ПРОБЛЕМИ І ПЕРСПЕКТИВИ РОЗВИТКУ БАНКІВСЬКОЇ СИСТЕМИ УКРАЇНИ

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Том 1

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THE APPROACH TO ASSESMENT SOLVENCY CAPITAL REQUIREMENT

1. Introduction

Financial institution supervision was taken over by Czech National Bank in 2006. Czech National Bank exercises bank supervision and supervision of the insurance industry. New rules for bank supervision are known as Basel II. While for system of solvency regulation it is Solvency II. For bank sector it is important to assessment capital adequacy, while for insurance companies it is necessary to be able to pay its liabilities that means solvency.

2. Three pillar approach

The Solvency II project and Basel II are based on the three pillar approach. The first pillar contains capital requirements. The second pillar is concerned with supervisory review and the last pillar is focused on Supervisory reporting and Public disclosure.

There are significant differences especially in the first pillar. For Basel II the first pillar contains minimum capital requirement only for credit, operational and market risk. While in Solvency II two levels of capital requirements exist. There are a Solvency Capital Requirement (SCR) and a Minimum Capital Requirement (MCR). The company will by banned activity below level of MCR. Between MCR and SCR the supervisory authority intervenes.

These capital requirements can be determined by standard approach or internal model. The Solvency Capital Requirement for individual risks presents level of capital required to be held to limit the probability of ruin to 0,5, i. e. 99,5 % Value at Risk. The Solvency Capital Requirement comprises capital requirement for operational risk, life risk, nonlife risk, health risk, market risk and counterparty default risk. Within Basel II the Value at Risk methodology is using for assessment of market risk requirement.

The second pillar contains qualitative requirements and rules of supervisory authority. The third pillar will concern both solvency information publication to supervisory authority and information publication to general public.

In this paper we focus on the assessment of the solvency capital requirement for market risk through Value at Risk methodology within Solvency II. Solvency capital requirement for market risk is composed from equity risk, property risk, spread risk, currency risk and interest rate risk. We determinate capital charge for equity risk on illustrative example. Equity risk results from the level or volatility of market prices for equities. The Value at Risk methodology will by compared with Expected Shortfall approach.

3. Value at Risk

Value at Risk is generally known risk measure for financial risk management. Value at Risk for confidence level α can be written as

$$VaR_{\alpha} = -E(R_p) - \Phi_{\alpha}^{-1} \cdot \sigma_p,$$

where $E(R_p)$ is mean value of portfolio, Φ_{α}^{-1} presents inverse of the normal cumulative distribution function and σ_p is standard deviation of portfolio.

4. Expected Shortfall

Expected Shortfall or Conditional Value at Risk is defined as a mean loss given exceeding Value at Risk for given confidence level. Expected Shortfall is coherent risk measure. Expected Shortfall for confidence level α for portfolio is given by equation

$$ES_{\alpha}(R_p) = \frac{\sigma_p}{\alpha\sqrt{2\pi}} \exp\left(-\frac{\left(\Phi_{\alpha}^{-1}\right)^2}{2}\right) - E(R_p).$$

5. Illustrative example

The goal of paper is to assessment solvency capital requirement for market risk concretely for equity Risk by the help of Value at Risk methodology. Firstly, we determine efficient portfolios on the base of Markowitz mean-variance model and Tobin model. Data are selected from Prague Stock Exchange. Time series of daily returns of CEZ, Erste bank, Commercial bank and Telefonica O2 from I.Q/2001 till II.Q/2009 are taken in account. We look for portfolio A with minimum standard deviation and portfolio B with maximum expected return accordance with premises of the Markowitz model. Porfolio M is assessed on the base of Tobin model. Outcome characteristics and proportions of assets in the each portfolio is shown in Table 1.

Table 1

Outcome characteristics and proportions of assets, %

	A	B	M
$E(R_p)$	17,87	37,29	31,13
σ_p	20,25	35,50	30,31
CEZ	0	100,00	58,88
Erste bank	5,69	0	0
Commercial bank	81,35	0	41,12
Telefonica O2	12,96	0	0

Then we compute the Value at Risk and the Expected Shortfall. The normal distribution is supposed. We determine the Value at Risk and the Expected Shortfall on the base of equation see above. Results are shown in Table 2.

Value at Risk and Expected Shortfall for each portfolio, %

	A	B	M
VaR	46,95	32,27	54,15
ES	304,19	206,10	355,41

The Value at Risk for portfolio A is 46,95 %, which means, that expected loss will be bigger or equal 46,95 % for confidence level 0,5 %.

Conclusion

For calculating of the Solvency Capital Requirement for given risk is used the Value at Risk within standard approach. The Value at Risk is not coherent risk measure and does not say nothing about expected loss of portfolio that is way it is suitable to use Expected Shortfall for assessment solvency capital requirement too. Insurance company can use for calculation of the Solvency Capital Requirement internal model too, but this model must be adopted beforehand by supervisory authority.

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СОВРЕМЕННЫЕ ПРОБЛЕМЫ БАНКОВСКОГО ДЕЛА И НЕКОТОРЫЕ ПУТИ ИХ РАЗРЕШЕНИЯ

В последние годы банковская сфера во всем мире потрясена последствиями мирового финансового кризиса: в странах с развитой рыночной экономикой происходит пересмотр сложившихся стереотипов в отношении места и роли коммерческих банков и банковских продуктов. В развивающихся странах продолжается трудный процесс преобразования банковской системы, осложненный кризисом, и поиск модели нового типа, адекватной состоянию экономики. В Казахстане банковское дело как самостоятельная отрасль формировалось в условиях системного кризиса, что было характерно для всех стран СССР в постсоветский период. К началу 2000-х годов в банковском секторе РК обозначились позитивные сдвиги. Только за один 2006 год размер совокупных активов банков увеличился на 4 356,9 млрд. тенге (96,5 %)