

# Challenges of Solvency II in Croatian insurance market

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Zagreb

- Solvency II concept
- Solvency I – current regime
- Legal framework and implementation timeframe
- Pillar 1 – quantitative requirements
- SCR standard formula – modular structure
  - Overall SCR calculation
  - Basic Solvency Capital Requirement
- SCR: standard formula or internal model
- Data requirements and processes
- Preparation for Solvency II
- Quantitative impact study 5, EIOPA report
- Croatian Insurance market
- Work group for Solvency II in Croatia
- Some results of QIS5 in EU

- Solvency II is a regulatory project that provides a risk-based, economic-based and principle-based framework for the supervision of the re/insurance undertakings
- Fundamental review of the prudential regulatory requirements for the European insurance industry
- In Solvency II capital requirements will be determined based on the risk profile of the undertaking as well as on the way in which the risks are managed
- Based on three Pillar concept:
  - Pillar 1 – quantitative requirements (calculation of capital requirements),
  - Pillar 2 – qualitative requirements (risk management),
  - Pillar 3 – disclosure and reporting to the regulator
- Solvency II redefines current capital requirements regime – Solvency I regime

- Capital requirement based on simple calculation: percentage(s) of premiums, claims, technical reserves, taking into account impact of reinsurance
- Almost all data are available from balance sheet and other financial reports of an insurance company
- Deficiency: does not take into account risk profile of the insurance company nor interdependencies between risks
- For example: Solvency I does not take into account the link between long term liabilities (technical reserves of life insurance) and assets in which the technical reserves are invested

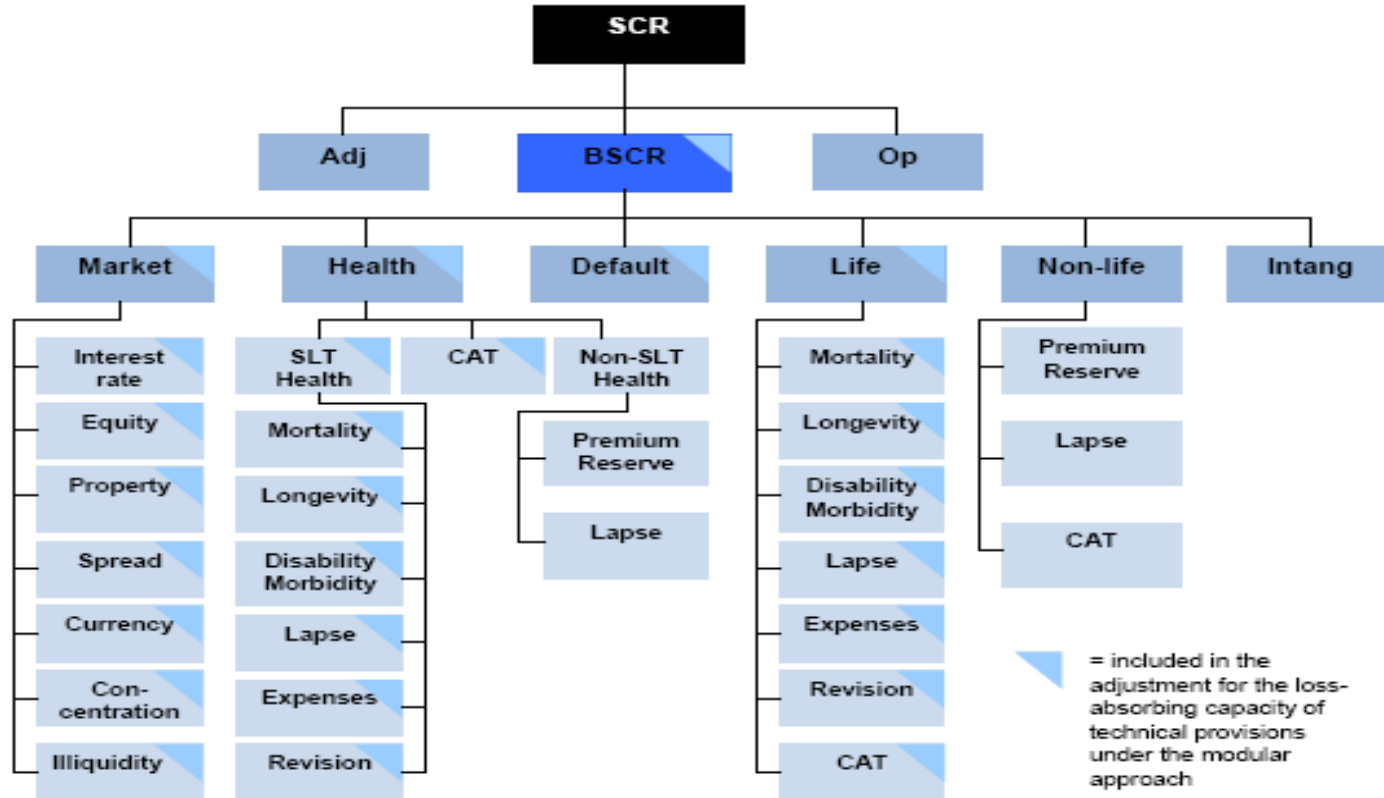
- Four stage process
  - EU Directive 2009/138/EC – Solvency II Directive
  - *Level 2 – implementation measures*
  - *Level 3 - guidelines/binding technical standards*
  - *Level 4 - enforcement*
- Implementation date: 1st January 2013 – postponed to 1st January 2014
- EEA countries
- Croatia as a future member of EU will have to implement Solvency II regulation

- Pillar 1 defines quantitative requirements:
  - own funds
  - technical reserves
  - calculation of capital requirements: SCR (Solvency Capital Requirements) and MCR (Minimal Capital requirements)
- Supervisory ladder of intervention – two target levels of capital: the Minimum capital requirement (MCR) and the Solvency Capital Requirement (SCR)

- Balance sheet for Solvency II calculations is in many segments different to the current balance sheet report (for reporting and statutory purposes):
  - Economic balance sheet approach
  - Different and more complex valuation of technical reserves – liabilities  
→ best estimate and risk margin

*The best estimate shall correspond to the probability-weighted average of future cash-flows, taking account of the time value of money (expected present value of future cash flows), using the relevant risk-free interest rate term structure (EU Directive 2009/138/EC, Art.77)*

# SCR Standard formula – modular structure





- The Solvency Capital Requirement (SCR) is the end result of the standard formula calculation. The SCR is determined as follows:  
$$\text{SCR} = \text{BSCR} + \text{Adj} + \text{SCROp}$$

where

BSCR = Basic Solvency Capital Requirement

SCROp = Capital requirement for operational risk

Adj = Adjustment for the risk absorbing effect of technical provisions and deferred taxes
- While the SCR is calculated as a simple sum over the BSCR, various adjustments and the Operational Risk module, the Basic Solvency Capital Requirement is calculated as the diversified sum of the underlying risk modules Market Risk, Counterparty Default Risk, Intangible Asset Risk and the Underwriting Risk

- The Basic Solvency Capital Requirement (BSCR) is the Solvency Capital Requirement, before adjustments and without the operational risk capital charge, combining capital requirements for the remaining major risk categories.
- The BSCR is determined as follows:

$$\text{Basic SCR} = \sqrt{\sum_{i,j} \text{Corr}_{i,j} \times \text{SCR}_i \times \text{SCR}_j} + \text{SCR}_{\text{intangibles}}$$

- where
- $\text{SCR}_i, \text{SCR}_j$  = Capital requirements for the individual risk sub-modules according to the rows and columns of the correlation matrix  $\text{Corr}$ .
  - $\text{SCR}_{\text{mkt}}$  = Capital requirement for market risk
  - $\text{SCR}_{\text{def}}$  = Capital requirement for counterparty default risk
  - $\text{SCR}_{\text{life}}$  = Capital requirement for life underwriting risk
  - $\text{SCR}_{\text{nl}}$  = Capital requirement for non-life underwriting risk
  - $\text{SCR}_{\text{health}}$  = Capital requirement for health underwriting risk
- $\text{SCR}_{\text{intangibles}}$  = the capital requirement for intangible asset risk
- $\text{Corr}_{i,j}$  denotes the item set out in row  $i$  and in column  $j$  of the correlation matrix. Parameters of the matrix are given.
- Similar calculation is applied to individual moduls and their submodules

- Solvency capital requirement can be calculated in accordance with standard formula, using full internal model or using a combination of both a partial internal model and the standard formula
- Standard formula:
  - formula, correlation matrices, calibration factors, methods of calculation are mostly defined. Still, application of standard formula is not simple: many input parameters needed (sometimes not available), interpretation of methods – not unambiguous; calculation of best estimate reserves needed for SCR calculation – complex
- Internal model:
  - insurance company can choose to substitute a part or the whole standard formula with its own, internally developed, model.
  - Model has to be approved by supervisory authority subject to supervisory approval – supervisory authority decides on the application within six months from the receipt of the complete application

- Application for model approval must be made in a set format and has to contain a soignificant level of detail on the internal model (e.g. scope of the application and model coverage, risk management process and risk profile, technical characteristics of the model, use of external models and dana, plans for future model improvement, capital requirements calculated by the model etc.)
- Due to the nature of the application and the information required, the application can only be made when the internal model is fully developed and has been in operation for a reasonable period
- Development of internal model is time consuming and costly, both in development as well as in the application phase. The benefits of internal model could be: e.g. lower SCR due to the fact that internal model could better reflects the undertakings' specific risk profiles

- Insurance companies keep large amounts of data about their risks and insurance portfolios: historical information about insurance claims (payments and reserves), information about insured risks, assets and more
- Solvency II requires significant increase in amount and granularity of data
  - requirements on IT systems
  - Calculation tools
- Business processes, internal models, calculation principles have to be documented

- Solvency II is long term project that started more than ten years ago
- Five quantitative impact studies (QIS) were prepared in EU in that time
- QIS studies were performed among EU insurers to test the likely impact of Solvency II on insurer's capital requirements before key calibrations are finalized and incorporated in the level 2 implementing measures
- 5th study was performed in 2010 - probably the last study before Solvency II comes into force
- Participation in the studies helped the insurers to better prepare for the new regime

- EIOPA - *European Insurance and Occupational Pensions Authority*
- Quantitative impact study 5: performed in 2010, on data as at 31.12.2009
- All 30 EEA countries participated in the study
- (Re)insurers were asked to calculate SCR using standard formula
- (Re)Insurers that were developing full or partial internal models were asked to calculate the SCR both with the standard formula and with the internal model
- EIOPA report shows which difficulties and problems faced the insurance industry in performing the study → valuable input for Croatian market

- 2520 solo (re)insurance companies and 167 insurance groups participated in the study - 68% of (re)insurance companies that will be affected by Solvency II Directive
- Out of 2520 (re)insurers 60% were small, 31% medium and 9% large (re)insurers; only 10% of (re)insurers provided overall SCR results calculated by internal models
- For the purpose of QIS5 study the definition of undertaking's size as solo company was:

Size	Non-life insurers	Life insurers
Large	>€1bn gross written premiums	> €10bn gross technical reserves
Medium	€0.1bn - €1bn gross written premiums	€1bn- €10bn gross technical reserves
Small	< €0.1bn gross written premiums	< €1bn gross technical reserves

- Insurance groups: large – total assets greater than 90bn eur, small – total assets less than 30bn eur

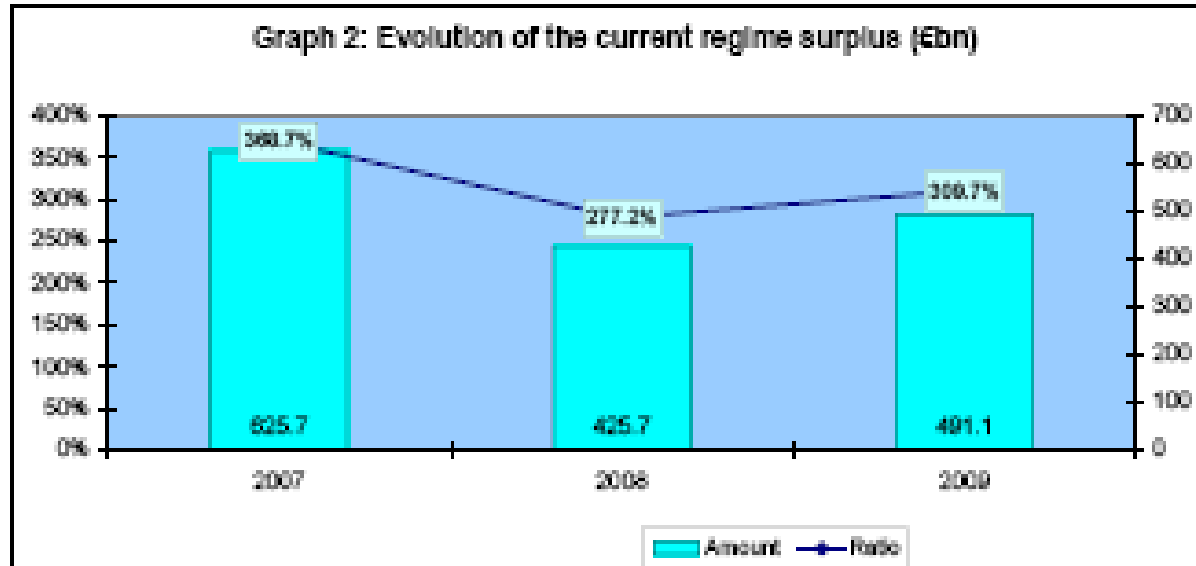


- In 2011: 26 insurance and 1 reinsurance companies - 6 life insurance companies, 10 non-life insurance companies and 10 composites
- Gross written premium: Non-life insurance 7,2 bn HRK (0,95 bn EUR), Life insurance 2,4 bn HRK (0,32 bn EUR)
- Total assets: 15,8 bn HRK life and 17,2 bn HRK non-life → 4,4 bn EUR
- Technical reserves in life insurance: 13,5 bn HRK → 1,8 bn EUR
- → size of Croatian insurance market “as one company” would be “Medium” on solo level according to EIOPA classification for QIS5 study

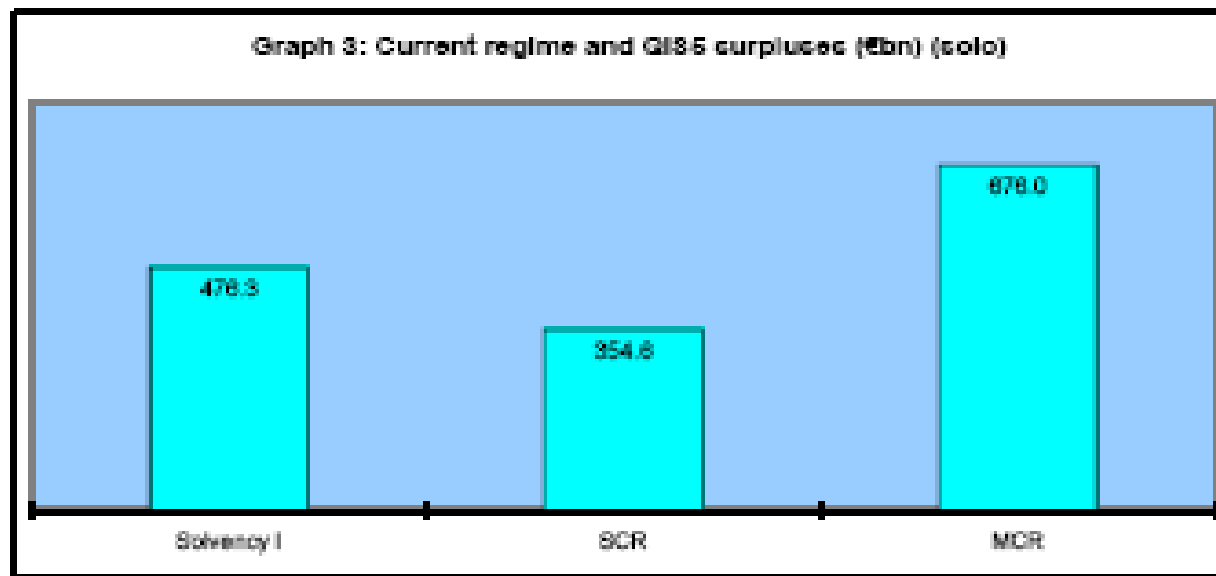
- Croatian insurance industry was not obliged to participate in QIS studies
- Some insurers (members of international groups) did perform QIS4 and/or QIS5 studies as members of their parent companies
- Croatian insurance industry will have to comply to Solvency II regulation

- In spring 2011 workgroup for Solvency II was formed
- The workgroup was initiated by Croatian supervisory agency (Hanfa), Croatian insurance Bureau (HUO), Croatian Actuarial Association (HAD)
- Members of workgroup were experts from the insurance industry and Hanfa
- The task of the workgroup was to analyse the Solvency II Directive and other documents in order to help the insurance industry to prepare for the new regime
- The workgroup prepared a set of documents and guidelines for the QIS5 study in Croatia
- QIS5 study is currently being performed and insurance companies will have to submit the results to Hanfa until end of May 2012

- Useful web links:
  - Hrvatski ured za osiguranje ([www.huo.hr](http://www.huo.hr)),
  - Hrvatska agencija za nadzor financijskih usluga ([www.hanfa.hr](http://www.hanfa.hr))
  - Hrvatsko aktuarsko društvo ([www.aktuari.hr](http://www.aktuari.hr))



Source: EIOPA report on the fifth Quantitative Impact Study (QIS5) for Solvency II, page 23



Source: EIOPA report on the fifth Quantitative Impact Study (QIS5) for Solvency II, page 24

Minimum Capital Requirement (MCR) is calculated with simple linear formula, combined with a cap of 45% and a floor of 25% of SCR and is subject to an absolute minimum

Table 6: Capital requirements and surplus

	Current regime	Solvency II	
		SCR	MCR
Solvency ratio	310%	165%	466%
Surplus	476	355	676
Requirements	Require	227	185
Own funds	Eligible	703	861

Source: EIOPA report on the fifth Quantitative Impact Study (QIS5) for Solvency II, page 25

Croatian market: at 31.12.2011 solvency ratio according to current regime (Solvency I) is 199% for non-life insurance, 203% for life insurance (200% both – preliminary information, not audited figures

QIS5 study in EU: at 31.12.2009

Prepared by: Ines Šikić, Kvarner Vienna Insurance Group d.d.  
Zagreb