The Impact of Uniform Prudential Regulations Implemented at the Level of European Insurance Industry

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Abstract: While the financial markets have to face systemic and systematic risks, especially the insurance industries, the national supervisory authorities intend to implement regulation systems as uniform as possible at regional level and in the same time as conservatory as possible from the point of view of the risks accepted. The present paper intends to accurately analyze the regulation systems of important insurance markets (as tradition or volume of premiums) – such as RBC, SST, Solvency II in order to stress the similarities of these models but more important the differences that generated a different rigidity degree of the insurance companies, in other words, a different minimum capital requirement. The paper intends to illustrate the financial and organizational impact of the European model Solvency has on the insurance companies, through its supplemental requirements, introduced by the supervisory authorities as a reaction to the recent financial crises.

Keywords: calibration; prudential; supervisory models; solvency

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Along with the development of society, implicitly of the human activities, risks have diversified. Therefore, the insurance industry must deal with new exposures of their customers and also their own, **offering optimal combinations of advantageous conditions of risk management**. In recent years there has been an increase in the number of natural disasters, even if it cannot be clearly demarcated how many of them can be the result of human activity and how many are purely natural (Insurance Information Institute, 2012). Moreover, in the last twenty years there were registered the most costly natural events (Munich Re, 2012) faced by humanity, implicitly by the insurance market.

Positive upward trend in the number of natural disasters has important implications for insurance market. But not the number of those, but the severity of phenomena affecting insurance companies who lose out increasingly large - according to the Insurance Information Institute, only in 2005 - the year of hurricanes, there have been recorded insured losses worth 64 billion USD. Events

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such as earthquakes, affecting alone or along with large tsunami , habitable surface (see the example of Japan, Sumerians, Chile) or flooding due to storms / hurricanes (USA, Cuba) emphasized the impact that a catastrophic event - is considered catastrophic an event resulting in losses greater than 25 million USD - has on the insurance market, and indirectly on the reinsurance market. Insurers seek solutions to protect against geographical concentration of policies or risks (through their exclusion from the general conditions) to meet claims from their clients.

Based on these circumstances, we cannot draw only one conclusion**: the insurance market was not ready for events of this magnitude**, they ignored them considering that the probability is almost zero. Our world is evolving, environment constantly changes, which inevitably exposes us to risks becoming more diverse, with high degree of correlation with effects becoming more expensive for insurance companies. The examples presented above are illustrations of some causes of insurance market failures that have significant effects on the reinsurance market as a result of active financing contracts, under pressure from significant damage.

These events were just some of the factors that led to the need to implement a good surveillance system, in order to reduce the adverse consequences of end users, that experience such events. The reaction of the insurers was prompt in face of the disastrous effects, realizing that **a second experience of high magnitude would not allow them to survive in the market**; thus, they changed the policy conditions and also changed the list of excluded events. However, each time a new exposure (an event plausible but still untried) hit the final consumers and brought substantial losses for insurers, surprising them again. Such moments cannot be avoided or predicted, the only feasible solution for insurance companies is to implement a system that does not exhibit a high degree of risk associated with extreme nature events, geopolitical interests that may lead to terrorist attacks or economic crisis world.

Worldwide, the insurance market is divided according to the level of development of each country. Thus, the market is divided in **developed countries**, where the insurance market is mature and **developing countries** that have a high potential for development - the past 10 years, the annual growth rate in these markets was 11%, with the more surprising as on developed markets, the growth rate was 1.3% (Swiss Re a, 2011).

The insurance market, as any item that fits into the market economy system, is heavily influenced by developments in the economic environment, particularly by the macro-economic indicators such as gross domestic product, the development by regions of economic activity, population density. Macro-economic indicators are influencing factors that insurance companies cannot control, but for which they can implement measures to reduce losses in times of recession. Overall **economic**

developments affect insurance markets in different proportions, depending on the degree of development of the insurance market in the total market. The more developed the insurance market is, the greater the exposure to insurance companies in adverse economic conditions, due to the degree of inter-relationship of the insurance industry with other sectors of the economy (banks, real estate, capital market). An example of this is the propensity of the insurers to invest in financial instruments with a high rate of profitability that have associated high risk in order to make their products more attractive - a favorable decision under economic boom but generating significant risks during periods of economic instability.

The chain of economic crisis in 2008 brought a **new challenge for financial markets, strongly shaken by bankruptcies of banks and reduction of liquidity**. One of the consequences was an intensification of supervision (Swiss Re b, 2011) from the regulatory authorities - considered negligent in preventing the shock created by the financial crisis. In this regard, the authorities have focused on increasing the degree of supervision, imposing new rules and basic parameters of the global financial and economic systems. In many ways, understanding and acceptance of the overall system of risks, implicitly of the systemic risk, is new, but for the first time since 2008 we have seen how strongly related are the financial markets.

Despite the crisis induced by the banking sector, insurers and reinsurers were found themselves in the process of attack by the regulators who intentionally applied a brutal cutting exposures related to the banking system (Liedtke, 2010) - there were companies like AIG that beyond the investment banking division, failed on insurance market because of its investment portfolio (Dinallo, 2010). Despite the lack of bankruptcy cases, however, in the whirl of events, **insurance supervisory system was alarmed and the result was rather dramatic and disproportionate**. Moreover, due to the banking crisis, interest rates decreased, thus affecting investment of insurance companies (a decrease of 1% in interest rates led to a cost of 220 billion Euros a year (Swiss Re b, 2011). A major difference between banking and insurance industry is that a company's bankruptcy (caused by liquidity problems) will not create liquidity problems on other market players - on the contrary, other insurance companies will take the missing portfolio, thereby protecting the end user.

The regulators are the ones setting the legal framework for insurers to operate safely, the latest financial crisis highlighting the importance of international regulatory cooperation, especially for financial groups. Currently there are **many initiatives that act as drivers of reforms to the prudential supervision**. Besides World Bank and IMF, another body concerned with improving national financial systems and international vulnerability reduction is the International Association of Insurance Supervisors (IAIS) that approved in 2010 to develop a common legal framework (CRO Forum a, 2009) necessary for the monitoring process of

internationally active groups and also created an initiative concerning the collaboration of supervisory colleges at international level.

Beyond the benefits brought by the solvency regimes imposed by regulators, attention should be paid to the lack of communication between the regulator and the insurance market which can lead to inefficient additional requirements, such as stress tests imposed by the FSA in the UK in 2001 and 2002 revealed - the tests led to the forced sale of assets, capital market conditions worsening, leading to low corporate value. Moreover, it must be beared in mind that a system that will be implemented across multiple unitary national markets (such as Solvency II) need well calibration, in other words, to take account of specific market conditions, following the implementation phase, in order not to create significant imbalances in the market value of the companies that operate under uniform rules.

Diversity of Risk-Based Regimes in Insurance Industry

At the time of writing this paper, we identify global application of several types of prudential systems - **fixed- rate model** (the European markets still apply Solvency I), **risk-based model** (RBC model applied in the U.S. and Canada) and **internal model** (Switzerland). The simplest model assumes a single risk quantification; simplicity of design is reflected by the limited results obtained from this evaluation, which is why this model (Solvency I) is about to be replaced by a more complex model.

As a consequence of limitations due to fixed-rate model and also in the context of economic and financial changes, it was obvious the need to implement a more complex model that reflects the complexity of the interrelationship between risks. Examples of such models which include more risks so that solvency requirements will better reflect threats in the insurance system are **the RBC model** and **the SST model**.

But the model that best reflects the multitude of risks faced by insurance companies and that pursues their custom detailed quantification and interdependencies between risks is **the internal company model**. Starting from their own historical data and based on forecasts specific to each insurance company, models can be developed so that they reflect actual exposures of an insurer, according to the risk profile and its activity.

The **Solvency II** directive proposes **a standard model for calculating the solvency** that falls in the category of systems based on more risk quantification. Like the SST, Solvency II enables developers and even support their own internal models approved by regulators, which should be within the typology of detailed models that quantify risks and their interdependencies. The European and Swiss prudential systems share the same foundation, based on **working principles**. Both

models provide risk-based capital requirements, taking into account the market value of balance sheet items. Furthermore, both models support a stronger internal risk culture and allow regulators to respond in a flexible manner to changes of external circumstances. Lastly, Solvency II and SST introduce the concept of group supervision by a dedicated group supervisor (CRO Forum a, 2009) - Solvency II will explain in detail how the cooperation between supervisors will be performed.

Swiss Solvency Test (SST) is the first circulating regulatory regime that sets an economic model for assessing the risk-based capital and is the precursor to the European Solvency II regime. Supervisory activity in Switzerland is an illustration of the regulatory **regimes** of the new generation (Dacorogna & Keller, 2009), **based on principles and consulting services**, with a strong perspective on group solvency.

U.S. regulatory system is based on a **combination of approaches based on rules and principles**, when it comes to evaluating assets and liabilities. According to RBC rules-based regime, concrete methods of calculating solvency requirements are clearly defined, insurers are required to hold sufficient capital to cover at least the RBC. Calculating these requirements quantifies **asset risk, credit risk, underwriting risk, the risk arising from subsidiaries**. NAIC latest trend is to include and evaluate the group's solvency and group supervision, given the success of SST regime.

Most regimes **prohibit insurance companies to engage in the management of speculative derivatives**. As a general rule, in a group, only banks or brokers or other entities (excluding insurance company) are entitled to use speculative derivatives. Speculative derivative activities related to a component of the group, whether or not regulated, are included in the group capital requirements. Moreover, the regulatory authority has the right to intervene through discretionary capital requirements, if not enough sufficient risk capital is used to ensure the solvency. SST calculation will take into account derivative activity of non-insurance items in the calculation of consolidated or enterprise level within the group. Moreover, this activity is required to be presented separately in the report to the regulatory authority. In the U.S. RBC model does not include the area of monitoring activities related to derivatives held by a non-insurance entity within a group (NAIC, 2009).

Another aspect illustrating the differences between supervision arrangements relate to **mismanagement of short-term funding sources to cope with the liquidity risk**. Solvency II regime is not including specific quantitative requirements for liquidity risk (CRO Forum b, 2009), regardless of the activity it generates. In order to address liquidity risk, the available capital is less relevant than the liquidity of capital available - companies must implement a process for liquidity risk management (EC, 2009). If the insurer does not ensure implementation of liquidity risk management, the regulator has several options, including imposing additional

capital requirement. Sketches lately stress the distinct need to introduce contingency plans (CEIOPS, 2009) on liquidity risk to be reported at regular intervals by the board of directors of the insurance company / group. Similar to Solvency II regime, SST seeks capital rather focus on liquidity risk through quantitative requirements. Nevertheless, all insurance companies must develop adequate systems of risk management and internal control and reporting any change in risk profile. In the U.S., states supervision authorities focus on proper analysis of assets, with a review of liquidity risk management practices by regulated examinations, questionnaires and surveys, as well as models of stress on liquidity (NAIC, 2009).

The evaluation of assets and liabilities taken into consideration in the solvency computation represent another difference of the supervision According to RBC, balance sheet items are measured under accounting rules, taking into account historical cost. On the other hand, Solvency II proposes the valuation of assets and liabilities based on market conditions to better reflect the real value.

Concerning the internal model, the RBC does not allow insurance companies to develop their own internal models for solvency that meet the needs of each insurer (The Joint Forum, 2010). Solvency II accepts and even encourages insurance companies to develop custom internal models and also to establish the specific risk profile of the insurance business, subject to approval by the regulatory authority.

Impact of Solvency II over the European Insurance Market

Solvency II is bringing the risk-based supervision process to a new level - besides establishing a capital adequacy for the insurance companies, the regime is looking for **methods of influencing corporate behavior and decision making** (PriceWaterhouseCoopers, 2012). The challenge for this regime is to establish a common ground for different markets, when discussing practical actions to be implemented in highly volatile economic circumstances. The difficulty of everyone's agreement and enacting the new procedures can be stressed from the **methodic postponing of the process** - nowadays, the target date is early 2014, with a remote possibility of introducing the obligation of it with 2015, in spite of the side effects brought by another year of discussions and changes.

Diversification of the portfolio is expected to become an important part of the capital requirements in order to reduce the capital burden by almost 35% - this solely can be done by using an internal model by each insurer, whose benefit will be to maximize the value of diversification (this due to the fact that the standard model does not provide a significant the flexibility needed by a financial institution. The diversification will be advantageous primarily to the composite insurers (as the degree of correlation between life and non-life risks is rather low)

and to the reinsurance companies -the diversification is even more potent in their strategies.

One evident effect of Solvency will be the **increase in the number of mergers and acquisitions of insurance companies** (Clifford Chance, 2011), either as a way to raise the capital required by the regime or as a way to change their operational models in order to reach the best possible risk profile generated by applying the group-based approach of solvency model. Another reason for the mergers and acquisitions will be the huge IT costs - concerning implementing and maintaining the internal risk-based model - as the prospect of "acquiring" such system through a merger might prove to be easier and cheaper than the actual purchase of a new system.

The tradeoff between the expected return on investment of their portfolio and the cost of capital need to cover the risk of investment will be determinant in choosing the type of investments the insurance company will seek out in order to comply with the risk profile set from the beginning. Such procedures will definitely cause an **increase in the price of low-risk assets** such as fixed income securities, especially on financial markets with low liquidity and also a corresponding impact on the long-term securities (used mostly by the life insurance companies).

Tailor-made reinsurance solutions may be sought by market participants to ensure effective risk management and reduction in required capital levels. Therefore, proportional reinsurance treaties are excellent for reducing the concentration degree of the insurer's portfolio, which in turns will extend the capacity to write other lines of business. Non-proportional treaties can be used in order to reduce the volatility of claims generated by the associated capital charges, while aggregate excess of loss contracts are perfect for limiting the frequency of claims, as they will bring about additional capital relief. **Additional forms of alternative risk transfer** mechanisms will also emerge as Solvency II unfolds. The impact of these may need to be tested and approved, and the level of risk reduction they offer will be subject to regulatory approval.

The insurance companies are facing significant **costs related to human capital** in order to implement Solvency II regime - European Commission forecast was 3 billion euro of the total cost of implementation (European Commission, 2007). Introduction of the directive required and continues to produce at the time of this paper, significant employee training efforts, thus increased training costs. In addition, important costs are generated by **investment in computer technology** - almost half of the total cost- (PriceWaterhouseCoopers, 2010), as the methodology of Solvency II calculation implies the existence of an information system able to generate high-quality results for the company. Finally, companies are faced with the **costs of collecting data** required for calculation of capital requirements (Minimum Capital Requirement and Solvency Capital Requirement) - given a

rudimentary data collection process that existed before the introduction of the Directive and a lack of consistent data on insurance; for example, the Romanian companies in this period bear the burden of implementing appropriate systems for collecting and processing historical data (thus understanding information systems costs, human resources training costs involved in the process at all levels of the company).

In addition, adoption of Solvency II will result in **additional costs to shareholders** of insurance companies, in order to meet the new solvency requirements. Despite high levels of expenditure arising from the implementation of Solvency II, the major European insurers consider that the financial efforts required to comply with the new regulations are justified - an example in this respect is the reduced effects of the financial crisis had on the insurance industry, enough previously capitalized. According to a survey conducted in 2008 involving 44 large insurance companies in Europe, 43% of them expected to spend less than 5 million euro related to capital requirements (Accenture, 2008). For a third of the companies that participated in the study, estimates of the costs imposed by the transition to Solvency II fell between 5 million and 25 million euro.

However, these costs are supported by shareholders of insurance companies who are convinced that the implementation of the new regime will increase the risk control and also will bring about a consolidation of their companies. On the other hand, in 2011, there were voices among European insurers, that the regime required maintaining excessive and unnecessary levels of capital inside insurance companies.

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