

## Influence of the prudential supervision over the capitalization of the Romanian insurance market

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**Abstract.** *In a decade when all activities are globalized, including insurance, the recent focus of the supervisory authorities became the leveling of the legal framework concerning the solvency requirements of the companies acting on the market (as a consequence of the 2008 crisis, much more acute in USA than in Europe, where Basel Agreement decreased the fall of the banking sector). The present paper analyses the way in which the main solvency regimes applied at international level influence the equity of the insurance companies, especially the increase in the solvency capital required by the supervisors, taking into consideration the risk profile of the company. Moreover, the paper provides a blueprint of the methods to ensure the financial stability of the national industry, in order to respond adequately to systemic and systematic risks.*

**Keywords:** solvency; Solvency II; solvency capital; prudential supervision; QIS.

**JEL Codes:** G22, G15.

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The first function of an insurance company is to manage these risks in a manner such that it would allow at any moment of its activity to honor its contractual obligations towards the final consumers (insureds and beneficiaries), in other words – its solvency degree. Due to the dimensions, structure and complexity degree of the insurance industry, the compliance process of an insurance company by their clients in a direct way is difficult to be performed. This is the determinant factor that causes the action of the supervisory authorities around the world to implement legal frameworks that state the risk management procedures at the level of insurance entities as a support in the final objective of protecting the interest of the insureds. Such an approach of the risk management process necessary for the events present in the insurance industry makes possible the guarantee a high financial health of the market and thus an improvement of the public trust (a vital element in the development of the market).

The intensive process of modification of the legal framework that took place in the period of 2003-2012 represents a normal attitude of the supervisor, while the external environment of the insurance was changed and abridged repeatedly, based on a series of systemic and systematic events registered during this period. The massive losses of the insurance market from 2001, as a result of terrorism risk, followed by equally important losses in 2005, 2009, 2010 and 2011 as a result of natural catastrophes risks brought about the interest of the supervisory authorities to identify protection forms of the national markets against important liquidity outflows paid by the insurance and reinsurance companies, on the one hand, and against the bankruptcy possibility among the market players with serious consequences from a reputational point of view, on the other hand.

Beside these changes that have led to increased development and implementation of an effective management process also at the level of the entities which have accepted risks on behalf of their clients, a new systemic risk was added – the financial crisis of 2008 – which by its specificity, ie affecting the banking sector and real estate and capital markets, could have caused a general collapse if certain preventive measures had not been implemented by the insurance regulators. In the context of the existence of minimum capital requirements to ensure solvency of insurance companies, shocks of 2008 have not had the same impact suffered by financial institutions other than insurance. However, loss of real estate and capital markets led to a reduction in the value of investments of insurance companies. This was in fact what prompted major unrest of the insurance market regulators to impose additional capital requirements under the new solvency regime to continue to cover all exposures in the event of catastrophic event.

The 2008 crisis led to a transfer of focus of the authorities monitoring those events with high impact, catastrophic even, with a reduced probability of novelty at the risk management level until that moment – when such exposures were considered last on the priority list of entities. This is the reason why it was raised the question urgent to quantify all risks faced by insurance companies (issue quite difficult to achieve due to lack of historical information) and their modeling, taking into account the correlations between risks. From the point of view of regulators, this approach provides a clearer picture of the risk profile that an insurer can take.

The chain of economic crisis from 2008 brought about a new challenge for financial markets, strongly shaken by the bankruptcies banks and reducing liquidity. One of the consequences was an intensification of the supervision process (Swiss Re, 2011) from the regulatory authorities – considered negligent in preventing the shock created by the financial crisis. In this regard, the authorities have focused on concentrating the monitoring process, on imposing rules and basic parameters of the global financial and economic systems. In many ways, understanding and acceptance of the overall system of risks, implicitly the systemic risks, are new. For the first time since 2008 we have seen how strong and related the international financial markets are. A bank that operated in a market in Europe (actually a relatively small banking institution – Bank of Northern Rock, United Kingdom) caused an infection of the entire financial system and prompted an intensification of concerns (with significant effects on the investors' confidence in the market) worldwide, during this period, the issue of full collapse of national and not just components of these systems was taken into consideration.

Despite the crisis induced in the banking sector, insurers and reinsurers found themselves in the process of attacks from the regulators who deliberately delivered a brutal cutting of exposures related to the banking system (Liedtke, 2010) – there were companies like AIG that, beyond the investments banking division, failed on the insurance market because of their investment products (Dinallo, 2010). No other bankruptcy or crisis signal was recorded in the insurance industry – companies continued to pay their contractual obligations towards clients. However, in the whirl of events, the surveillance system was alarmed and the result was a dramatic and disproportionate increase in insurance and reinsurance markets. Moreover, due to the banking crisis, interest rates decreased, thus affecting the investments of insurers (a decrease of 1% in interest rates lead to a cost of 220 billion euros a year (Swiss Re, 2011). A major difference between banking system and insurance industry is that a company's bankruptcy (caused by liquidity problems) will not create liquidity problems to other market players – on the contrary, the other insurance companies will take over the portfolio of extinct company, thus protecting the

final client. Moreover, a failure of an insurance company would not create the risk that taxpayers come to pay from their own pockets the resulted losses for fear of disappearance of the entire insurance system, as was the case with the banks that had severe liquidity issues.

One result of the crisis is the acceleration, unjustified in the opinion of experts (Brahin, 2011), of the process of imposing prudential legal framework created by the supervisory authorities. Given that these frameworks pass through national calibration exercises with an implementation schedule already established and sometimes slightly outdated, an acceleration of the legislative process, under political pressure, would not only bring new exposures to the insurance industry, under the form of model risk.

The solvency of insurance companies may be defined as the ability of the insurer to honor the commitments made. Given its importance, supervisory authorities and scoring agencies have developed and implemented systems for solvency assessment. The starting point in developing regulatory frameworks of solvency of insurance companies was represented by the set of rules regarding the solvency in the banking sector (Basel 2 Agreement) and the long-awaited reform of international accounting standards (International Accounting Standards – IAS).

### Models of solvency assessment

Existence of several measurement systems of solvency is explained by the desirability of explicit measurement in a manner more or less sophisticated, of each risk. Solvency is being monitored thus at different stages of the business cycle – the first step being represented by the new companies authorization procedure, ie the imposition of adequate capital. An ex-post monitoring of solvency is performed throughout the company's activity until all contractual obligations are honored, even if it means throughout liquidation proceedings of the company.

Throughout the activity of a company, in some countries it is considered the duty of the regulatory authority to carry out prior verifications concerning the legislative compliance, quality of products offered on the market and the appropriateness of the prices of these products (OECD, 2010). Only a number of countries like Hungary, Korea and the US are concerned with the a priori approach of the monitoring of companies solvency. In Switzerland price control is performed a priori for a number of special risks, but the trend in recent years has been to give up this practice. Following the adoption of the third generation of insurance directives, all EU Member States have implemented ex-post monitoring (Leflaive, 2001), and Japan has introduced a monitoring system of risk-based solvency. The purpose of this decision was to encourage insurance

companies to offer new products without forgetting to meet future regulatory requirements in force, yet without jeopardizing the financial position of the company. From this point of view, Belgium maintains a high degree of vigilance, meaning that each product is subject to ex-post profitability, verification based on which the regulatory authority may decide to increase the premium or another measure to restore the financial balance of the product.

*Retrospective method* is applied in all OECD countries in several forms, of which the most important are the fixed ratio model and the risk based model, which is called "risk-based capital model" (Risk Based Capital) The two models are different in terms of the number of factors taken into consideration and the complexity of formulas used. In fixed ratio model, solvency requirements are set as a percentage of the value of a variable data which is considered to be strongly correlated with degree of exposure of company. This variable assumes a simple function of one or more elements of the balance sheet or profit and loss account. Such models are used in Australia, Korea, Mexico and Turkey. The main advantage of this model is the simplicity of implementation However, due to their simplicity, it is very difficult to adapt to a particular risk profile and, moreover, they are highly sensitive to the variable used as the basis for the ratio. Limitations of the model can be reduced by using and comparing several different ratios.

*Prospective method* refers to theoretical models that calculate solvency indicators using historical data and assumptions about changes occurring in the company profile (renewal ratio, indirect costs, etc.) or on the market (investment returns, volatility of losses). The method is used in Australia to test the adequacy of capital for life insurance.

*The RBC model* (Risk Based Capital – RBC) is the instrument of solvency evaluation and capital requirements to conduct insurance business under conditions of minimum risk. In this method, the minimum capital required (demanded) is calculated from the risks which are faced by insurance companies. The RBC model was developed by NAIC (National Association of Insurance Commissioners) in the early 90s and entered into force in two distinct years taking into account the insurance products sold by insurance companies; in the 1993 for life insurance and in 1994 for other types of insurance (non-life insurance). This model was the first instrument applied unitary at the federal level; until its introduction, each federal state had its own rules concerning the insurers' solvency.

This new prudential system, developed by NAIC to reflect in a way more close to reality the risk degree of exposure of companies (Geneva Association, 2010), was accompanied by a number of other regulations, particularly in accounting – namely the financial reports. Similarly to other models, the principle underlying the RBC model is to establish a minimum capital

necessary for each of the major risks which are identified by the insurance companies. The calculation method is extremely complex and takes into account the characteristics of each company. Finally, it is calculated the total minimum required capital by combining minimum capital required for each risk separately. This is then compared with the actual amount of capital in the company. The value of the ratio between the company's capital and minimum capital required is the one that can determine the response of the regulator.

*The Canadian model* for the assessment of minimum required capital of an insurance company is a risk-based model, similar to the American model, using the same structure of risk sharing. The difference lies in the practical calculation – on the one hand, there is a difference in the assignment of risks into risk classes, on the other hand, the final formula is a simple addition of factors. The Minimum Capital Test – MCT is a test that compares the share capital held required share capital, resulting in a MCT ratio that must be at least 100% (preferably 150%). The regulator will alert the insurance company/will step in when the MCT ratio will breach thresholds.

*The Swiss Solvency Test* was developed in 2003 as a tool to protect the interests of holders of insurance policies. The stated objective of the SST test was to define the principles for determining the solvency requirements. With the introduction of the new law on the supervision of insurance at the beginning of 2006, the SST model became mandatory for large non-life insurance companies and for life insurance companies. Since 2008 (the Geneva Association, 2010), the SST model has become mandatory for all insurance companies. Obligation to comply with solvency capital requirements according to the SST came into force starting with 2011. To determine the insurer's solvency, the risk-bearing capital is compared with the target capital. The model includes a set of principles, of which the most relevant are:

- Assets and liabilities are valued at market price;
- Capital adequacy is the difference between its target capital and risk-bearing capital;
- The target of SST model is represented by legal entities and groups/conglomerates domiciled in Switzerland;
- All relevant probability states should be modeled probabilistically;
- Scenarios defined by the regulatory authority as well as the company must be evaluated and, if relevant, aggregated in the target capital calculation;
- Total or partial internal models can also be used. If SST standard model is not applicable, then a partial or full internal model should be used;

- The internal model must be integrated into the company's core processes;
- SST report towards the supervisory authority must be understood also by third parties.

A final example of prudential framework is the third generation of solvency assessment systems, developed and implemented by large insurance companies. The main difference between this generation of systems and the first two assessments is the explicit nature of the evaluation. If in the first two generations, the assessment was static – it used deterministic models – in the third generation, the evaluation is done using stochastic models and can thus customize their data model taking into account the individual data of the insurance companies. These models, called "internal models", although they have not reached an acceptable level of homogeneity, they are the latest trend in the field, based on the due benefits (model custom business needs, leading to a custom adequate capital) and are supported at the level of supervisory authorities.

The objective of Solvency II regime is to provide the end customers with the fact that insurance companies have sufficient financial strength to cover exposures transferred through insurance policies and to ensure the financial system stability. Also, the Solvency II regime had view to establish a set of solvency requirements that reflect the existing risks when adopting the Directive and which are faced by insurance companies. Calculating solvency requirements should not block unjustifiably the activity of the insurance company; everyone is trying to establish certain principles, not imposing excessive regulations.

Before the adoption of Solvency II, the regulatory framework for the insurance industry has remained almost unchanged for a period of 30 years, which led to a discrepancy between the reality of the insurance industry and the regulatory framework. The economic and technical transformations contributed to the placing of a reform of the legal system. Given the intense competition and a national internationalization of business, the lack of uniform framework legislation that would protect the interests of final policyholders, regardless of their country of domicile, all resulted in the neglect the insured-insurer relationship, in complaints from customers, in liquidity problems of the insurance companies. Moreover, the increased competition on the insurance market tends to diminish the profits of the insurance companies, which therefore inquire more closely the level of required capital (Liedtke, 2009), under pressure from shareholders, who want a certain return on their investments.

The development of financial instruments has significantly changed the insurance industry: the range of insurance products available on the market has

been extended with complex and interesting shapes; the methods of alternative risk transfer were commonly used. Moreover, the intensification of occurrence of new risks or increase in their severity (including catastrophic risks) are factors that have changed the default statistics and hence the financial stability of insurance companies. Finally, the development of computers, mathematical models and computer applications allow spread of stochastic models, to the detriment of deterministic models.

All these elements of economic, financial and technical nature cumulatively generated a real improvement in solvency assessment system of the insurance companies, allowing comparisons between different companies from varying markets and creating a unified supervision system.

Assets	Surplus
	Solvency margin
	Current technical provisions
	Other passive elements

**SOLVENCY I**

Assets	Surplus	
	SCR	MCR
	Real technical provisions	Risk margin
	Other passive elements	

**SOLVENCY II**

**Figure 1.** *Differences between Solvency I and Solvency II*

According to the new solvency system, there are taken into account tougher solvency requirements of insurers to ensure that they have sufficient capital, especially in light of the financial crisis in recent years. The methodology for calculating the solvency includes besides liability risks and risks related to the company's assets; in this respect, insurers must constitute provisions (Care, Fenech, 2010) to cover market risk (decrease in the value of investment portfolios), credit risk (insolvency of customers and partners) and operational risks, which will help to improve the financial position of the insurance companies.

Another novelty brought by the Solvency II regime refers to the type of model used – through Solvency I regime, the approach was retrospective, that is only based on the analysis of historical data, while Solvency II introduces a risk-based approach, that will consider the historical data but will take into account also factors that may occur in the future, such as natural disasters or development of new insurance products.

Beyond the restrictions brought by the complexity of the calculation methodology and the difficulty of quantifying risk factors considered, Solvency II regime has certain benefits, both for policyholders and for insurers. Beyond



primary benefit, namely to protect the insurance company against such catastrophic exposures, there are other benefits derived from the implementation of the new regime, which are presented in Table 1.

Table 1

<b>Benefits brought by Solvency II</b>	
<i>Insurer</i>	<i>Insured</i>
Reduced losses suffered by the insured	Reduced bankruptcy risk of the insurer
Allows using the models of capital evaluation and risks evaluation	Reduced insurance cost
Reduced costs and increased flexibility	Larger range of products
Increased trust in the financial stability of the insurer	Better correlation between offered products and individual needs
Strict supervision permits prompt adaptation of the capital to the minimum requirements	

**Solvency capital requirement**

The solvency capital is calculated based on the going concern assumption of the insurance company, calibrated so that it pursues all quantifiable risks to which it is exposed in a certain period of time. Calibration covers existing activities, better said unexpected losses, and any new business expected to be written in the following 12 months. The solvency capital requirement corresponds to the value at risk of basic own funds of an insurance or reinsurance companies, with a confidence level of 99.5% for a period of one year. The solvency capital requirement shall cover at least the following risks (Swiss Re, 2006): the underwriting risk; life underwriting risk; underwriting health risk; market risk; credit risk; operational risk. Solvency capital can be calculated by the standard model or by an internal model.

**Minimum capital requirement**

The Minimum Capital Requirement corresponds to a value of the eligible basic own funds below which policyholders and beneficiaries are exposed to an unacceptable level of risk if the activity of the insurance and reinsurance companies are allowed to continue their work. The methodology for calculating the minimum capital requirement is very clear and simple – condition imposed in order to submit the audit process. Thus, this indicator is calculated as a linear function of a set or a subset of the following variables: technical provisions, written premiums, capital-at-risk, deferred tax and administrative expenses. The resulting function is calibrated proportionally with the value at risk of the own funds of the company taking into account a confidence level of 85% for a period of one year. The resulting value of the minimum capital requirement must not fall below 25% nor exceed 45% of the solvency capital requirement of the company.

### **Investment rules**

Regarding the portfolio of assets, the insurance companies have a recommendation to invest only in those assets (financial instruments) whose risks are easily identified, assessed, quantified and managed. Assets held to cover value of technical provisions are invested given the nature and duration of the contractual obligations of the company in assets so that the interests of final customers are not dented in any way based on their contractual terms communicated to them. Desirable is that the assets in the portfolio are properly diversified so as to avoid excessive reliance on any particular asset type, issuer or group or geographical area as well as excessive accumulation of risk across the portfolio.

### **Comparative analysis of the prudential regimes**

The Solvency II regime suggests a standard model for calculating the solvency that falls in the category of systems based on several risks quantification. Like the SST regime, Solvency II regime offers the possibility and even support their own internal models, subject to approval by the regulatory authority, which should be within the typology of the models which quantify in great detail all risks and their interdependencies.

The European and the 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 at changes in circumstances. Finally, both Solvency II model and SST model introduce the concept of group supervision by a dedicated group supervisor (CRO Forum, 2009) – the Solvency II model will explain in detail how the cooperation between supervisors will work.

Concerning the Solvency II model and Basel II model, the numbering can be misleading, implying similar developments. Solvency II is a comprehensive framework which already had included ways to address critical issues that became apparent after the last financial crisis (EC, 2009) while Basel II model has not yet investigated this direction.

The Swiss Solvency Test (SST) is the first circulating regulatory regime that sets an economic model for the assessment of risk-based capital and is the precursor to the European Solvency II regime. The supervisory activity in Switzerland is an illustration of the regulatory regimes of the new generation (Dacorogna, Keller, 2009), based on principles and consultancy, with a strong perspective on solvency and other quality aspects of groups. US regulatory system relies on a combination of approaches based on rules and principles.

The valuation of assets and liabilities of a company is made according to rules and principles. Under RBC's component based on tangible rules, the methods of calculating the solvency requirements are clearly defined, insurers are required to hold sufficient capital to cover at least the RBC requirements. Calculation of these requirements quantify in great detail all asset risks – derived from the volatility of shares, bonds, real estates – credit risk, underwriting risk arising from subsidiaries. NAIC latest trend is to include also the evaluation of the group's solvency as well as group supervision, taking into account the success of the SST regime.

Beyond the similarities between them, the prudential regimes of assessment of solvency have a number of differences concerning the response to significant risk exposures.

Thus, most regimes prohibit the insurance companies to engage in the management of speculative derivatives. As a general rule, within a group, only banks or brokers or other entities (excluding insurance company) are entitled to use derivative hedge. Under Solvency II model, credit institutions, investment firms and financial institutions are included in the computation of solvency of the group which includes an insurance company. Speculative derivative related activities concerning a component of the group, whether or not regulated, are included in the group's capital requirements. Moreover, the regulatory authority has the right intervene through discretionary capital requirements, if a risk does not present sufficient coverage through the existing solvency capital.

In the case of the SST model, the calculation of group capital includes balance sheet items of insurance and non-insurance. The SST calculation will consider the derivative activity of non-insurance balance sheet items either as a group, in the calculation of consolidated amount, or at enterprise level, within the group. Moreover, this activity is required to be presented separately in the report to the regulatory authority. Concerning the US RBC model, it does not include in its area of monitoring the activities related to derivatives held by a non-insurance entity within the group. While banking entities that include insurance divisions are subject to the supervisory of banking system (hence the AIG situation that escalated as a result of not being monitored by NAIC, but by the banking authority that failed to prevent the exposure of the financial institution).

Another aspect that illustrates differences between supervision arrangements relate to the mismanagement of short-term funding sources which generate the liquidity risk exposure. Solvency II regime is theoretically a capital regulatory framework. It does not include specific quantitative requirements for liquidity risk (CRO Forum, 2009), regardless of the activity that generates it. In order to address the liquidity risk, the available capital is less relevant than the liquidity degree of the capital available – companies must implement a

management process of liquidity risk. Consequently, EU regulations focus on the governance and reporting to the supervisory authority about the coverage of liquidity risk. If the insurer does not ensure implementation of liquidity risk management, the regulator has several options, including imposing additional capital requirement. Lately, a need is becoming more distinct, referring to the introduction of contingency plans (CEIOPS, 2009) on liquidity risk – plans that are to be reported at regular intervals by the board of directors of the insurance company/group. The situation in Switzerland is similar to that of the EU. There are not provided any formal requirements on liquidity risk management or reporting. Similar to Solvency II regime, the SST model seeks capital rather than focusing on liquidity risk through quantitative requirements. However, the regulatory authority of Switzerland laid the groundwork for developing qualitative indicators in this direction, taking into account the principle that all insurance companies must develop adequate systems of risk management and internal control and must report any change in risk profile. In the US, 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). Lending activities of the assets held by insurance companies are explicitly required to be analyzed, in order to reflect the risk inherent in the asset-liability management.

Another difference of the regimes relates to the way of valuation of assets and liabilities taken into account when calculating solvency. According to the RBC model, balance sheet items are measured under accounting rules, taking into account historical cost. On the other hand, the Solvency II proposes the valuation of assets and liabilities based on market conditions to reflect in a way more real their value although the capital assessment methodology in this case is more difficult.

Derived from the control structure based on a single pillar concerning the quantitative requirements, the RBC model does not allow the insurance companies to develop their own internal models for solvency, that meet the needs of each insurer (Joint Forum, 2010). The Solvency II model accepts and even encourages insurance companies to develop custom internal models based on the specific risk profile of the insurance business, subject to approval by the regulatory authority.

### **Impact of the prudential European regime on the insurance industry**

The Solvency II regime will apply to all EU companies, starting with calendar year 2013, but not to small insurance companies with subscription below 5 million EUR per year. The implementation of Solvency II in Europe affects insurance companies and the activity of the national supervisory

authority, the Insurance Supervisory Commission. Thus, in 2012, the Insurance Supervisory Commission said that the strategy (CSA, 2010) adopted for the following period is to change the supervision philosophy by replacing the supervision of "compliance" with the one based on risk assessment – a necessary step for the implementation of the Solvency requirements.

The Solvency II regime will have implications on the market supply. Given that insurance companies must provide, under the Directive, an adequate level of capital based on the assumed risk profile, it is possible that certain risks to be excluded from the list of exposures incurred in order to comply with the capital requirement. The visible result will be the elimination of insurance products offering protection for risks excluded from the company's risk profile (Guy Carpenter, 2011). This is particularly the case for medium-sized companies that will convert their insurance products in order to have lower capital requirements when they will implement the Solvency II regime.

Another effect of the Solvency II regime is the change in the structure of the insurance market – the process started in Romania ever since 2004 (through additional capital requirements) will continue to produce mergers at the level of the market so that actors can comply with the enhanced solvency capital requirement – at the European level, 360 insurance companies in the 2,520 (14.28%) (Thompson, 2011) participating in last calibration study of the Solvency II regime declared their intention to consolidate in order to meet the demands of the new regime.

The new supervisory regime proposed by Solvency II directive is considered more sensitive to the risks which are faced by insurance companies due to additional capital requirements that they must comply with and which depend on the risk profile assumed. Concerning these conditions, there are expected higher levels of solvency capital, taking into account that the risks are much higher. The two capital requirements imposed by the Solvency II regime are:

- Minimum Capital Requirements (MCR);
- Solvency Capital Requirements (SCR).

The Supervisory Commission's intervention is required provided that the equity of an insurance company are below the minimum capital requirement. In this case, the regulatory authority has the right to withdraw the authorization of the company. If funds are lower than the Solvency Capital Requirement, then the regulator will monitor the situation pending the implementation of corrective measures to assist until the recovery of the company.

In the form of preparation phases of the insurance industry through identifying the impact of the new Solvency II regime on the value of insurance companies would be possible, the European Commission has nominated the Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS) as responsible for carrying out exercises of calibration for the

standard model. The purpose of these quantitative impact studies (Quantitative Impact Study – QIS) started ever since 2005 and to which insurers are invited to participate on a voluntary basis is to simulate the calculation of solvency capital in the light of Solvency II standard model.

In the last QIS5 calibration study applied in Romania total value of the balance sheet assets decreased by 9.77% compared with the value calculated according to current accounting standards, as a result of items not recognized by the Solvency II regime, namely postponed procurement costs. Concerning the liabilities side, the value of technical provisions decreased by 29.32% (compared with calculations on the basis of the current set of principles of evaluation), particularly for life insurance, and thus an increase in equity was registered (hence the capital surplus existing at the level of the market).

According to the QIS 4 study, there was no significant change in report of structure and aggregate value – the reduction was 3.7% on the basis of Solvency II compared to asset value calculated in accordance with the principles of Solvency I. On the liability side of the balance sheet, after applying Solvency II methodology, the reduction of technical provisions was noted particularly for life insurance by 50.8% due to negative values of best estimates for policies without the clause of participating in the profit. Concerning the general insurance business, the reduction of technical provisions was insignificant -only 3.6%. Regardless of the percentage of reduction, the modification of the technical provisions resulted in an increase of own funds by 57% compared to equity available by the application current assessment standards.

### **Impact on the solvency capital requirements (SCR)**

In the last QIS exercise, comparing the excess capital under Solvency II (the difference between own funds and SCR) with the excess capital under Solvency I (calculated as the difference between the available solvency margin and the minimum solvency margin), it was observed a decrease of it due to the increase in capital requirements imposed by the new regime. On the other hand, there has been an increase in solvency capital requirements, especially for the general insurance business. From this point of view, out of the 18 Romanian companies participating in the study, three did not meet the solvency capital requirements (ie own funds were worth less than the SCR) and would be monitored in order to correct their risk profile. From the point of view of solvency degree calculated according to QIS5 (as ratio between own funds and SCR) it decreased by one third compared to QIS4 exercise, reaching 1.64, compared with 3.31 calculated according to Directive Solvency I. In QIS4 exercise, the solvency capital requirements (SCR) resulted under Solvency II increased by 112% compared to the Solvency I requirements (based on minimum solvency margin).

**Impact on the minimum capital requirements (MCR)**

A positive aspect of QIS5 impact study is that all the participating companies recorded equity levels greater than the minimum capital requirement (MCR), the excess capital in this case being 52.5% higher than the capital excess calculated using Solvency I, which confirms the stability of the participating companies. From the two types of insurance, the most affected one by the application of QIS5 exercise is the general insurance business – additional solvency requirements have led to a decrease of over 50% more capital surplus for half of Romanian companies surveyed.

The situation was more modest in the QIS4 exercise when, after applying the function of calculation, the seven participants achieved MCR values between 20.2% and 67.2% of the SCR values. Totaling the results obtained, it appears that capital surplus resulting from the calculation made according to technical specifications of the QIS 4 increased by 29.3% compared to capital surplus resulting from application of the current solvency regime. After aggregating all the results of the seven participants the achieved solvency ratio fell by a quarter, from 3.02 to 2.23, the most affected being the general insurance business, as a result of lower equity.

Table 2

**Impact of Solvency II on the Romanian insurance market**

Element	Modification compared to the present QIS4 regime (%)	Modification compared to the present QIS5 regime (%)
Assets	-3.7	-9.77
Technical reserves for life insurance	-50.8	-40.6
Technical reserves for general insurance	-3.6	-21.7
Equity	+57	+45.82
Solvency capital requirement	+112	+107.74
MCR/SCR ratio	41.4	39.34
Capital surplus	+29.3	+52.2
Solvency ratio	-26.15	-36.92

As it can be seen, the implementation of Solvency II will have a major impact by reducing the technical reserves but mainly by increasing the required solvency capital – a difficult requirement to meet by medium-sized insurance companies that see the capitalization as a hard to led burden, particularly for the general insurance business where the underwriting risk is high. But at the same time, solvency capital requirements (SCR) will increase, especially in general insurance business where there is a higher underwriting risk.

## Conclusions

Despite all odds, the insurance market expresses its readiness to apply the new solvency regime and to obtain the benefits of Solvency II preached – the investors who expected the increase in the company value, corporate managers who wish a better control of risks, the regulatory authority seeking to improve the financial capacity of the market actors, and last but not least the final consumer who expects better protection and innovative insurance products.

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