

# COMPARISON OF SOLVENCY CALCULATION METHODS IN THE CZECH INSURANCE COMPANIES AFTER 1990<sup>1</sup>

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## Abstract

*The European Union is to unify the method of calculating the margin of the EU countries due to improvement of these services in the insurance market as one sector of the financial market. Therefore, almost 10 years of the experts in EU countries, while members of the project dealt with this issue, which was initially called Solvency II. Task of the Commission was to prepare a proposal for a directive known as Solvency II, which will manage all insurance companies operating in the territory of the EU. This article deals with the development of calculating the solvency of insurance companies in the Czech Republic after 1990. The aim of this study is to compare methods of calculating margin and their influence on the resulting value. The first chapter describes the development of legislation in insurance since 1990, particularly in relation to solvency. The second chapter deals with the development of solvency calculations. In the third chapter are compared to the outputs of one unnamed insurance company due to different methods of calculation.*

**Keywords:** Solvency I, Solvency II, calculation solvency, calculation

**JEL codes:** G22, G28

## 1. Introduction

Solvency generally means the ability to repay their financial obligations. Solvency of insurance is defined as the ability of insurance or reinsurance permanently secures its own sources of payment obligations from the insurance or reinsurance business.<sup>2</sup> Solvency of insurance companies is a concept that is being discussed for its timeliness. Czech Republic as one of the members of the European Union through its major companies, which are e.g. the

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<sup>2</sup> „Financial integration of new member countries with the euro“.

<sup>2</sup> Under § 2 of Act 363/1999 Coll. INSURANCE

Czech Society of Actuaries and the Czech Insurance Association, addressed the study of the Solvency II project, as well as active participation in this project by his comments.

After intensive negotiations between the Commission, the European Parliament and the European Council, the three institutions agreed on a compromise text for the Solvency II Framework Directive that was adopted by the European Parliament's plenary session on 22 April 2009.

## **2. The Development of Legislative Amendments of Solvency**

The emergence of the insurance market in the Czech Republic is possible to talk until the early 90s let 20 century, when both have changed the political and economic system. The first legal norm, which brought a fundamental change to the Insurance Law was No. 185/1991 Coll. of insurance. This law abolished the monopoly Czech insurance companies and allowed the emergence of new insurance companies, but also the entry of foreign insurers. Legislation was limited to the mandatory deposit requirement of the Ministry of Finance in the amount of CZK 10 million when applying for a license and submits to the condition or business insurance. hedging program and the creation of special-purpose insurance funds. State supervision had no tools that could assess the financial health of insurance companies. The resulting legislation is within a short time proved inadequate, and particularly by consumer protection, financial supervision. Another reason for the lack of legislation was an effort to move closer to the Czech legislation, commercial insurance law of the European Community. Therefore been made to the Law on Insurance Act No. 320/1993 Coll. and Decree 52/1994 Coll. Insurance and reinsurance recently were required after obtaining permission to build business for their obligations to insurance actuarial reserves in relation to the new chart of accounts and insurance to cover these commitments by matching assets. Since 1995, it was the state supervision of insurance companies expanded authority to require regular reporting from the insurer so-called solvency margin. The process of harmonization of Czech and European law was in the insurance industry launched in 1997 by Government Resolution No. 704/1997. Implementation of European law into the Czech Law No. 363/1999 established Coll. On insurance and implement Decree No. 75/2000 Coll. which brought many significant changes for those working in insurance. Enabling activity was subject to sufficient capital facilities of the applicant, the business plan based on actuarial calculations, with emphasis on the company's ability to meet its commitments to the insured. The newly established institute was responsible actuary and the adjusted solvency reporting. Some serious issues such as the

free movement of capital, the exercise of state supervision of financial conglomerates involving insurance and reinsurance have still not been resolved. The full harmonization of the Czech and European insurance law amendments to the Law was 363/199, and Law No. 39/2004 Coll. and a few days later, by Decree No. 303/2004 Coll. This Act was amended in the insurance business conditions with regard to freedom of establishment, freedom to provide services and the functioning of the Czech insurance market as part of a single European insurance market. One of the prerequisites for granting permission to operate a branch location of the property on its own territory of the State, corresponding to that part of the required solvency margin, which refers to the volume of insurance business in the CR. These own resources must be at least equal to one half of the minimum guarantee fund and it is no requirement to insert at least one quarter of that amount as principal separately in a special account established for that purpose at a bank based in the CR or branch of a foreign bank. Management of principal is possible only with the consent of the Ministry.

### **3. Development of Methods of Calculating the Solvency**

The new Insurance Act has changed the names of the indicators of the solvency margin. Actual solvency margin has been replaced by the available solvency margin, the minimum solvency margin. It is newly designated as the required solvency margin. Guarantee fund is still not calculated as  $1/3$  of the required solvency margin, but its use is now partially different. It is not one of the items, which are analyzed directly in the calculation of solvency. Amendment to the Law on Insurance Guarantee Fund, the concept works in deciding on vigor corrective measures in case of non-compliance margin.

In accordance with EU directives have increased the minimum value of the guarantee fund, known as the absolute minimum guarantee fund. When a operating one or more of the life insurance sector have increased the amount of CZK 40 million to 90 million. If an insurer carries on one or more non-life insurance is an absolute minimum to guarantee fund in the range on 60 to 90 million depending operated on the insurance industry. This was an increase over baseline, which were 20 to 40 million.

Further changes were then incorporated in the decree no. 303/2004 Coll., Which implements certain provisions of the Insurance Act, particularly in the way of calculating the amount of own resources, insurance and reinsurance, determining the value of their resources, which constitute the guarantee fund in the manner of reporting and solvency. When calculating the required solvency margin for non-life insurance premiums, by volume, the

amount increased from 10 million to 50 million in the second part of the calculation according to claims from 7 million to 35 million. New is separate calculation of the solvency of life, and universal non-life insurance companies. Previously there was only one method of calculating the actual solvency margin.

#### 4. Comparison Margin Calculations

Given that prior to 2000 and by 2004 the solvency of insurance companies showed a different way, is a comparison calculation of margin for 1999. The following contains only the resulting data, ie available a minimum solvency margin. Difference values is mainly due to the fact that since 2000, under Decree 75/2000 Coll. included in calculating the minimum amount of capital for operating of non-life insurance and the minimum amount of capital for the operation of life insurance.

<i>Non-life insurance:</i>	Till date 31/3/2000	According to the decree 75/2000 Coll. Ministry of Finance in the Czech Republic
<i>Actual solvency margin <math>SMS_{np}</math></i>	290 900	231 367
<i>Minimum solvency margin <math>MMS_{np}</math></i>	10 009	10 009
<i>The amount of the guarantee fund for non-life insurance</i>		40 000
<i>Life insurance:</i>		
<i>Actual solvency margin <math>SMS_{žp}</math></i>	-12 864	46 669
<i>Minimum solvency margin <math>MMS_{žp}</math></i>	22	22
<i>The amount of the guarantee fund for life insurance</i>		40 000

As the table below indicates according to Decree 75/2000 Coll. clearly both life insurance and for non-life insurance guarantee fund ja higher value than the minimum solvency margin, and it means that the insurance company at this time was the problem, which would be immediately solved.

The assessment of solvency in accordance with Decree 303/2004 Sb. is based on comparison of the actual capital facilities with certain required minimum level of school.

Due to differences in calculations and the development of life-and non-life insurance is required to separate reporting of solvency for life and non-life insurance. Available solvency margin ( $DMS_{nžp}$ ) is the amount of capital, which has insurance available to cover their liabilities. The calculation is done as the sum of the following assets free of any foreseeable liabilities related to insurance activities and after deduction of intangible items.

1st DMSnžp is calculated: + Paid-up share capital of insurance companies, after deduction of own shares held reserve funds + insurance - statutory and other reserves which apply to insurance + transfer of profits and losses - Retained earnings from previous years and the last reporting period, minus any losses from the period + half of any additional contributions during the accounting period - including the undertakings which have the legal form of cooperatives and other items + - cumulative preferential share capital, subordinated debt securities with no specified maturity date, which could be included under certain circumstances, a limited amount - the value of intangible assets recorded the accounts, if part of the capital

#### Subtotal A

+ Half of the subscribed capital unpaid, up to the lower of the amount required and the available solvency margin, may be included only if it has already been paid at least 1 / 4 of the capital, to include such items require the approval of the Ministry of Finance + valuation differences - hidden reserves resulting from the undervaluation of assets, ie. of the difference in value of assets and market value of assets recorded in the accounts.

Subtotal B- the sum of items whose inclusion in the calculation of DMS must be approved by the Ministry of Finance (from 1.4.2006 CNB).

The total sum of the subtotals DMSnžp creates A and B.

Required solvency margin (PMSnžp) represents the amount of potential liabilities from insurance activities, or a minimum amount of own funds, which must have insurance for the entire duration of their activities.

For insurance companies, which operate reinsurance business, PMS is calculated separately for the insurance and reinsurance. When calculating the PMS non-life insurance, there are some specifics. The first of these is the effect of exchange rate CZK / EUR, as the calculation is working with figures in millions of euros. The limit value of 50 million and 35 million for the calculation converted to CZK by exchange rate CZK / EUR Czech National Bank on the date of the statement of solvency, normally at the end of the financial year.

Another specific difference in the calculation of PMS non-life insurance is the use of two parallel methods of calculation, with the resulting greater is taken from the calculated values.

2nd PMSnžp is the greater of the amounts calculated in the following ways a) or b):

a) *by volume of premiums - the first step in calculating the reduction in gross premiums for the year of the relevant taxes, insurance premiums and taxes that are levied with premiums as a part of it. Subsequently, the reduced premiums, so that counted 18% of premium up to 50 million from the amount in excess of 50 million 16%. Subsequently, the sum of the observed rate adjusted for the effect of ensuring the use of so-called correction coefficient, ie the proportion of claims at its own expense to the total amount of claims. The share of insurance on its own account shall consist of at least 50% of total claims, or where to artificially raise the threshold.*

b) the average cost of claims - first, the number of years for which data will be gross claims state, called the length of the reference period (usually for non-life insurance, 3 years, operated by insurance if substantially, more than 4% of total premiums or 1 mil, insurance, storm, hail or frost it's 7 years). Furthermore, the sum of the gross claims paid, including reinsurers' share of insurance transactions and including increases to the reserve for claims, this sum is divided by the number of years for which the insurance benefits to take into account. This way was found to average annual gross claims for the reference period. Average indemnity shall be divided into two parts: up to 35 million, of which the design PMSNŽP included 26% in excess of 35 million, of which the design PMSNŽP include 23%. However, the amounts thus generated for the resulting PMSNŽP system uses a proportion corresponding to the share insurance coverage at their own expense for the accounting period, a minimum of 50%.

### 3rd Comparison of actual and required solvency margin

Method of detection available and required solvency margin for non-life insurance is described in detail in previous chapters. In addition, you can perform a test of solvency insurance comparison PMSnžp and DMSnžp. The required solvency margin is the higher of the amounts calculated by the size of premiums and the average cost of claims with the restrictive condition that it must not fall below the absolute minimum guarantee fund. If with multiple non-life insurance, paid as an absolute minimum guarantee fund higher amounts for non-life insurance. Available solvency margin there is the sum of the two subtotals A and B.

## 5. Conclusion

It is therefore possible to say that the issue of solvency in terms of the Czech insurance market has undergone fundamental changes since its reporting to the current method of calculation, which is almost in line with EU requirements. As it has seen from the preceding

paragraphs development of methodology of calculating the margin over time changed, but it is still closed. This development also meant increasing with time, while the conditions harder for insurance companies, but for insurance companies insured clients a higher level of security and stability of insurance companies.

To the future solvency of the tool by using it, the early identification of monitoring the financial situation of the insurer, the adjustment must be flexible to evolve in line with changes taking place both in the insurance market but in the whole financial sector.

In April 2009, endorsed the European Union directive, which is called Solvency II, is again higher level calculations, which are only a summary of quantified data, but also qualitative. Only the question remains whether it will meet several times to postpone the dates of implementation Solvency II for insurance companies in the Czech Republic.

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