop over time



Expenses

Introduction

Allocated and unallocated expenses should be taken into calculation, also unallocated expenses must be allocated between business lines, homogeneous risk groups and currency

Potential practical issues

Methodology used for expense projection must avoid double-counting

Suggested approaches

An expense investigation is required to assess the most appropriate method of allocating expenses across lines of business and into the future.



Binary events

Introduction

- Allowance for this kind of future outcomes is made technical provisions should include all items that are “reasonably foreseeable”
- Provisions should have regard to historic levels claims and development

Potential practical issues

- Difficulty in approach of using implicit allowances rather than explicit
- No significant probability for latent claims due to not being observed historically
- Making required significant judgments regarding binary events extremely subjective
- Extremely difficult to meet validation, back-testing and data requirements for the assumptions underlying the methodology

Suggested approaches

- Produce explicit allowances for binary events where possible
- Calculate reserve with and without assumption of the occurrence of binary event and combine with probability weighting where possible
- Uplift reserve to allow for limited range of understanding



Discounting

Introduction

- Time value of money using the relevant risk free interest rate term structure for each currency also allowing for illiquidity premiums (leading to additional layer of segmentation)

Potential practical issues

- For not all relevant currencies, all relevant maturities and all insurers term structures are available: contradiction of the principle of the realism, as there is low possibility for all undertakings to earn the rates in practice in a risk-free manner, thus increased volatility in reserves
- Situations when liabilities do not exhibit reliable cashflow patterns requiring subjective selection of payment amounts and dates to discount
- Best estimate provisions are sensitive to the risk-free interest rate term structure used to discount

Suggested approaches

- Assessment of the main currencies to be used
- Decision of the time period granularity
- Discounting either deterministically or stochastically
- Implementing of sensitivity testing.



Risk margin

Introduction

- Provisions calculated as sum of an explicit best estimate and explicit risk margin (using a cost of capital approach for each year in the future until the business is fully run off)

Potential practical issues

- Decisions over use of simplifications should be made independently for each line of business. Use of different methodologies for different lines could be complicated.
- Using higher-tier methods for calculating SCRs may require sophisticated calculations and will probably need intensive computing power.
- Segmentation used for SCR in the internal models (if used) may not match the way risks are modelled



Risk margin

Suggested approaches

- Simplification steps
- ✓ Approximate the individual risks or sub-risks within some or all modules and sub-modules to be used for the calculation of future SCR
- ✓ Approximate the whole SCR for each future year, e.g. by using a proportional approach
- ✓ Estimate all future SCR at once, e.g. by using an approximation based on the duration approach
- ✓ Approximate the risk margin directly as a percentage of the best estimate



Data implications

Introduction

- General requirements on data quality
 - Appropriateness
 - Completeness
 - Accuracy
- Deficiencies in data (because of a new company or a line of business, low frequency of claims, IT mistakes, etc.)
- Data quality management (assessment, monitoring of the quality of the data), internal processes on collection and processing the data



Data implications

Potential practical issues

- Assessing the data quality sufficiency is judgmental and it's hard to define a passing threshold for data quality
- There needs to be consistency with technical provisions data and the internal model data

Suggested approaches

- Formation of data dictionary
- Test for appropriateness/completeness against proposed methods
- Integration of data systems for different uses



Documentation

Introduction

- All the steps in the valuation process should be documented, particularly:
 - ✓ the robustness of the valuation process;
 - ✓ the appropriateness of the level of technical provisions;
 - ✓ the applicability of methods and assumptions applied;
 - ✓ the adequacy of underlying data used
 - ✓ Views of experts from other business areas built into a process of feedback
 - ✓ Documents stored and made immediately available to the stakeholders



Documentation

Potential practical issues

- It can be onerous due to the potential volumes involved
- Difficulties in making proper and sufficient documentation so as to be reproduced by other suitably skilled individual parties alone

Suggested approaches

- Adoption of regulation, which should at least cover issues relating to the format of documentation, storage duration of the documents and appropriate explanation of the information documented to the new employee responsible of reserving



Implementation of the main measures mentioned above in Armenia (1)

N	Phase*	Description of the Measure	Description of the expected result	Responsible party for the implementation of the measure	Period of implementation of the measure
1	Changes and incorporations to the Regulation on Main Prudential Standards	Determination of the new standard on capital adequacy	Can be basis (prototype) for determining SCR	The Central Bank of Armenia (CBA)	Jan 2010 – Jun 2010, in force since Jan 2011
2	Changes of the regulation on the calculation methods of claim provisions from deterministic to statistic	<u>Step 1</u> : Introduction of two possible methods for OCR and IBNR <u>Step 2</u> : Liability test of the methods in <i>Step 1</i>	Implementation of the suggested approach in <i>Slide 15</i>	<u>Step 1</u> : The CBA <u>Step 2</u> : The insurance companies (IC) and the CBA	<u>Step 1</u> : Nov 2013 <u>Step 2</u> : Nov 2013 – January 2014

* The order of the phases, the main responsible party of which is the CBA, is chosen based on the possibility of implementing them.



Implementation of the main measures mentioned above in Armenia (2)

N	Phase	Description of the Measure	Description of the expected result	Responsible party for the implementation of the measure	Period of implementation of the measure
2	Changes of the regulation on the calculation methods of claim provisions from deterministic to statistic	<p><u>Step 3</u>: Introduction of the draft regulation on the calculation methods for OCR and IBNR taking into account of the <i>Step 1</i> and <i>Step 2</i> results</p> <p><u>Step 4</u>: Short QIS of the <i>Step 3</i></p> <p><u>Step 5</u>: Calculation and liability test of alternative methods to the ones described in <i>Step 3</i></p> <p><u>Step 6</u>: Suggestion of possible alternative methods and modifications for the ones described in <i>Step 3</i> based on <i>Step 5</i></p> <p><u>Step 7</u>: Adoption of the final regulation</p>	Implementation of the suggested approach in <i>Slide 15**</i>	<p><u>Step 3</u>: The CBA</p> <p><u>Step 4</u>: The IC and the CBA</p> <p><u>Step 5</u>: The Actuarial Society of Armenia (ASA)</p> <p><u>Step 6</u>: The ASA</p> <p><u>Step 7</u>: The CBA</p>	<p><u>Step 3</u>: Jan 2014</p> <p><u>Step 4</u>: Feb 2014 – Aug 2014</p> <p><u>Step 5</u>: Dec 2013 – Mar 2014</p> <p><u>Step 6</u>: Apr 2014</p> <p><u>Step 7</u>: Sep 2014</p>



** It is important to mention that the methods in the regulation are not obligatory, the insurance companies have the right to establish additional reserves not specified by the regulation by the consent of the CBA

Implementation of the main measures mentioned above in Armenia (3)

N	Phase	Description of the Measure	Description of the expected result	Responsible party for the implementation of the measure	Period of implementation of the measure
3	Introduction of new regulation on the internal control system	<p><u>Step 1:</u> Adoption of the regulation. The minimum requirements presented to the internal control system include ORSA elements (regarding also to technical reserves) and the three lines of defence model. It also determines the concept of actuarial function</p> <p><u>Step 2:</u> Appropriation of the insurance activities, internal procedures and regulation to the minimum requirements mentioned above</p>	<ul style="list-style-type: none"> • Clarification of internal procedures of determining the criteria for and necessity of making decision to change current reserve calculation methods or calculate additional reserves • In our opinion there is one omission – no measure of QIS is determined between the end of <i>Step 2</i> and the date of launching the regulation requirements 	<p><u>Step 1:</u> The CBA</p> <p><u>Step 2:</u> The IC</p>	<p><u>Step 1:</u> Jan 2013 – Jun 2013</p> <p><u>Step 2:</u> Jul 2013 – Jun 2014 expected start Jul 2014</p>



Implementation of the main measures mentioned above in Armenia (4)

N	Phase	Description of the Measure	Description of the expected result	Responsible party for the implementation of the measure	Period of implementation of the measure
4	Introduction of SCR within the scope of Solvency II general definition	<p><u>Step 1:</u> Development of the SCR calculation main concepts and adoption for Armenian insurance market (Solvency 1.5)</p> <p><u>Step 2:</u> QIS</p>	Introduction of one essential concept as set out in Solvency II Framework Directive Pillar I	<p><u>Step 1:</u> The CBA</p> <p><u>Step 2:</u> The IC and the CBA</p>	<p><u>Step 1:</u> Jan 2014 – Jun 2015</p> <p><u>Step 2:</u> expected start Jul 2014 – uncertain</p>



Implementation of the main measures mentioned above in Armenia (5)

N	Phase	Description of the Measure	Description of the expected result	Responsible party for the implementation of the measure	Period of implementation of the measure
5	Introduction of technical provision calculation and valuation concepts within the scope of Solvency II Framework Directive	<p><u>Step 1:</u> Development of the technical provision calculation and valuation main concepts and adoption for Armenian insurance market (Solvency 1.5)</p> <p><u>Step 2:</u> QIS</p>	Introduction of one essential concept as set out in Solvency II Framework Directive Pillar I	<p><u>Step 1:</u> The CBA</p> <p><u>Step 2:</u> The IC and the CBA</p>	<p><u>Step 1:</u> expected Jul 2015 – Jun 2016</p> <p><u>Step 2:</u> uncertain</p>



Implementation of the main measures mentioned above in Armenia (6)

N	Phase	Description of the Measure	Description of the expected result	Responsible party for the implementation of the measure	Period of implementation of the measure
6	Adoption of actuarial guidance	<p><u>Step 1:</u> We suggest that all the suggested approaches, simplifications in all the sections mentioned above be taken into account in Phase 5 <u>Step 1</u>.</p> <p><u>Step 2:</u> Development and introduction of actuarial guidance taking into account all the suggested approaches, simplifications in all the sections mentioned above</p>	Launching of Solvency 1.5 technical reserves	<p><u>Step 1:</u> The CBA</p> <p><u>Step 2:</u> The ASA, the CBA</p>	<p><u>Step 1:</u> expected Jul 2015 – Jun 2016</p> <p><u>Step 2:</u> Expected start – Jul 2016 - uncertain</p>



Questions and Answers

