

# MSA400 - Reading project Solvency II

Madeleine Retamales Toro & Johanna Svensson

November 19, 2012

## **Abstract**

The work of producing this report have been done jointly and we have both contributed mutually to all parts of this report. All preparations and discussions behind this report has been done as a group.

# 1 Introduction

In this report, we describe the new set of European rules for insurance companies, namely Solvency II, that will be implemented 1 January 2014. Solvency is a measurement of how well a company or a person can meet their commitments. For insurance companies, solvency is important, because it ensures that the insurer has assets to pay its policyholders in a contingency.

The insurance market is one of the largest sectors in the financial markets. They have for a long period of time been less restricted and insurers have had possibilities to invest a lot of their capital, often on a long run basis. Solvency I was introduced in 2002 and contained some regulations, but in 2014 a heavier regulation will be introduced. The motivation for this heavier regulation is not just to decrease insurer's risk exposure but also to harmonize regulations in EU (i.e. create an EU license), to promote competitive equality between companies and protect the customer.

The insurance sector is not just a large part of the financial markets, it also play an important role in society. This role is so important that a bankrupt insurance company could be devastating. Hence one of the goals for Solvency II is to lower the risk of insurance companies going into bankruptcy. Solvency II will require the insurers to hold capital against market risk, credit risk and operational risk and will play a role similar to the one Basel III has in the banking sector.

## 2 Solvency II

Solvency II will introduce a common European approach for all countries in the European Economic Area, the 27 European Union Member States and three of the European Economic Area countries [1].

The implementation date is estimated to be 1 January 2014 [2]. Being applicable to all insurance and reinsurance companies with turnover greater than 5 million Euro [12]. The estimation of the cost from the European Commission's 2007 has calculated that the cost will between 2 billion to 3 billion Euros. The benefits from the implementation is expected to deem out the cost. The regulations will have a large impact on the 5000 insurance companies in Europe [12] as it is a big step from the existing regulations.

Solvency II consists of three pillars. The first pillar is mainly concerned with the quantitative requisites, the aim is how to calculate a solvency capital requirement, SCR, this represents the least sufficient amount of capital that an insurer must poses in order to protect its policyholders in a contingency. The second pillar- Qualitative Requisites it is concerned of the principles of the internal controls, risk management etc. The last pillar-Market discipline consists of the information transparency requirement.

## 3 The Structure

### 3.1 The first pillar

A company shall at all times have a capital at least equal to the sum of the capital requirements for credit, market and operational risks. If an insurer is unable to fulfill with capital requirements, a supervisor may or will intervene in several ways. The main components in the first pillar are the two capital requirements

- Solvency Capital Requirements (SCR)- risk-based requirement and the key solvency control level.
- Minimum Capital Requirements (MCR)- representing different levels of supervisory.

### 3.1.1 Solvency Capital Requirements

The companies have the possibility to use a standard formula supplied by the Committee of European Insurance and Occupational Pension Supervisors (CEIOPS) or create their own formula to calculate the risk. If they choose to use an internal model, it must be approved by the supervisors. The choice between the standard model and the internal one is for a lot of insurers a choice between a simple, general model which is less costly to implement but might not capture all risks in a correct way or to create a internal, often expensive model which might be more cost effective in the long run.

Solvency II want to measure the aggregated risk that the insurers face. Hence the formulas used will take correlation of the risks into account, the standard formula builds on a value at risk model(VaR), where quantiles are calculated. The main part of the standard formula is the Solvency Capital Requirement (SCR), which is calculated in the following way:

$$SCR = \sqrt{\sum_i \sum_j \rho_{i,j} \times SCR_i \times SCR_j} \quad (1)$$

where  $\rho$  denotes correlation,  $SCR_i$  and  $SCR_j$  denotes the risk module  $i$  and  $j$  respectively.

The equation (1) is used to calculate SCR for the different risk separately, i.e. market-, default-, life-, health- and non-life-risk get their own SCR, and these SCR:s are then used to calculate the basic SCR, which will be a measure of the total risks. Note that in the formula the SCR:s for the different risks also builds on SCRs and how these are calculated are given in detail in [6], basically it builds on a VaR model. The SCR for an insurance company will correspond to a yearly 99.5 percent value at risk. This means the amount of capital the insurer will need to hold to cover its operating and fixed cost. The risk of bankruptcy over one year will be one-in-two hundred.

### 3.1.2 Minimum Capital Requirement

The Minimum Capital Requirement (MCR) is a minimum threshold under which companies will no longer be permitted to trade. The MCR is supposed to be between 25 percent and 45 percent of the SCR. The MCR correspond to an approximate yearly 85 percent VaR [7]. Insurance and reinsurance companies accomplishments shall calculate the Minimum Capital Requirement at least quarterly and report the results of that calculation to supervisory authorities.

## 3.2 The second pillar

The second pillar contains requirement for the governance and risk management of insurance companies, as well as for the effective supervision of insurers [4]. There are four blocks of governance [5], they are:

- Own Risk and Solvency Assessment (ORSA) and capital management.
- Risk management system.
- Policy processes and procedures.
- Key functions.

One of the main goals for this pillar is to get the insurers to reflect and think carefully about their risk exposure as well as increase internal control to decrease operational risk. In that way the management will be more transparent and unhealthy companies will be detected at an earlier state.

### **3.3 The third pillar**

The insurance company must provide a public annual Solvency and Financial condition report (SFCR). The report consists of the SCR and MSR calculations and explanations of methods for valuation of assets. These reports has a key role to play in the Solvency II regime, thus it will ensure more transparency in the market.

## **4 Opinions**

### **4.1 The regulators point of view**

Solvency II is a way to control the insurers by regulations, since they play an important role in society, it is crucial that there are few defaults, otherwise the insecurity of the insurance takers would increase. The regulations is also a way to harmonize regulations customer protection in EU.

Since there exists a standard formula, the regulators thinks that the cost for implementation, also for small firms, will be acceptable. The supervision will also be formatted in a way that will increase the effectivity of the firms and motivate a healthy management.

### **4.2 Critique**

There are a lot of critique of Solvency II. One problem is the one-year horizon, it will affect how the insurers invest their capital and often promote a shorter perspective. Another problem is the size of the capital requirements, large insurance firms will see large reductions in their capital requirements compared to smaller firms [14]. Many reports focus on the unintended consequences, concluding that Solvency II has good intentions, but is to poorly executed [10]. This new rules will change the insurers behavior on the financial markets, which will have great impact on the world economy, since the insurance sector is large. There are also worries that these regulations will increase the systemic risk, since the firms will be more closely linked. The implementation cost is also a problem, which might make the barriers to entry the insurance industry higher which in turn will reduce competition. The higher costs might also lead to higher costs for the policy takers.

### 4.3 What do we think

A regulation like Solvency II might be needed to increase confidence both on the financial and "real" market. But Solvency II is a very large set of rules, which probably will have great impact on the world economy. Since it will affect a lot of different areas, it is difficult to predict the outcome of this legislation. Both the implementation and management under Solvency II is associated with large costs for the insurers, which will be present for both small insurers who choose the standard formula as well as large insurers who want to use a more fitted internal model.

After reading both the European Commission's arguments and the critique from different insurers and researchers, it is hard to tell if the benefits of this new set of rules will overcome the problems. It is important to keep in mind that the work of creating Solvency II has been in progress for about 10 years and under the working process opinions from different participants has been taken into account [8]. Even though Solvency II probably will have some negative influence on the economy as a whole, it might had been difficult to find a better way of formulating the rules. After all, Solvency II is written in a way that leaves a lot to the insurers to decide for themselves (as long as the supervisors approves).

We think it is good that the standard formula is formulated in a general way which makes the model fit a lot of different insurers, even though it might not be optimal for each insurer. If the model was more complicated, it could easily be more suitable for a certain type of insurers than the others, which would not increase competition on the market. The relatively simple model is easy to implement, which will make the transition to Solvency II smoother and a good start also for companies who want to use an internal model in the long run.

## 5 Reading Guide

Since solvency II is about to be implemented, there is a lot of information available. Most of the information given by the European Commission is addressed to the insurance companies and describes how to incorporate the new rules. To get a first description of solvency II it is good to start by looking at FI's pages (in Swedish) [9] or FSA's pages [5], where you can find a short summary of the regulation. Next, the European commission has created an FAQ document [4], where the most crucial points are explained, this document gives an overview of Solvency II. To get a more neutralized picture, it can be good to read some critique as well. There are a lot of critical articles available, Amarendra Swarups article [10] is one of them, which we found interesting. The process of developing Solvency II is described in [8]. To get a better insight in the insurers choice between an internal model and the standard formula, the article written by Curt Burmeister and Andrew Barrie is recommended [13].

The mathematically interested reader might want to know more about the standard formula. A good document which are quite pedagogical is written by CEIOPS [6], in the document the correlation structure is carefully investigated.

## References

- [1] FSA, *Solvency II -Background*, available at:  
<http://www.fsa.gov.uk/about/what/international/solvency/background> [Accessed on 15 Nov, 2012]
- [2] FSA, *Solvency II -*, available at:  
<http://www.fsa.gov.uk/solvency2> [Accessed on 15 Nov, 2012]
- [3] Buckham, David; Wahl, Jason; Stuart, Rose, *Executives guide to Solvency II*, Hoboken: John Wiley and Sons, 2011
- [4] European Commission, *Solvency II: Frequently Asked Questions (FAQs)* Internal Market and Service DG, Financial Institutions, Insurance and pensions.
- [5] FSA, *Pillar 2 - Systems of Governance*, available at:  
<http://www.fsa.gov.uk/about/what/international/solvency/policy/governance>, [Accessed on 15 Nov, 2012]
- [6] CEIOPS, *CEIOPS's Advice for Level 2 Implementing Measures on Solvency II: SCR STANDARD FORMULA, Article 111(d), Correlations*, CEIOPS-DOC-70/10, 29 January 2010.
- [7] CEIOPS, *CEIOPS's Advice for Level 2 Implementing Measures on Solvency II: Article 130, Calculation of the MCR*, CEIOPS-DOC-47/09, October 2009.
- [8] M. Eling, H. Schmeiser, J.T. Schmit, *The Solvency II Process: Overview and Critical Analysis*, Risk Management and Insurance Review, 2007, Vol. 10. No.1, p69-85.
- [9] Finans Inspektionen, *Om Solvens 2*, available at (in Swedish):  
<http://www.fi.se/Regler/Solvens/Om-Solvens-2/>, [Accessed on 15 Nov, 2012]
- [10] Amarendra Swarup, *A well-intentioned folly: The macroeconomic implications of Solvency II*, Economic Affairs, October 2012, Institute of Economic Affairs. Blackwell Publishing, Oxford.
- [11] The Solvency II Directive <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:335:0001:0155:EN:PDF>
- [12] Buckham, David; Wahl, Jason; Stuart, Rose, *Executives guide to solvency II*, Hoboken: John Wiley & Sons, 2011
- [13] Curt Burmeister and Andrew Barrie, *The Solvency Scenarios - Four Perspectives on Solvency II Compliance*, Credit Control, 2010, Vol. 31 Issue 3/4, p51-56.
- [14] Helman le Pas de Scheval *Solvency II: the reason why this project must be reviewed*, Keynote speech, Final version 3, 31st March 2009.