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“УКРАЇНСЬКА АКАДЕМІЯ БАНКІВСЬКОЇ СПРАВИ
НАЦІОНАЛЬНОГО БАНКУ УКРАЇНИ”

ПРОБЛЕМИ І ПЕРСПЕКТИВИ РОЗВИТКУ БАНКІВСЬКОЇ СИСТЕМИ УКРАЇНИ

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Том 1

Суми
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Продолж. табл. 1

Фактор	Размер влияния	Релятивное изменение	Влияние на платёжеспособность
K ₁	(НСП _Н) _А	16,67	–
K ₂	(НСП _Н) _Б	12,2	–
K ₃	(НСП _Ж) _{А1}	10,0	–
K ₄	(НСП _Ж) _{А2}	10,0	–
Страховые резервы	(НСП _Ж) _{А1, А2}	10,0	–
Страховой взнос	(НСП _Н) _А	9,9	–
Страховое возмещение	(НСП _Н) _Б	1,5	–

Исходя из проведенного анализа чувствительности, можно сделать вывод, что максимальное позитивное влияние на изменение платёжеспособности выбранного страховщика имеет фактор доли перестрахования нежизненного (неживого) страхования. Максимальное негативное влияние на изменение имеет повышение собственной доли участия страховщика в страховании, обозначенной коэффициентом K₁.

Josef Novotný, Ing.¹

ESTIMATION OF THE FAIR PRICE OF THE CREDIT

Abstract

The report is focused on description of estimation of the fair price of the credit. Individual factors which enter the prices of individual credits are described at first. Then fair price (interest rate) calculations are performed for corporate credit, for mortgage credit and for consumer credit. Various levels of collateral of individual credit types are implicated in the calculations. At the end fair prices are compared to real interest rates in time.

1. Introduction

The interest rate (credit price) plays an important role by decision making about lending of fund for all economic subjects. There has been an increase of interest rates in the Czech Republic since 2007, for which banks and other financial institutions grant funds to companies and households. Interest rates (credit prices) are influenced by many factors. The question is to what degree are current interest rates duly justified.

The goal of this work is estimation of fair price of credit (interest rate) and comparison to the real interest rate.

¹Ing. Josef Novotný, VŠB – TU Ostrava, Economical faculty, Department of finance, Sokolská 33, 721 01 Ostrava, Czech republic, e-mail: josef.novotny@vsb.cz.

2. Estimation of the fair price of the credit

Fair price of the credit (interest rate) is such price that covers all costs connected with granting of the credit. Fair price is generally defined by

$$r_S = r_{VBS} \cdot (1 - KP) + r_{KP} \cdot KP + RP + AP,$$

where r_{VBS} represents bank's costs of sources of credit, r_{KP} bank's costs sources of credit (subordinate capital), KP is capital requirement², RP is risk premium, and AP is administrative surcharge.

Costs of sources of credit (r_{VBS}) represent a price, which a bank have to pay for funds to economic subject. The price of these sources of credit is influenced by both current situation and expected development on the inter-bank market. Capital requirement (KP) represents required amount of capital, which a bank have to keep according to NBCA to cover unexpected loss. Capital requirement calculation is described by following equation:

$$KP = \left[LGD \cdot N \left[(1-R)^{-0,5} \cdot G(PD) + \left(\frac{R}{1-R} \right)^{0,5} \cdot G(0,999) \right] - PD \cdot LGD \right] \times \\ \times (1 - 1,5 \cdot b)^{-1} \cdot (1 + (M - 2,5) \cdot b)$$

where LGD is loss given default, N denotes the cumulative distribution function for a standard normal random variable, R is correlation coefficient, G denotes the inverse cumulative distribution function for a standard normal random variable, PD is probability of default, b is maturity koeficient and M is maturity. Correlation coefficient is defined by

$$R = \frac{0,12 \cdot (1 - EXP(-50 \cdot PD))}{(1 - EXP(-50))} + 0,24 \left[\frac{1 - (1 - EXP(-50 \cdot PD))}{1 - EXP(-50)} \right] - 0,04 \cdot \left(1 - \left(\frac{S-5}{45} \right) \right),$$

where S is turn-over³.

Risk premium (RP) covers unexpected losses- banks have to create adjusting items for these unexpected loss. Risk premium is described by following equation:

$$RP = \frac{PD \cdot LGD \cdot EAD}{BankCredit} = \frac{EL}{BankCredit},$$

where PD is probability of default, LGD is loss given default, EAD is exposure at default, EL is expected loss.

Administrative surcharge (AP) covers the bank running costs and costs of credit application management.

²Resulting from the NBCA (New Basel Capital Accord).

³For household is use this formula without this part: $-0,04 \cdot (1 - (S-5)/45)$.

3. Application

The goal of the application part is estimation of fair price of the credit: 1) for companies with collateral of 0, 50, and 100 %; 2) mortgages credit with collateral of 50, 70, and 100 %; 3) consumer credit with collateral of 0, 50, and 100 %. PRIBOR5 is used for sources of credit costs, rate of default is used for PD. Interest rate of a BBB debt note, which is issued by a bank institution and traded at the Prague stock exchange is used for r_{KP} . Loss given default was fixed in accordance with NBCA to 45 %, and turn – over(S) was fixed at 5 million. Administrative surcharge was fixed at 1% for companies, at 0,2 % for mortgages, and at 3 % for consumer credit.

Table 1

Results up to 2009/08/30

%	Rate of default	RP	$r_{VBS} \cdot (1 - KP)$	$r_{KP} \cdot KP$ ⁵	AP	Fair price of the credit	Real interest rate (CNB)
Company 0	13,12	5,91	2,22	0,66	1	9,78	No data
Company 50		2,95				6,83	
Company 100		0,00				3,88	
Housing 50	4,68	1,05	2,27	0,58	0,2	4,09	5,53
Housing 70		0,63				3,67	
Housing 100		0,00				3,04	
Consumer credit 0	6,42	2,89	2,42	0,27	3	8,58	13,97
Consumer credit 50		1,45				7,14	
Consumer credit 100		0,00				5,69	

The real interest rates offered to individual customers are much higher than calculated fair prices of the credits (fair interest rates), which flows from the results at mortgages and consumer credits. There is no economic foundation for such high interest rates. Real price of mortgage credits copied the justified interest rate increased by approximately 1 % profit until October 2008. Since that time, justified credit prices have been sinking, but Czech banks have been keeping the interest rates at the same high level, without any economic foundation.

⁴ PRIBOR – Prague Interbank Offered Rate, a reference rate quoted in CZK.

⁵ Capital requirement only for credit risk.