

INSURANCE SOLVENCY, VALUE-AT-RISK, AND INVERSE LEVEL CROSSING PROBLEM

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The Solvency II system is built on the Value-at-Risk basis. Usually, speaking of solvency, the *occurrence of ruin* within a year (and its probability) rather than the *capital deficit at the end of the year* (and its probability) is meant.

The sentence (see (Directive, 2009), Article 101: Calculation of the Solvency Capital Requirement) that the Solvency Capital Requirement "shall correspond to the *Value-at-Risk* of the basic own funds of an insurance or reinsurance undertaking subject to a confidence level of 99.5% over a one-year period" means something very different from what means the sentence from the same (Directive, 2009) that the Solvency Capital Requirement determines the value of the economic capital which an insurance company must hold in order to guarantee a one-year *ruin probability* of at most 0.5%.

To be particular, in the preambular paragraph 64 of (Directive, 2009) it is said as follows: "the Solvency Capital Requirement should be determined as the economic capital to be held by insurance and reinsurance undertakings in order to ensure that ruin occurs no more often than once in every 200 cases".

We are bringing this matter into clear focus and seek a scientific explanation, arguing from the standpoint of the mathematical theory of risk.

References

Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II), Brussels, 25 November 2009.

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