UDK: 368.811(497.11)
DOI: 10.5937/TokOsig2402333M

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CHALLENGES FOR SERBIA'S INSURANCE MARKET ON THE PATH TO SOLVENCY II

SCIENTIFIC PAPER

Abstract

Insurance and reinsurance companies face a wider range of risks than just those associated with insurance itself. The experience of the European insurance market reveals that several solvency issues in insurance companies stem from risks not directly related to insurance, but rather from market-related factors such as counterparty problems or internal failures like poorly organized processes and employee errors. The realization that solvency, a crucial indicator in which the majority of stakeholders are interested, is influenced by a wide array of risks prompted the transition from Solvency I to Solvency II regulation. The primary focus of this process was to enhance the level of protection for the interests of insurance beneficiaries in the broadest sense. This paper highlights the key advantages of the new solvency calculation regulatory framework, particularly in terms of facilitating more comprehensive risk assessment and individualization. Under this framework, an entity's risk profile is no longer solely determined by factors such as the volume of insurance premiums, settled claims, and technical provisions. Instead, it is influenced by a multitude of factors including business segmentation, contract term, maturity of insurance premiums, sums insured, investment structure, creditworthiness of creditors, internal statistics and experiences, and risk correlation, among others. Additionally, this paper assesses the effects of the Solvency II Directive on the EU market, eight years since its implementation, highlighting both its successes and areas for improvement. Furthermore, it examines the comparative and gap analysis of regulatory frameworks between the Republic of Serbia and the EU market. Drawing on the experience of European countries that adopted Solvency II, this section identifies key areas that will pose challenges for Serbia's insurance market in harmonizing with the Directive's new

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Paper received on: 15.04.2024.
Paper accepted on: 16.05.2024.

framework for calculating solvency capital requirements and solvency ratios. Given the significant lead time available for Solvency II implementation, the Serbian insurance sector should utilize this opportunity to address systemic challenges through a multi-pronged approach: gradual legal adjustments, quantitative impact studies, business optimization, learning on the experience of countries of regions that have already gone through the subject process, i.e. through development and transfer of knowledge.

Keywords: *solvency, risk modules, SCR, MCR, technical provisions, QIS studies.*

I. Introductory Considerations and Basic Principles of the Solvency II Framework

The Solvency II Directive serves as the EU's legislative benchmark for conducting a thorough assessment of the risk profile of insurance/reinsurance undertakings and establishing solvency requirements.[2] This directive replaces a total of 14 directives from the Solvency I framework. Its primary aim is to offer enhanced protection to all insurance beneficiaries on a broader scale and to provide a clearer depiction of solvency to stakeholders involved in the operations of insurance/reinsurance undertakings.[3] This objective is realized through a comprehensive approach to risk measurement, which entails an expanded methodology for identifying and evaluating risks. Unlike the Solvency I framework, which predominantly focuses on insurance risk, Solvency II incorporates a broader spectrum of risks. Alongside insurance risk, encompassing non-life, life, and health insurance risk, Solvency II also encompasses counterparty risk, market risk, operational risk, and intangible asset risk, considering their interrelation.[4] Such determination, based on the *principle of assessing the individual risk profile of the insurance/reinsurance company*, is enabled and based on the deep vertical segmentation of the aforementioned risk modules into smaller risk submodules, whereby the overall risk profile, in addition to the already standard overall premium and technical provisions, which is observed by the earlier regulatory framework, is influenced by: business segmentation, duration of contracts, dynamics of maturity of insurance premiums, sums insured, investment structure, creditworthiness of creditors, impact of stress tests on the score, internal statistics and experiential realization of parameters of importance for calculation, parameterized calculation coefficients, risk correlation and other factors.[5] All this

[2] Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II), OJ L 335, pp. 1–155.

[3] The Directive was adopted in 2009, but full implementation in the EU market only began on January 1, 2016. This timeframe reflects the complexity of the Directive, the significant regulatory shift it represents, and the extensive adjustments required by insurance market participants.

[4] For more detals on Solvency I see: Vladimir Čolović, *Osiguravajuća društva, Zakonodavstvo Srbije, pravo EU, uporedno pravo*, Institute of Comparative Law, Belgrade, 2010, pp. 201–202.

[5] Mirjana Ilić, *Uticaj primene Direktive Evropske unije Solventnost II na sektor osiguranja u Srbiji*, doctoral dissertation, Faculty of Economics of the Univesity in Niš, Niš, 2014, 25–26.

results in insurance/reinsurance undertakings having the same or similar level of insurance premium and technical provisions being able to record materially significant differences in the required and achieved level of solvency. In addition to segmentation and individualization of risk assessment, the task set before the new Solvency II framework is a more adequate allocation of capital, i.e. improving supervision in the direction of group supervision.

Solvency II is based on three pillars: [6]

1) quantitative requirements;
2) qualitative requirements;
3) transparency.

Quantitative requirements imply marked-based valuation of assets and liabilities.[7] This implies that that the assets are valued at the amount for which they could be exchanged between knowledgeable willing parties in an arm's length transaction or that liabilities shall be valued at the amount for which they could be transferred, or settled, between knowledgeable willing parties in an arm's length transaction.[8] As a basic valuation method that should provide a market-based valuation of assets and liabilities, an insurance/reinsurance undertaking should use quoted market prices for the same assets and liabilities, i.e. if they do not exist, then market prices for similar assets and liabilities can alternatively be used. Within the quantitative pillar, two tiers of capital requirements are established, Solvency Capital Requirement (SCR) and Minimum Capital Requirement (MCR).[9] Solvency capital requirement takes into account all risks and ensures that an insurance/reinsurance undertaking can withstand during one year a one-in-200-year event i.e. corresponds to a 99.5% confidence level over a one-year time horizon. The required solvency capital may be calculated using a standard model or alternatively, by applying an internal model developed by an entity whose approval to implement is given by the regulator as part of a complex validation procedure for that model. Minimum capital requirement ensures 85% confidence level over a one-year time horizon. For the purpose of calculating solvency capital, the Solvency II framework introduces principles for calculating assets, liabilities, and technical provisions. Technical provisions consist of a best estimate and a risk margin. This results in a different balance sheet structure, but only for solvency calculation purposes. International accounting standards are still used for financial reporting.

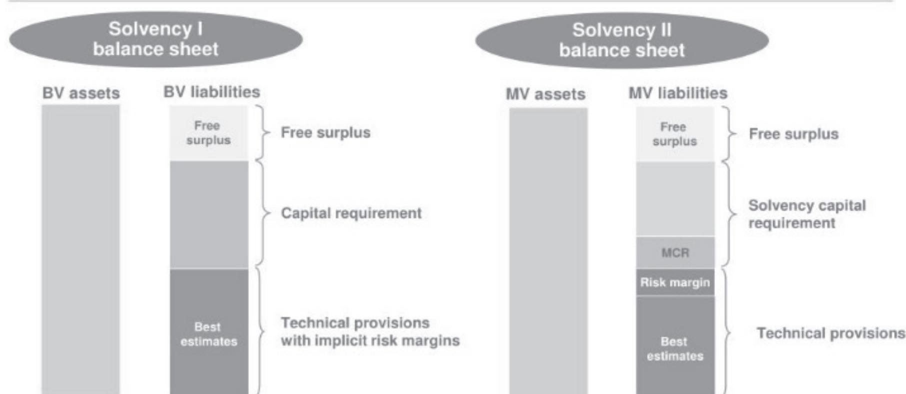
[6] N. Petrović Tomić, *Pravo osiguranja, Sistem*, Book I, *Official Gazette*, Belgrade, 2019, pp. 278–280.

[7] Rae, R. A., Barrett, A., Brooks, D., Chotai, M. A., Pelkiewicz, J., Wang, C., „A review of Solvency II: Has it met its objectives?", 2017, pp. 11–15.

[8] National Bank of Serbia, „Okvir za sprovođenje treće kvantitativne studije uticaja zahteva Solventnosti 2 na Sektor osiguranja u Republici Srbiji", 2023, p. 7.

[9] Lidija Jauković, Vladimir Kaščeljan, „Nova regulativa solventnosti osiguravajućih kompanija u EU – Projekta Solvenost II", Montenegrin Journal of Economics, No. 5/2007, p. 80.

Figure 1 Structure of Balance Sheet according to Solvency I and Solvency II



Source: Ernst & Young

Qualitative requirements, under the second pillar of Solvency II, prescribe the conditions that must be met by persons holding key functions in insurance/reinsurance companies.[10] Four key management functions are identified: internal audit, compliance, risk management and actuarial function.[11] Solvency II imposes regular own risk and solvency assessment (ORSA) as part of qualitative requirements, in order to anticipate overall solvency needs, detect any deviation of an undertaking's risk profile from SCR, and meet the requirements concerning capital adequacy and technical provisions. Particular attention is paid to outsourcing.

Aligned with the subject framework, transparency is achieved through two primary mechanisms: a set of regulations governing the provision of information to supervisory bodies, and rules dictating which information is made public and how it is disseminated.[12] Similar to practices under previous regulatory frameworks, companies are obliged to furnish regular reports and conduct extraordinary reporting upon request by supervisory bodies. However, there has been a notable expansion in the scope of qualitative data of interest to supervisors, beyond just quantitative data. A novel requirement is the publication of the Solvency and Financial Condition Report (SFCR). Group supervision receives particular emphasis, treating the group as a singular entity. This necessitated the establishment of specific rules regarding responsibilities, coordination, and data exchange among supervisory authorities.

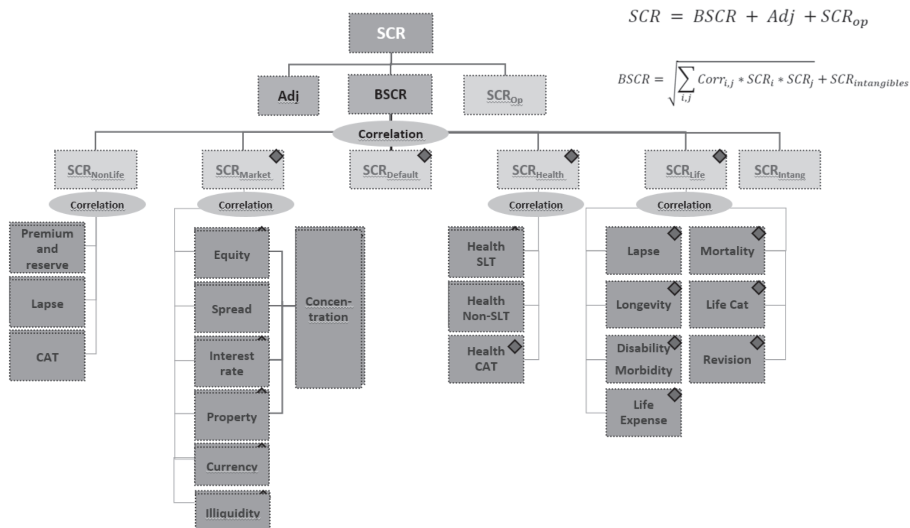
[10] A. Borseli, „Nadzor sistema uprave u osiguravajućim grupama prema Solventnosti II", Modern Insurance Law: Current Trends and Issues, Palić, 2014, pp. 28–43.

[11] Ljiljana Stojković, „Pravni aspekti upravljanja rizikom i sistem internih kontrola kao integralni deo korporativnog upravljanja u društvu za osiguranje", *European Insurance Law Review*, no. 3/2013, p. 138.

[12] M. Dreher, *Treaties on Solvency II*, Springer Verlag, Berlin, 2015, pp. 345–424.

The key advantage of the Solvency II framework, and conversely a weakness of the previous solvency assessment framework that the new directive aimed to address, is the *comprehensive risk assessment. This includes the implementation of interdependencies between risks and the individualization of an entity's risk profile based on portfolio characteristics at a granular level of risk-relevant parameters.*[13]

Figure 2. Risk Module Diagram according to the Standard Formula



Source: EIOPA

In contrast to the directives governed by Solvency I, the Solvency II Directive goes beyond assessing insurance risks solely through simplified methods predominantly based on premiums and claims. Instead, it undertakes a more thorough segmentation and introduces new risk modules. These modules include market risk, counterparty risk, operational risk, and the risk associated with intangible assets.[14] Insurance risk itself is segmented into three modules: non-life insurance risk, life insurance risk, and health insurance risk. To calculate this risk, knowledge of not only premiums and damages but also their structure, maturity, and the impact of insurance termination (such as catastrophe losses) is essential, along with other parameters crucial for equity loss calculation. A fundamental component of Solvency II calculations relies on correlation matrices between risk modules and submodules. These matrices serve

[13] Kordanuli, B., „Značaj regulatornog okvira Solventnost II na poslovanje društava za osiguranje u Republici Srbiji", 2017, pp. 67–76.

[14] P. G. Marly, V. Ruol, *Droit des entreprises d'assurance,* RB édition, Paris, 2011, 201.

to assess and incorporate the fact that not all risks will materialize simultaneously. The activation of one module or submodule of risk influences the probability of occurrence of other risk modules and submodules. In practice, this translates into a diversification effect, resulting in the total solvency capital requirement being lower than the sum of the capital required by all risk modules.

At the core of Solvency II's objectives lies the overarching aim of providing *enhanced protection to policyholders on a broader scale*.[15] The insurance industry operates on the premise of selling insurance services upfront, with a commitment to promptly and adequately fulfill policyholders' rights in the event of an occurrence. This assurance ultimately rests on the solvency of insurance/reinsurance companies, underscoring the necessity for comprehensive solvency assessment. Beyond creditors, investors with capital ownership also have a vested interest in solvency, as their stakes are directly tied to the entity's ability to meet long-term obligations. The multifaceted goals outlined by the directive, alongside its implementation tools, work collectively to bolster protection for insurance beneficiaries and offer a clearer understanding of the guarantees provided by the entity. Modernizing insurance supervision stands as a pivotal goal in support of the overarching objective of safeguarding policyholder interests. This entails a shift in focus from merely observing quantitative indicators to assessing qualitative aspects such as operational practices, risk profiles, and the quality of risk management. Additionally, efforts are made towards harmonizing supervision across the EU and treating groups as single supervisory entities.[16] The framework also aims to incentivize insurance/reinsurance companies to effectively manage risk, as the required solvency capital is directly contingent upon the efficiency of this process. This, in turn, is expected to foster a more rational and efficient allocation of limited capital resources. The final objective aims to enhance the competitiveness of EU insurance/reinsurance companies in the global market, with success hinging on the realization of the aforementioned goals.[17]

The upcoming process of harmonization with the acquis communautaire, including the Solvency II Directive, presents a challenge for countries aspiring to join the European Union. While it may involve additional costs and require adjustments

[15] Iva Tošić, „Izazovi u implementaciji Direktive Solventnost II u Srbiji", *Law and Economy*, no. 7-9/2017, 527.

[16] P. Marano, „Nova nadzorna paradigma: kultura nošenja rizika i etički kodeks", Insurance Law, Governance and Transparency – Basics of the Legal Certainty, Palić, 2015, pp. 171–175.

[17] The fundamental tool for achieving the set goals is market-consistent valuation of assets and liabilities. This approach abandons the concept of valuation based on purchase cost and depreciated value, which relies on static parameters relevant for calculation at the time the contract was signed. It replaces this concept with market valuation based on the current value of relevant parameters. Here, assets and liabilities are worth what the market estimates them to be worth. Finally, stress tests are introduced to assess the potential loss of equity capital due to negative deviations in certain parameters. These tests help determine the additional capital needed to absorb these losses and ensure fulfillment of obligations and business continuity.

to existing regulations, it should not be seen as a dismantling of current benefits. Instead, it is an **opportunity to build a new legislative infrastructure that fosters long-term stability for all market participants, while serving the general public interest**. Insurance and reinsurance companies should be proactive in this harmonization process. By identifying and capitalizing on the opportunities it presents, they can be the first to adapt their business models, risk profiles, and capital allocation to better align with the EU standards. The process of harmonization is transparent and inevitable. As shown by the experiences of EU countries, it will likely lead to changes in product portfolios, investment strategies, market structure, company positioning, and capital allocation.

II. Solvency II Development and Results of the Application in the EU Market

The forerunner of the Solvency II Directive, the Solvency I regime, represented through 14 directives, has been developing since the early 1970s. During this period, it was observed that the insolvency of insurance companies in more than half of recorded cases occurred for reasons not directly related to insurance risks. Between 1996 and 2004, 76 insurance companies in the EU were closed due to solvency problems, and several others faced solvency difficulties that were subsequently remedied.[18] The shortcomings of this system became particularly evident during the 2008 financial crisis. It became clear that the existing risk assessment model was not sufficiently precise and sensitive to the risk of individual entities. Specifically, it did not include essential components of risk: market risk, counterparty risk, and operational risk.[19] This significantly hindered the implementation of prompt and adequate supervisory interventions,[20] and limited the optimal allocation of investor capital. However, the need for a new risk assessment framework was recognized as early as the beginning of the 21st century. It was noted that national regulations within EU countries had significant freedom in shaping solvency assessment rules, generating unequal conditions for the operations of entities from different national systems in the EU single market. The main objective at that point was the harmonization and definition of uniform rules for the operations of insurance companies in the market of the European Communities. It took almost fifteen years to build a new system, which began to function on January 1, 2016.[21]

[18] V. Čolović, „Primena projekta Solventnost II i mere koje su predviđene u Zakonu o osiguranju Srbije u slučaju neprimene pravila o upravljanju rizikom", Zlatibor, 2013.

[19] N. Petrović Tomić, *Pravo osiguranja*, *Sistem*, 2019, pp. 277–278.

[20] V. Čolović, „Uticaj primene projekta Solventnost II na osiguravajuća društva u Srbiji", Zbornik radova *Harmonizacija zakonodavstva Republike Srbije sa pravom Evropske unije* (II), Institute of International Politics and Economics, Institute of Comparative Law, Hanns Seidel Foundation, Belgrade 2012., pp. 368–369

[21] The complexity of the Solvency II Directive is evident from the extensive preparatory work undertaken. As many as six quantitative impact studies were conducted during this period. These studies aimed to

Despite the Directive taking effect in early 2016, the extensive changes it entails, coupled with anticipated financial and infrastructural challenges in promptly adjusting to the new framework, necessitate a transitional period. This period allows insurance and reinsurance companies the opportunity to gradually realign their operations in specific segments:[22]

- measures for the valuation of technical provisions allow a gradual transition to a fully market-consistent regime over 16 years. This applies exclusively to contracts concluded before January 1, 2016. The measures consist of two options: calculation of technical provisions using discount rates under Solvency I or calculation of technical provisions under the provisions of this Framework;
- tolerance for entities breaching the Solvency Capital Requirement within the first two years;
- grandfathering of existing hybrid own-fund items that are eligible under Solvency I, making it easier to meet the new capital requirements and giving the industry 10 years to adapt the composition of its capital to Solvency II standards;
- longer deadlines to report quarterly and annual information to supervisors and to disclose reports to the public, decreasing gradually from 20 weeks to 14 weeks after the close of the reporting period over the first 3 financial years.

The one-off net cost of implementing Solvency II for all insurance/reinsurance undertakings has been assessed to be around EUR 3 billion to EUR 4 billion. In addition, the aggregate available surplus (free own funds above the capital requirements of each insurer) is almost identical to that before the introduction of the new directive i.e. the situation under Solvency I. However, the distribution of capital requirements across entities led to a more efficient allocation of capital.[23]

According to the latest data, the median SCR ratio, as a ratio of available and required solvency capital, in the EU market is over 215%, while as many as 75% of entities record this ratio above 160%.[24] In terms of entity type, the distribution of SCR ratio is similar, with companies dealing exclusively with life insurance having a median solvency rate of 233%, while composite companies, non-life insurance companies, and reinsurance companies record medians of 223%, 219% and 217%, respectively.

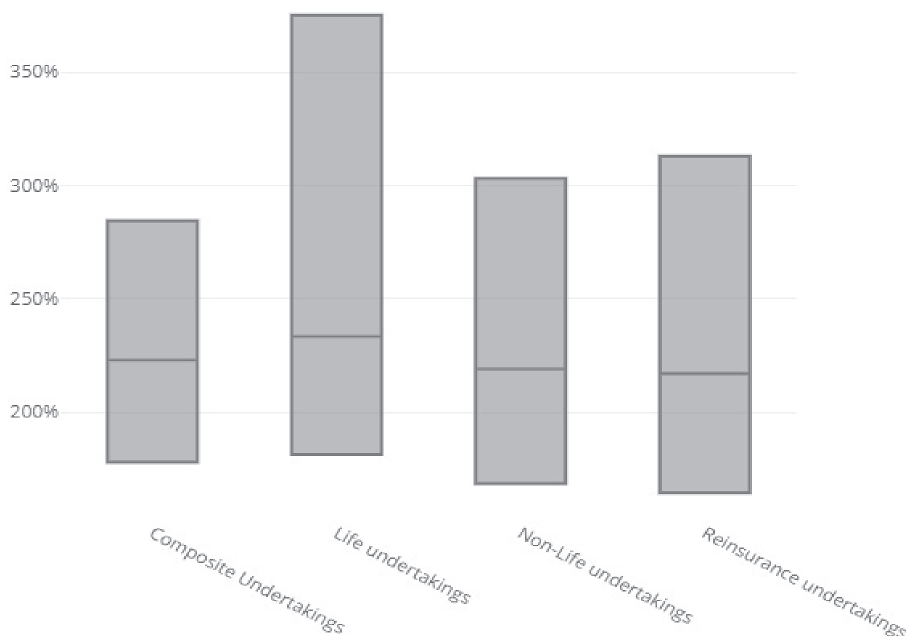
assess the effects of implementing the new directive and facilitate its calibration. In other words, they provided insurance/reinsurance undertakings with an opportunity to prepare resources for adapting their businesses to the new legislative framework. Following this intensive work, the Solvency II Directive was adopted in November 2009.

[22] Iva Tošić, „Nadzor osiguranja – Direktiva Solventnost II", *Foreign Legal Life*, no. 2/2017, pp. 147–162.

[23] Solvency II Overview (europa.eu)

[24] European Insurance Overview report 2023 - European Union (europa.eu)

Figure 3 SCR Ratio, Distribution by Type of Undertaking on EU and EEC Market[25]



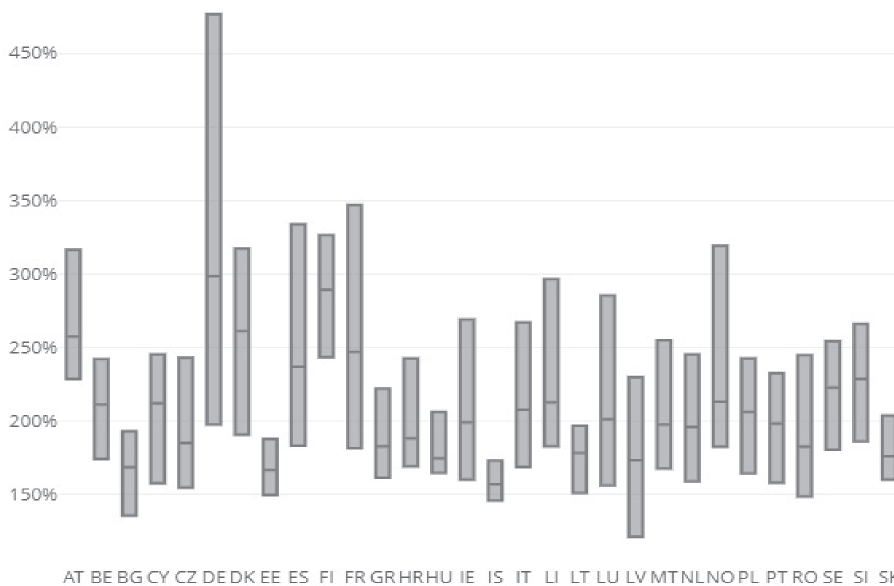
Source: EIOPA, Insurance Overview Report 2023.

Looking across EU member states, German companies boast the highest solvency ratio medians, reaching 299%. Conversely, Iceland has the lowest median at 157%. Among former Yugoslav republics that are now EU members, Slovenia and Croatia achieved medians of 229% and 170%, respectively. Our neighboring countries, Romania, Hungary, and Bulgaria, have solvency ratios of 183%, 175%, and 169%, respectively. Considering their market structure, insurance development stage, and overall economic progress, these solvency ratios should be achievable targets for our own market after implementing the Solvency II Directive. However, this is significantly lower than Serbia's current solvency levels under Solvency I. According to the latest data, the overall market solvency ratio for companies primarily engaged in non-life insurance is 206.4%. For companies mainly focused on life insurance, it is 210.6%, and for reinsurance companies, it is 231.1%.[26]

[25] In addition to EU member states, the study also includes Iceland, Liechtenstein and Norway. Note refers to Figures 3, 4, 5 and 6.

[26] National Bank of Serbia, Insurance Sector in the Republic of Serbia, Report for 2022.

Figure 4 SCR Ratio, Distribution by EU and EEA Member States



Source: EIOPA, Insurance Overview Report 2023.

The significant shift in risk identification, assessment, and management from Solvency I to Solvency II is evident. Notably, under Solvency II, market risk, which was not even measured under the previous regulation, has become the single largest component of the total required solvency capital across all EU member states.[27] Market risk participation ranges from 56% for non-life insurance undertakings to over 70% for composite and reinsurance companies. Conversely, insurance risk, encompassing life, non-life, and health categories, absorbs 54% of the required solvency capital for composite companies. This figure stands at 55% for life insurers, 64% for non-life insurers, and 42% for reinsurance undertakings.

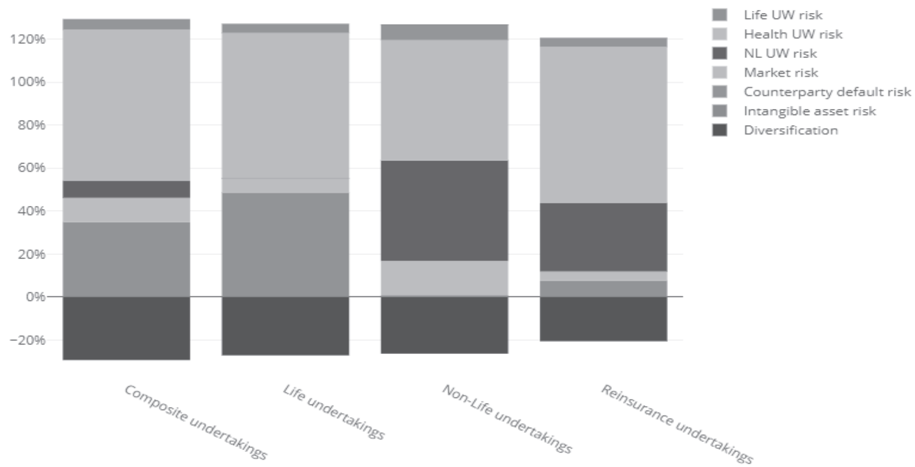
The correlation effect, or the full or partial mutual exclusion of risks, is another significant factor. It reduces the total required solvency capital compared to the sum of capital needed for each individual risk sub-module. The impact of this phenomenon varies between -20% and -30% on the required solvency capital, depending on the type of entity.

In contrast to Serbia and the initial impact studies that indicated its material significance, counterparty risk does not hold such a prominent role in the EU market.

[27] N. Gatzert, M. Martin, „Quantifying Credit and Market Risk under Solvency II: Standard Approach versus Internal Model", 2012, pp. 5–21.

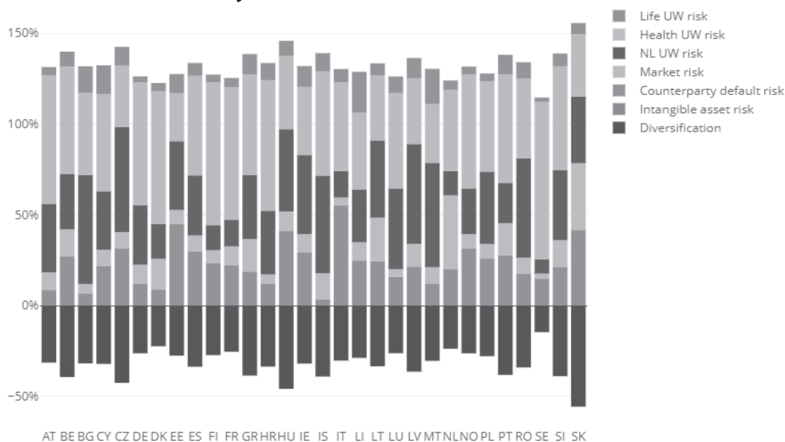
Its share in the required solvency capital ranges from 4% to 7%, depending on the specific insurance lines undertaken by the entity.[28]

Figure 5 BSCR Structure according to Standard Formula



Source: EIOPA, Insurance Overview Report 2023.

Figure 6 BSCR Structure according to Standard Formula by EU and EEA Member States



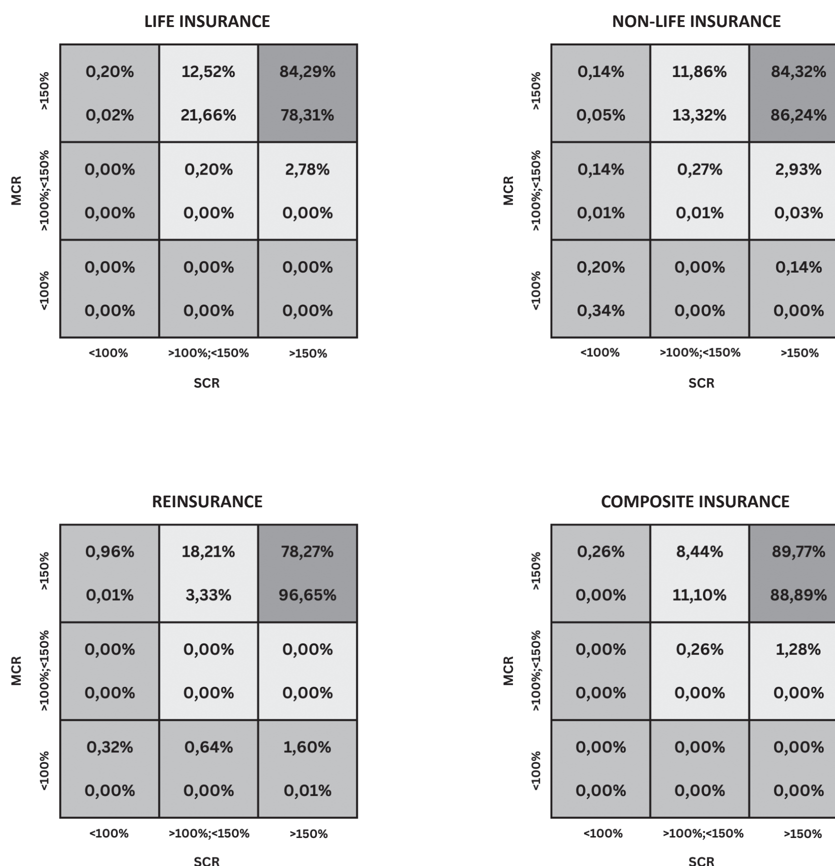
Source: EIOPA, Insurance Overview Report 2023.

[28] Branko Pavlović, „Koji je rizik najveći za osiguravače?", *Svet osiguranja*, 2019.

Across EU member states, there is a group of countries where market risk represents over 70% of the total required solvency capital. These are primarily non-eurozone countries, such as Sweden, where market risk participation reaches 87%. Finland (79%) and Denmark (73%) follow closely. France (73%), Croatia (72%), and Austria (71%) also exhibit high levels of market risk participation.

The diversification effect is particularly pronounced in Slovakia, where risk correlation reduces the required solvency capital by 56%. Hungary (-46%) and the Czech Republic (-42%) also experience a significant impact from diversification.

Figure 7 EU Market Structure according to Achieved SCR and MCR Ratio Indicator



Source: EIOPA, Insurance Overview Report 2021

Figure 7, using 2020 data, clearly shows that the vast majority of entities in the single EU market have high SCR and MCR levels. These are represented by the green fields, where both ratios are above 150%. If the top ratio represents the percentage measured by the number of entities, and the bottom ratio represents the percentage measured by assets, then a very high number of entities achieve solvency ratios between 78.27% and 89.77%, depending on the line of business they operate in. Entities falling within the yellow fields also meet the regulatory solvency requirements. However, a small number of entities (represented by the grey fields) face challenges in complying with solvency regulations. For these entities, at least one of the two solvency ratios falls below 100%. Their share ranges from 0.22% to 3.54%, depending on the types of insurance activities they are licensed for.

The EU insurance market faces a reform of the Solvency II Directive.[29] Even during the Directive's introduction, the plan was to revisit and revise specific segments after five years of observing its implementation effects.[30] This process was delayed and slowed down by the global pandemic, but the reformed provisions are expected to come into effect in 2025. Climate change, the green agenda, lessons learned from the recent pandemic, and the regulator's intention to incentivize long-term investments will heavily influence the shape of the future regulatory framework.[31] A particular challenge will be reconciling the reform's needs and goals, formulated under low-interest-rate conditions, with potentially significantly higher interest rates at the time of their adoption and implementation.[32]

Informed by past experiences where the insurance sector demonstrated exceptional resilience during systemic crises, European regulatory and legislative bodies are poised to pursue capital relief measures in the foreseeable future. One of the planned reform areas under consideration involves a reduction in the capital charge utilized for calculating the risk margin, decreasing it from 6% to 4.5%. According to forecasts, this adjustment would translate to a decrease in the risk margin by 30% to 40% for certain entities, thereby releasing over €50 billion in capital for other projects and objectives. This figure signifies a substantial easing, particularly considering that the total risk margin across the EU market stands at approximately €140 billion.[33]

The reforms also aim to provide preferential treatment to long-term capital investments intended to cover long-term liabilities. These dedicated funds, clearly earmarked for this purpose and not intended for sale, will only be subject to a 22% capital charge. This adjustment is anticipated to unlock over €10 billion in capital at the EU level.

[29] Insurance Europe, „Solvency II Review and Insurence Recovery & Resolution Directive", 2022, pp. 1–8.

[30] EIOPA, „Opinion on the 2020 review of Solvency II", 2020, pp. 14–99.

[31] N. Petrović Tomić, „Usklađenost poslovanja sa ESG standardima – osnove održivog poslovanja", u V. Radović (ured.), *Usklađivanje poslovnog prava Srbije sa pravom EU*, Pravni fakultet u Beogradu, Beograd 2023, pp. 69–95.

[32] G. Berbardino, „Keynote speech: 2020 Solvency II review: Opportunities and Challenges", EIOPA, 2020.

[33] Insurance Europe, „Solvency II Review key messages ahead of trilogues", September 2023.

A significant portion of the reform effort will be directed towards refining the construction of the yield curve, particularly for maturities exceeding 20 years. In practice, the risk-free interest rate derived through extrapolation under Solvency II has consistently been notably higher than prevailing market rates, particularly in the low-interest-rate environment present at the outset of the reform. The expectation is that this adjustment will exert upward pressure on entities' technical provisions.[34]

Another planned change concerns the volatility adjustment mechanism, with the aim of enhancing its efficiency. This would entail raising the percentage of the risk-adjusted spread from the current 65% to 85%. Such an adjustment would incentivize entities to pursue additional capital requirement benefits through both active and passive management. It would enable entities with robust Asset and Liability Management (ALM) practices to further elevate their discount rates, consequently reducing liabilities.

The ORSA report is also set to undergo changes, with a high likelihood of integrating climate change scenario testing, specifically focusing on the impact of increasing average temperatures. The plan involves analyzing two scenarios: the first involving a global temperature increase below 2 degrees Celsius, and the second assuming a significantly higher rise in average temperatures.

There is a prevailing sentiment that the EU insurance market is presently over-capitalized. While there remains a need for further enhancements in capital allocation among market participants, there appears to be leeway for releasing some capital. Estimates indicate a surplus of nearly €100 billion, which could be channeled towards financing the EU's post-pandemic economic recovery, bolstering the capital market, and supporting "green" projects.

III. Implementation of Solvency II in the Serbian Insurance Market

The legal framework governing insurance activities in the Republic of Serbia, with the Insurance Law as its foundation,[35] is a hybrid system. It incorporates and implements most of the Solvency I framework but also introduces some requirements from the Solvency II Directive, primarily in the qualitative requirements segment. Due to this mix of regulations from two generations of solvency laws, the term "Solvency 1.5 regime" is often used colloquially to describe the current system in Serbia.

The required solvency margin, or capital adequacy, is currently calculated according to Solvency I provisions.[36] However, a number of qualitative requirements

[34] Milliman, „EIOPA Consultation Paper on the Opinion on the 2020 review of Solvency II: Standard Formula Solvency Capital Requirement", 2019, pp. 17–19. Available at: https://assets.milliman.com/ektron/Solvency_II_2020_Review_SCR_Standard_Formula.pdf. Visited on: 10/04/ 2024.

[35] *Official Gazette RS*, nos. 139.2014 and 44/2021.

[36] National Bank of Serbia, Decision on Capital Adequacy of Insurance/Reinsurance Undertakings, Official Gazette No. 51/2015.

from the new European directive have been implemented, particularly those concerning: conditions for establishing a company, key management functions,[37] content of the authorized actuary's opinion, eligibility criteria for managing board members, pre-contractual information, outsourcing and to some extent, the ORSA report.[38] In these areas adopted from Solvency II, domestic entities in Serbia almost meet the standards that apply to insurance companies in the single EU market. In addition to qualitative requirements, a small portion of the current EU directive's quantitative requirements have also been introduced into domestic regulations. These include data quality, segmentation, the obligation to conduct back-testing, and the adequacy of technical provision calculations. There is a mandatory requirement for full adoption and harmonization with the Solvency II Directive by the time Serbia joins the EU.[39]

The National Bank of Serbia, the regulatory body, has designed and guided the process of introducing the Solvency II Directive in the domestic market. The core principles and implementation phases for this Directive are outlined in the document Strategy for Implementation of Solvency II in the Republic of Serbia.[40] This Strategy was last updated in May 2021. The update of the Strategy was primarily driven by the COVID-19 pandemic and the resulting difficulties in carrying out the planned phases of implementing the European directive during a global crisis. The pandemic also led to an extension of the planned revision of the Directive within the EU itself.

The Strategy for Implementation of Solvency II in the Republic of Serbia outlines a phased approach for implementing the new directive, consisting of a preparatory phase and three additional stages.[41] Preparatory Phase (completed 2014-2015): This phase involved implementing specific Solvency II provisions into domestic legislation. It was completed in 2014 and 2015 with the adoption of the Insurance Law and subordinate legal acts based on that Law. Compliance Phase (completed 2017): The following stage, the compliance phase, was carried out in 2017 and involved analyzing the compatibility between domestic and European legal frameworks. Particular attention was paid to the application of Article 4 of the Directive, which specifies the exclusion of the smallest insurance/reinsurance companies from the Directive's application. This analysis concluded that all domestic companies would be obliged to implement the Directive. Impact Assessment Phase

[37] National Bank of Serbia, Decision on the System of Governance in an Insurance/Reinsurance Undertaking Official Gazette No. 51/2015, 29/2018, 84/2020 and 94/2022.

[38] Lj. Stojković, „Pravni aspekti sistema upravljanja u društvu za osiguranje i princip srazmernosti prema Direktivi o solventnosti II", In: Proportioinality and Legal Certainty in Insurance Law. Palić: The Insurance Law Association of Serbia, 2017, pp. 279-293

[39] Iva Tošić, „Uticaj direktive Solventnost II na sektor osiguranja u Evropi", Yearbook of the Faculty of Law, Banja Luka, 2017, pp. 306–309.

[40] Zorica Šipovac., „Solventnost II u Republici Srbiji – Realno stanje u teoriji i praksi", SORS Proceedings, 2017, pp. 235-249.

[41] N. Petrović Tomić, *Osnove prava osiguranja*, second, revised addition, Faculty of Law of the University of Belgrade 2023, pp. 53-54.

(ongoing): The impact assessment phase began with the implementation of Quantitative Impact Studies (QIS). These studies tested the effects of applying Solvency II requirements on technical provisions and capital adequacy. The purpose of these studies is to assess the overall preparedness of the market and individual companies to implement the Directive's requirements. Additionally, they aim to identify potential systemic risks, provide guidance to companies on how to manage their risk exposures, and understand the consequences of implementing the Directive. As of early 2024, three QIS studies have been conducted, with plans for ongoing implementation until the full application of the Directive's requirements. The final stage involves aligning the regulatory framework. This phase will be implemented based on the analyses and results of the QIS studies. The timeframe for this phase will be largely determined by the progress and dynamics of Serbia's accession negotiations with the European Union. This stage will encompass adapting the regulatory framework through the Insurance Law, which will transpose provisions of the Solvency II Directive, and potentially the Law on Bankruptcy and Liquidation of Banks and Insurance Companies. Project implementation and the completion of this phase of the Strategy will be achieved by fully aligning the domestic legal framework with the Solvency II Directive, following the manner and deadlines defined by the National Program for Adoption of the Acquis of the European Union.[42]

Several entities are or expected to be involved in the implementation process of the Directive, alongside the National Bank of Serbia and insurance/reinsurance companies. These include the Ministry of Finance of the Republic of Serbia, the Deposit Insurance Agency, the Association of Serbian Insurers, etc. A facilitating factor in adopting the achievements of contemporary European regulations is the fact that most domestic entities have parent companies in EU countries. Due to group supervision regulations and internal analysis needs, these entities are already obligated to perform calculations and report to their parent companies under the Solvency II framework. In addition to gaining practical experience with the Directive's requirements and understanding the application effects, foreign-owned domestic companies benefit from knowledge transfer, which will greatly simplify the process of introducing the Directive in our market.

According to data for the end of 2022, the available solvency margin for the entire market, based on the requirements of the current regulations corresponding to the Solvency I framework, is 49.7 billion RSD, while the required margin is 23.7 billion RSD. This translates to a solvency ratio for the market (available solvency margin divided by required solvency margin) of 209.70%. The solvency ratios for companies primarily engaged in non-life insurance, life insurance, and reinsurance are 206.4%, 210.6%, and 231.1%, respectively.[43]

[42] National Bank of Serbia, Strategy of Implementation of Solvency II in the Republic of Serbia, May 2021.

[43] National Bank of Serbia, Insurance Sector in the Republic of Serbia. Report for 2022

We conclude that the insurance market in Serbia is presently highly capitalized. Considering the experiences of countries in the region and the unofficial results of QIS studies in Serbia, we anticipate a decrease in solvency ratios upon full adoption of the Solvency II Directive. However, this indicator is expected to remain stable for the overall market and most entities, ensuring a high level of protection for policyholders' rights.

The QIS studies have identified systemic challenges that the domestic insurance sector needs to address in the coming period. They also highlight desirable directions for individual companies' business profiles to ensure adequate risk and capital management. A significant change in the balance sheet structure is foreseen for calculating solvency capital. This will likely lead to a decrease in technical provisions and an increase in capital, accompanied by a parallel rise in the required solvency capital. Initial calculations also draw attention to the high participation of the counterparty risk module. This module does not play a significant role in the risk profile of the EU market, where market risk tends to dominate. A common characteristic is that the insurance risk module absorbs less than half of the capital requirement. This underscores the comprehensiveness, significance, and advantage of transitioning to the new concept of risk identification and measurement.

In addition to adopting the Solvency II Directive, which is currently undergoing reform even within the EU, a particular challenge for domestic companies will be operating under the freedom to provide services. This allows subsidiaries of companies from other member states to be established in any member country of the single market, further complicating the position of domestic entities. The adoption of IFRS 17 and other achievements of contemporary European regulations will occur alongside these processes.

IV. Challenges of Implementing Solvency II

Based on the experiences of European countries during the Solvency II Directive adoption process, particularly neighboring countries and those with a similar level of economic development, along with the specificities of Serbia and its domestic insurance market, and the results of the initial quantitative impact studies, a number of systemic challenges have been identified. These challenges need to be addressed or adapted during the harmonization process.

1. Segmentation into Lines of Business and Identifying Contract Boundaries

The first step in calculations under the new framework is business segmentation. However, unlike the current regulations which prescribe portfolio segmentation based on insurance types and tariffs, Solvency II Directive calculations

require dividing the portfolio into pre-defined lines of business. *The challenge for domestic companies lies in the fact that this is not a direct mapping of insurance types onto lines of business; it is a different perspective.* The division into lines of business reflects to a significant degree the nature and specificities of the insurance market in Western countries, where life and personal insurance lines are highly prominent. This, in addition to the inherent difficulties and dilemmas caused by the different portfolio segmentation approaches in the current and new frameworks, presents technical problems for entities. They need to find a way to identify individual tariffs or tariff groups within their databases and extract them according to Solvency II specifications. This is particularly complex due to dealing with historically long data series recorded under the previous framework. Another issue is that some product features crucial for segmentation are recorded and identified through loadings, discounts, or other adjustment factors at the tariff group level. Even at the lowest level of recording, identifying them becomes complicated.[44] Beyond portfolio segmentation, determining contract boundaries also poses a challenge. The Solvency II Directive provides clear definitions for contract boundaries. However, previous regulations treated contract duration differently. Consequently, there is a question of how accurately companies can identify actual contract boundaries when it comes to historical data necessary for calculations. This is especially pertinent considering the existence of specific contracts in practice where boundaries are essentially prolonged but are still systematically recorded as standard contracts. Domestic insurance companies are expected to modify their products and business recording systems in the coming period to enable portfolio segmentation according to the rules prescribed by the forthcoming legal framework and to support more accurate identification of contract boundaries.

2. Changed Balance Sheet Structure for Solvency Capital Requirement Calculations

When calculating solvency requirements under the new regulatory framework, significant changes to the balance sheet structure will occur, impacting both assets and liabilities, notably capital. It is crucial to emphasize that this balance sheet is exclusively for solvency ratio calculations, while regulatory requirements and existing financial reporting valuation and recording principles remain in force. This differentiation might cause confusion and potentially influence the risk appetite and business decisions of stakeholders involved with insurance/reinsurance

[44] Challenges identified so far that impact the calculation and meaning of the calculation include: segmentation of accident insurance and voluntary health insurance, in terms of separating insurance pertaining to work-related injuries and employee treatment, joint consideration of insurance line 08 (Property Insurance against Fire and Allied Perils) with the heterogeneous line 09 (Other Property Insurance), treatment of annuity claims, which mainly stem from automobile liability, as part of life insurance, etc.

undertakings. The process of discounting, abstracting outstanding premiums, and acquisition costs can substantially reduce technical reserves under Solvency II compared to current practices. This may lead some stakeholders to assume that the current financial reporting process overstates liabilities or underestimates realized profit, possibly triggering capital flight. However, it's essential to view this solely as a method for determining available solvency capital, crucial for meeting the significantly heightened solvency capital requirements. A market-consistent valuation of assets and liabilities will also pose a challenge, particularly in limited and shallow markets. The new framework requires valuation based on fair market value, abandoning the concept of historical cost, depreciated value, or similar methods. To effectively manage risk, establishing term and currency matching between assets and liabilities will grow increasingly important.[45] The success of this matching will be precisely quantified, replacing the previous qualitative target. Finally, there will be a portfolio shift away from products with guarantees and towards products where client entitlements fluctuate based on market indicators. This will require a distinct group of professionals who are simultaneously knowledgeable about the Directive, risk management principles, portfolio characteristics, the impact of risk correlation, and who can analyze both sides of the balance sheet concurrently. These individuals, or entire organizational units performing this function, will need to be integrated into almost all business processes of insurance companies. Developing and retaining such talent, along with sophisticated IT solutions, will be crucial for making risk management more up-to-date and efficient.

3. High Costs of Implementing and Maintaining Systems and Business Processes

The experiences of countries that have already adopted the Solvency II Directive highlight the significant costs associated with implementing and maintaining the systems, business processes, and personnel needed to comply with the revised regulations. Insurance entities will almost certainly face the need to implement modern risk management and actuarial calculation software due to the significantly more complex calculations and extensive reporting requirements, even if they haven't already done so. This demand for a new breed of professionals arises from the need to understand complex risk management processes and the impact of various business segments on both sides of the balance sheet. These individuals will require expertise in risk management principles, actuarial science, and the ability to make informed decisions on portfolio composition, product development, investment strategy, and

[45] Grundl, H., Dong, M. I., & Gal, J., „The evolution of insurer portfolio investment strategies for long-term investing", OECD Journal: Financial Market Trends, 2016, pp. 22–27.

other key areas.[46] Retaining these skilled professionals will be a challenge due to competition within the insurance sector, as well as the growing demand from the IT sector. The IT industry needs such personnel to develop sophisticated solutions for calculations, record-keeping, tracking, and analysis according to modern European standards. This increased competition is likely to drive up personnel costs, which may be partially passed on to policyholders through higher premiums. While the new regulatory framework enhances customer security and improves the overall quality of insurance products, it may come at a cost to affordability for some customers.

When considering future regulatory changes, and keeping in mind that we already have high levels of security, competent legislative bodies should use cost-benefit analysis to assess the justification for a marginal increase in security at the expense of marginal cost. The principle of proportionality, on which the Directive is based, dictates that the implemented measures should correspond to the nature of the risk. This means that relatively smaller entities are expected to require a significantly lower resource expenditure in this process. However, it is not uncommon for smaller companies to be unable to afford the high costs of harmonization and ultimately be forced to liquidate. The application of internal models for calculating solvency capital requirements, which should better reflect a company's risk profile and typically results in a lower capital requirement, is a privilege reserved only for large and well-resourced entities. This is due to the complexity of building and validating such calculation models.[47]

4. Changes in Insurance Company Portfolio Structure

Companies primarily engaged in life insurance have a strong incentive to manage their insurance portfolio structure to reduce capital requirements. The framework provides capital benefits for entities whose business is based on products that do not include high guaranteed benefits for policyholders. Traditional life insurance products with a savings component are more penalized from a risk perspective, particularly market risk compared to product risk and modern unit-linked products. Since unit-linked products have little to no guarantees, and the product value directly depends on the value of the investment unit, almost all the risk is transferred to the

[46] „Allianz", „Izvješće o solventnosti i financijskom stanju za 'Allianz Hrvatska' d.d. za poslovnu godinu 2022.", 2023, pp. 17–45.

[47] Additional pressure comes from companies from other EU member states that establish subsidiaries in new member countries under the "freedom to provide services" principle, thus intensifying competition. This is confirmed by the experience of Croatia, where several smaller companies were liquidated or merged after the introduction of Solvency II, precisely due to the high costs and the inability to withstand the competitive pressure. An analogous process can be expected in our market after the adoption of the Directive and other EU legislation.

policyholder. This relaxes the obligations and capital requirements for the insurance company. This benefit has been recognized and heavily utilized by insurers in the EU, where sales of traditional products have nearly stopped or are offered with very low guaranteed technical interest rates. The extent to which this process will follow in our domestic insurance market also depends on the ability to deepen and activate the life insurance market, where individual sales have significantly decreased. On the other hand, group risk products sold through commercial banks are experiencing expansion. The success of insurers in terms of capital requirements will also depend on their ability to achieve the right balance between risk-component products and savings-component products, in order to level out and negate the impact of mortality stress and longevity stress. Finally, a trend towards shorter contracts is expected, as a longer time horizon increases the potential negative impact on net equity due to stresses, and consequently, on the capital requirement.[48]

5. Sensitivity of Calculations to Risk-Free Interest Rate Fluctuations

Depending on the movement of risk-free interest rates, entities may experience year-to-year instability in the calculated solvency ratios. This problem can be particularly pronounced in the case of falling interest rates, which lead to an increase in the value of liabilities, assets, and also the risk margin (as part of the technical provisions).[49] In macroeconomic conditions with declining yields, the cost of capital rate used in the risk margin calculation (currently at 6%) can be particularly burdensome for insurance companies. This rate is quite high considering market interest rates and cannot be mitigated by the discounting effect of risk-free interest rates. This is precisely why the current cost of capital rate is subject to reform within the Directive's provisions. In addition to achieving maturity matching between assets and liabilities, one potential solution to mitigate the volatility of solvency ratios is the introduction of a fluctuating cost of capital rate, depending on the value and movement of risk-free yields. Otherwise, there is a risk that some entities that meet solvency requirements in one year could fall below regulatory thresholds due to short-term financial market disruptions and come under regulatory measures. This could trigger a cyclical effect of lost public and investor confidence, leading to capital flight. It can be concluded that the new regulatory framework is more suited for a macroeconomic environment with higher and stable interest rates,[50] which ensures

[48] A. Clapis, M Fruzzetti, A. Mapelli, „Effectiveness of capital light traditional products, and how they might evolve with the arrival of IFRS 17", 2024, pp. 1–10.
[49] Jelena Kočović, Marija Koprivica, Blagoje Paunović, „Initial effects of Solvency II implementation in the European Union", 2017.
[50] F. Škunca., „Analiza ulaganja osiguratelja u Solvency II svijetu", *Hrvatski časopis za osiguranje*, br. 1, 2019, pp. 55-69.

a higher level and continuity of achieved solvency levels. A particular challenge for our market will be the construction of the yield curve for the Serbian Dinar, given the limited depth and liquidity of the financial market. Since the maturities of government bonds have significant gaps (missing maturities for specific years), this will require substantial interpolation or extrapolation to construct the yield curve. This increases the risk of deviations from objective values, as well as significant changes in rates from year to year.[51]

6. Impact of Reinsurance Mechanisms on Solvency Capital Requirements

Under the Solvency II framework, reinsurance agreements have a significant and multifaceted impact on the solvency calculation. This influence is primarily felt in two modules: Insurance Risk Module where the reinsurance effect reduces risk and Credit Risk Module where the reinsurer, as the other contracting party, carries its own probability of default, thereby contributing to an increase in risk and the total solvency capital requirement. The net impact of these opposing influences on the calculation depends on the type of reinsurance program and the creditworthiness of the reinsurer. Experience from the EU market shows that the positive effect of the reinsurance mechanism is achieved with reinsurers that have at least an A credit rating. The results of the QIS 5 study in the EU market revealed that replacing a reinsurer with an A credit rating with a reinsurer with a BB credit rating increases the probability of bankruptcy by as much as 23 times. In the case of a replacement with a BBB credit rating reinsurer, the probability would rise by 380%.[52] The first quantitative impact studies conducted in our country revealed a significantly higher contribution from the credit risk module in the total risk compared to the EU market. One reason for this significant credit risk module contribution is the specific nature of domestic reinsurance regulations, the number, and creditworthiness of domestic reinsurance companies, and the regulator's intention to assess the potential credit risk problem through prohibiting the "look-through" approach. This approach disregards the creditworthiness of the foreign reinsurer, who is essentially the bearer of the transferred risk. The Serbian Law on Insurance stipulates that reinsurance, except in exceptional cases, must be conducted through a domestic reinsurance company. In practice, due to the limited risk-bearing capacity of domestic reinsurers, which is even lower than the capacity of cedants, the domestic reinsurer typically retains only a small portion of the risk. The dominant risk is then ceded abroad to one or more foreign reinsurers. If the current reinsurance regulations remain in place when the Solvency II Directive

[51] Jelena Kočović, Marija Koprivica., „Izvođenje krive prinosa za vrednovanje obaveza iz osiguranja u regulatornom okviru Solventnost II", 2019, pp. 19–21.

[52] SCOR, „Life (re)insurance under Solvency II", April 2012.

is implemented, it could lead to a significantly higher contribution from credit risk to the overall risk profile compared to EU market standards. This is because it will be difficult, even in the long term, to find a domestic reinsurer with an A credit rating or higher in our market, which is necessary for a positive net impact of the reinsurance mechanism. Some potential solutions include liberalizing the reinsurance regulations and allowing for direct reinsurance abroad, permitting consideration of the creditworthiness of foreign reinsurers, or reinsurance through subsidiaries of foreign companies established in Serbia. Undoubtedly, this is currently a systemic challenge whose solution will depend on the strategic development direction chosen by the regulator. Individual companies will focus on optimizing their reinsurance contract portfolios by choosing an appropriate combination of contracts that align with their risk appetite and ensure an optimal impact on solvency ratios.

7. Treatment of Euro-Denominated Government Bonds or Bonds with Currency Clause

In an effort to achieve currency matching between assets and liabilities, insurers invest a significant portion of their funds in Euro-denominated government bonds or bonds with a Euro-linked currency clause. This is particularly characteristic of companies outside the Eurozone, especially in the Balkans, where populations are accustomed to and prefer pegging their rights to a foreign currency value. However, this practice raises questions about the applicability of certain Solvency II provisions in these countries. The strict capital requirements under the framework could put companies in this region at a disadvantage. According to the original intent of the new solvency regulation, Euro-denominated or Euro-linked government bonds receive less favorable treatment compared to government bonds in the domestic currency. They are treated similarly to corporate bonds, where the credit rating is considered. For government bonds, this implies using the country's credit rating, which can be problematic for countries with low credit ratings, like Serbia with its current BB+ rating. For example, in the case of Croatia, which previously held a BB rating, for every 100 currency units invested in Euro-denominated or Euro-linked government bonds, an additional 73 units of capital had to be set aside. This represents an exceptionally high capital requirement. To mitigate the impact of these measures on capital requirements, Croatia negotiated with the EU for a transitional period from 2015 to 2019, gradually increasing the application of this capital requirement from 0% to 100% in 2019.[53] Since the purpose of investing in Euro-linked bonds is to achieve currency matching with liabilities, not speculation, there is a strong justification for preferential treatment of this form of investment. A significant portion of domestic insurance companies' investment assets are held in government bonds,

[53] T. Račić Žlibar, „Solventnost II je i sklizak pod", *Svijet osiguranja*, no. 7, 2015.

according to recent data: 57.4% of technical provisions for non-life insurance and a staggering 89.5% of technical provisions for life insurance.[54] A substantial portion of these bonds are Euro-linked. Therefore, it is crucial to determine how the Solvency II Directive provisions will be applied in Serbia. Through negotiations, it is important to secure a transitional period similar to Croatia's harmonization path, specifically for the regulations governing the treatment of foreign currency-linked government bonds.

V. Conclusion

The recognition that insurance companies, as financial institutions engaged in underwriting, are not solely exposed to insurance risk, but also significantly impacted by market risks, credit risks, and operational risks, has led to the implementation of the Solvency II Directive in the EU market since January 1, 2016. This directive introduces new regulations for calculating the solvency of insurance and reinsurance companies, replacing the previous framework known as Solvency I, which had been developed since the 1970s and comprised a total of 14 directives. Beyond offering a more holistic view of overall risk, the new regulatory framework emphasizes individualization at the entity level, linking it to specific parameters that characterize its operations. This approach incentivizes risk management practices aimed at reducing the overall risk profile and consequently the capital requirement. Specifically, instead of solely considering premiums and damages, or mathematical reserves in life insurance, as measures of risk, the new framework evaluates a plethora of factors. These include business segmentation, contract term, maturity of insurance premiums, sums insured, investment structure, credit standing of creditors, impact of stress tests on outcomes, internal statistics, and experiential realization of parameters crucial for calculation, among others. Consequently, under this new framework, two insurance companies with nearly identical volumes of business, measured by insurance premiums, can exhibit significantly different levels of solvency based on the efficacy of their risk management practices. This discrepancy arises from their adept utilization of elements prioritized by the new framework, notably the impact of diversification. The overarching objective of this new regulation is to enhance the protection of insurance beneficiaries in the broadest sense.

The transition of companies in the EU to Solvency II entails considerable implementation and maintenance costs. The new regulation introduces significantly more complex calculations and imposes stringent requirements on both the quantity and quality of reporting. This necessitates substantial investments in IT systems, the development of new business processes, and the recruitment and retention of skilled personnel. Despite the application of the principle of proportionality, which

[54] National Bank of Serbia, „Framework for Implementation of the Third Quantitative Impact Study of Solvency 2 on Insurance Sector in the Republic of Serbia", 2023.

dictates that the extent of efforts to implement legal provisions should align with the volume and nature of the risk, along with the obligation to meet minimum standards, there has been a restructuring of the market. This has manifested in mergers and acquisitions of smaller entities by financially stronger counterparts. The solvency ratio has been maintained at a high level even after the transition to the new regulation, with the vast majority of entities recording solvency ratios above 150%, of which a significant number are above 200%. The highest levels of solvency ratios are recorded by the companies in Germany, where a median ratio of 299% was recorded, while this indicator is the lowest in Iceland, where it is at the level of 157%. The countries of the former Yugoslavia, now EU members, Slovenia and Croatia, achieved median ratios of 229% and 170%, respectively. How much the transition from Solvency I to Solvency II has significantly changed the way of measuring risks, by expanding the scope of observation from insurance risk only to other risk modules, is evidenced by the fact that according to the results for all EU Member States, market risk, which was not even measured according to the previous regulation, is individually the most dominant item, the risk module, in the total required solvency capital with a share of 56% with non-life insurance companies, up to over 70% in composite companies, i.e. reinsurance companies. The future of the EU insurance market entails a reform of the Solvency II Directive. Originally, the plan included revising certain segments after five years of its introduction, taking into account the effects of its implementation. However, this process has been delayed and slowed down due to the global pandemic. Nevertheless, reformed provisions are anticipated to come into effect in 2025. The reform will prioritize various aspects, including reducing the cost of capital for calculating the risk margin, constructing a yield curve, providing preferential treatment for long-term capital investments covering long-term liabilities, adjusting for volatility, and examining the impact of climate change through the Own Risk and Solvency Assessment (ORSA) report.

The legal framework governing insurance activity in the Republic of Serbia, based on the Insurance Law, represents a hybrid system. It incorporates most provisions of the Solvency I framework, but also introduces elements of the Solvency II Directive, particularly in qualitative requirements. Consequently, colloquially, it is often referred to as Solvency 1.5. The process of implementing Solvency II in Serbia is guided by the Solvency II Implementation Strategy in the Republic of Serbia, adopted by the National Bank of Serbia, aligning with the country's EU accession timeline. The Serbian insurance market has successfully navigated the anticipated phases of implementation. However, quantitative impact studies are ongoing to pinpoint the scope and nature of requirements under the new regulation, as well as the challenges associated with harmonization. This will enable both the regulator and insurance/reinsurance companies to adapt in a timely manner. The final phase of the Strategy involves harmonizing laws. Drawing from the experiences of countries that

have undergone similar harmonization processes, it is crucial to negotiate a gradual, phased implementation of certain provisions of the new regulatory framework.

The solvency ratio in the Serbian insurance market, measured by the ratio of available and required solvency margin according to the latest data calculated under Solvency I, stands at 209.70%. This reflects a highly capitalized sector. However, initial quantitative studies indicate a potential decline in this ratio under the new legislative standard for solvency calculation, albeit remaining at a satisfactory level on average. To effectively prepare the domestic insurance sector for the full adoption of the EU acquis, which encompasses regulations beyond the Solvency II Directive such as IDD, GDPR, IFRS, and the freedom to provide services across all member states, countries, regulators, and insurance companies must collaborate closely. This collaboration is crucial not only to meet minimum requirements but also to enhance entities to a level where they can withstand heightened competitive pressures. Achieving this goal necessitates addressing several systemic challenges. These include resolving issues related to the treatment of government bonds denominated in euros or with a currency clause, optimizing the reinsurance mechanism, adapting operations to enable segmentation in lines of business according to the new regulation, and clearly defining contract boundaries. Additionally, restructuring the portfolio to increase the share of products with preferential treatment and maximizing the effect of diversification is essential along with other necessary processes.

The Solvency II Directive offers clear guidelines for implementation, and Serbia benefits from a significant advantage compared to other countries at a similar stage of development: an extended timeframe for adoption. This prolonged period presents an opportunity to effectively learn from the experiences of other countries. The future success of Serbia's insurance market depends on its capacity to adapt to the new regulations and surmount these systemic challenges in the years ahead.

Literature

- Allianz, „Izvejšće o solventnosti i financijskom stanju za Allianz Hrvatska d.d. za poslovnu godinu 2022.", 2023, pp. 17–45.
- Bernardino, G., „Keynote speech: 2020 Solvency II review: Opportunities and Challenges", EIOPA, 2020.
- Borseli, A., „Nadzor sistema uprave u osiguravajućim grupama prema Solventnosti II", Modern Insurance Law: Current Trends and Issues, Palić, 2014, 28–43.
- Clapis, A., Fruzzetti, M., Mapelli, A., „Effectiveness of capital light traditional products, and how they might evolve with the arrival of IFRS 17", 2024, pp. 1–10.

- Čolović, V., „Primena projekta Solventnost II i mere koje su predviđene u Zakonu o osiguranju Srbije u slučaju neprimene pravila o upravljanju rizikom", Zlatibor, 2013, pp. 28–43
- Čolović, V., *Osiguravajuća društva, Zakonodavstvo Srbije, pravo EU, uporedno pravo*, Institute of Comparative Law, Belgrade, 2010
- Čolović, V., „Uticaj primene projekta Solventnost II na osiguravajuća društva u Srbiji", *Zbornik radova Harmonizacija zakonodavstva Republike Srbije sa pravom Evropske unije (II)*, Institute of International Politics and Economics. Intitute of Comparative Law, Hanns Seidel Foundation, Belgrade 2012., 368–369
- Dreher, M., *Treaties on Solvency II*, Springer Verlag, Berlin, 2015
- EIOPA, „European Insurance Overview 2020", pp. 1-32.
- EIOPA, „Opinion on the 2020 review of Solvency II", 2020, 14-99.
- EU, „Directive 2009/138/EC of the European Parliament and of the Council on taking-up and pursuit of the business of Insurance and Reinsurance: Solvency II", 2009.
- Ilić, M., *Uticaj primene Direktive Evropske unije Solventnost II na sektor osiguranja u Srbiji*, doctoral dissertation, Niš, 2014
- Gatzert, N., Martin, M., „Quantifying Credit and Market Risk under Solvency II: Standard Approach versus Internal Model", 2012, pp. 5–21.
- Grundl, H., Dong, M. I., & Gal, J., „The evolution of insurer portfolio investment strategies for long-term investing", *OECD Journal: Financial Market Trends*, 2016, pp. 1–55.
- HANFA, „Makroprudencijalni skener rizik", 2020.
- Insurance Europe, „Solvency II Review and Insurance Recovery & Resolution Directive", 2022, pp. 1–8.
- Jauković, L., Kaščeljan, V., „Nova regulativa solventnosti osiguravajućih kompanija u EU – Projekta Solvenost II", *Montenegrin Journal of Economics*, No. 5/2007, pp. 77-84
- Kočović, J., Koprivica. M., „Izvođenje krive prinosa za vrednovanje obaveza iz osiguranja u regulatornom okviru Solventnost II", 2019, pp. 1–22.
- Kočović, J., Koprivica, M., Paunović, B., „Prvi efekti primene Solventnosti II u zemljama Evropske unije", 2017, pp. 436–450.
- Kordanuli, B., „Značaj regulatornog okvira Solventnost II na poslovanje društava za osiguranje u Republici Srbiji", 2017.
- Manning, K., Comerford, E., „Investment strategy under Solvency II", Milliman research report, 2018.
- Marano P., „Nova nadzorna paradigma: kultura nošenja rizika i etički kodeks", Insurance Law, Governance and Transparency – Basics of the Legal Certainty, Palić, 2105

- Marly, P. G., Ruol V., *Droit des entreprises d'assurance*, RB édition, Paris, 2011
- Milliman, „EIOPA Consultation Paper on the Opinion on the 2020 review of Solvency II: Standard Formula Solvency Capital Requirement", 2019.
- National Bank of Serbia, „Decision on Capital Adequacy of Insurance / Reinsurance Undertakings", *Official Gazette no*. 51/2015.
- National Bank of Serbia, „ Decision on the System of Governance in an Insurance/Reinsurance Undertaking Official Gazette No", *Official Gazette nos*. 51/215, 29/2018, 84/2020 and 94/2022.
- National Bank of Serbia, „Framework for Implementation of the Third Quantitative Impact Study of Solvency 2 on Insurance Sector in the Republic of Serbia ", 2023.
- National Bank of Serbia, „Solvency II Implementation Strategy in the Republic of Serba ", 2021.
- National Bank of Serbia, „Insurance Law ", *Official Gazette*, nos. 139/2014 and 44/2021.
- Njegomir, V., „Solvency II direktiva i njen uticaj na upravljanje rizikom u osiguravajućim društvima", Finansije, Ministry of Finance of the Republic of Serbia, 2009, pp. 183-202.
- Pavlović, B., „Koji je rizik najveći za osiguravače?", *Svet osiguranja*, 2019.
- Petrović Tomić, N., *Pravo osiguranja, Sistem, Book I*, Official Gazette, Belgrade, 2019
- Petrović Tomić, N., „Usklađenost poslovanja sa ESG standardima – osnove održivog poslovanja", u V. Radović (ured.), *Usklađivanje poslovnog prava Srbije sa pravom EU*, Faculty of Law in Belgrade, Beograd 2023, 69-95.
- Petrović Tomić, N., *Osnove prava osiguranja*, second, revised addition, Faculty of Law of the University of Belgrade, Beograd 2023
- Rae, R. A., Barrett, A., Brooks, D., Chotai, M. A., Pelkiewicz, J., Wang, C., „A review of Solvency II: Has it met its objectives?", 2017, pp. 1–72.
- SCOR, „Life (re)insurance under Solvency II", 2012.
- SCOR, „Reinsurance under Solvency II", 2022, pp. 15–36.
- Stojković, Lj., „Pravni aspekti upravljanja rizikom i sistem internih kontrola kao integralni deo korporativnog upravljanja u društvu za osiguranje", *European Insurance Law Review*, No. 3/2013, pp. 46-53
- Stojković, Lj., „Pravni aspekti sistema upravljanja u društvu za osiguranje i princip srazmernosti prema Direktivi o solventnosti II", In: Proportioinality and Legal Certainty in Insurance Law. Palić: The Insurance Law Association of Serbia, 2017, pp. 279-293
- Šipovac, Z., „Solventnost II u Republici Srbiji – Realno stanje u teoriji i praksi", SORS Proceedings, 2017, pp. 235-249.

- Škunca, F., „Analiza ulaganja osiguratelja u Solvency II svijetu", *Hrvatski časopis za osiguranje*, pp. 55-69.
- Tošić, I., „Izazovi implementacije Direktive Solventnost II u Srbiji", *Law and Economy*, no. 7-9/2017, pp. 526-541.
- Tošić I., „Nadzor osiguranja – Direktiva Solventnost II", *Foreign Legal Life*, no. 2/2017, 147-162.
- Tošić, I., „Uticaj direktive Solventnost II na sektor osiguranja u Evropi", *Yearbook of the Faculty of Law*, Banja Luka, 2017, pp. 306-309.

Translated by: Zorica Simović