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EVALUATION OF RISK-BASED PROFITS OF BANKING PRODUCTS

Annotation. The paper conducted research to evaluation of risk-based profits of banking products. The methodology of integrated risk management is appropriate to use during the evaluation of bank risks. Its main goal is to find an optimal balance between risk and profitability.

Key words: Bank, the banking product, profitability, risk, competitiveness.

Introduction

Banking system of Ukraine is characterized by a high level of integration in the economy, concentration of foreign capital and a significant level of competition. Ukrainian banks operate in uncertainty, volatility and dynamic development of environment, which negative effect is enhanced by internal problems, namely inadequate capitalization, poor quality of assets, sensitivity of cash flow towards deterioration of both economic and operating environments, a significant level of risks and poor corporate management.

Under such conditions the role of banking competitiveness increases considering factors of internal and external environments in which they operate. One of the current problems in this area is to develop mechanisms ensuring the competitiveness of banking products as a basic component of the mechanism for ensuring the competitiveness of the banks.

Competitiveness ensuring of banking products - is a special activity that transforms different internal business processes of banks into efficient and productive, including the processes of planning, analysis, organization, control,

regulation which are to ensure, support and enhance the competitiveness level of banking products.

Ensuring the competitiveness of banking products must take place in two interrelated ways, oriented to both external and internal environments where banks function to combine adaptiveness to change external factors and innovation in terms of optimal organization of internal business processes and use of available resources which necessarily involves risk and profit from banking products.

Risk and profit are two interrelated and specified economic categories. Therefore, the assessment of banking products profit is a risk-based framework for strategic management decisions, concerning the development and financing certain banking areas, formation of the product range, improving profit and risk ratio, furthermore encouraging staff to work more effectively.

While determining the profitability of banking products, we must consider the risks which accompany them.

Main types of bank risks are shown in figure 1.

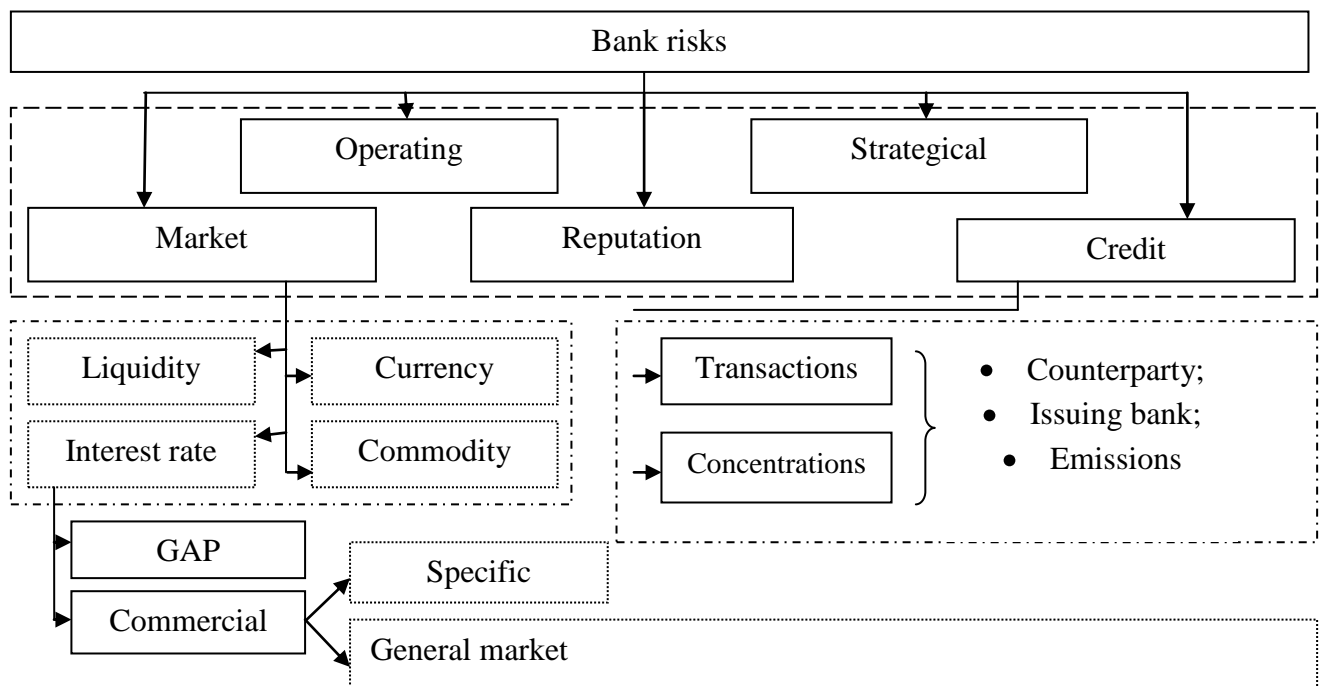


Figure 1 – Main types of bank risks

There are two categories of losses arising as the result of bank risks: expected (average) and unpredictable (random).

By expected losses we understand the average level of losses, arising from the implementation of the relevant banking product of the assets. The expected losses determine the amount of reserves which are to be formed as a banking product. The cost for reserves must be covered by profit, from the sale of banking products which means to be laid in their value as risk premium.

Calculation of the expected losses and reserves allows us to assess "market value" of banking products, including possible risks.

Unexpected losses are losses associated with unpredictable events, such as systematic crisis, global financial crises or unpredictable political disasters. Bank capital is the source of covering unexpected losses.

The most common and the most appropriate approach to estimate unexpected losses is the methodology of Value-at-Risk (VaR) [1]. It allows to predict the losses based on mathematical models (variational-covariance, exponential model, volatility model).

The methodology of integrated risk management is appropriate to use during the evaluation of bank risks. Its main goal is to find an optimal balance between risk and profitability. The methodological component of this approach involves the calculation of economic effect (EVA index) and the effectiveness of the risk (RAROC rate).

Given the above, we consider it is necessary to adjust the earnings from banking product for the expected losses and reduce the cost of "capital risk" needed for selling its products thus having "economic added value" of this activity type.

$$\frac{EVA}{EP} = RAR - RAC \times HR_{capital}, \quad (1)$$

where RAR is a profit including risk;

RAC is an economic capital;

$HR_{Capital}$ is a capital profit rate.

As a basis for assessing banking business directions and products we suggest use the methodology of RAROC, which will allow us to implement an integrated approach to the assessment of profit including risks.

There have been some modifications in RAROC, such as return on capital adjusted for risk (return on risk-adjusted capital - RORAC) and adjusted return on capital risk, calculated including the risks (risk-adjusted return on risk adjusted capital - RARORAC). The following modifications such as capital profitability adjusted for risk (return on risk-adjusted capital - RORAC) emerged in RAROC together with risk adjusted capital profitability calculated with including risk (risk-adjusted return on risk adjusted capital - RARORAC).

During the study we have determined that we can use RAROC method in order to compare different banking products. This is illustrated by the increase in added shareholder value of the bank, which reflects the level of increase or decrease of shares value. If added shareholder value is equal to zero, then banking product does not either increase or decrease shares value. Banking product increases shares value under condition of positive added value and, consequently, it decreases because of negative added value.

Comparison of economic capital required for a certain banking product and added stock exchange value for each of them illustrates their effectiveness (Fig. 1).

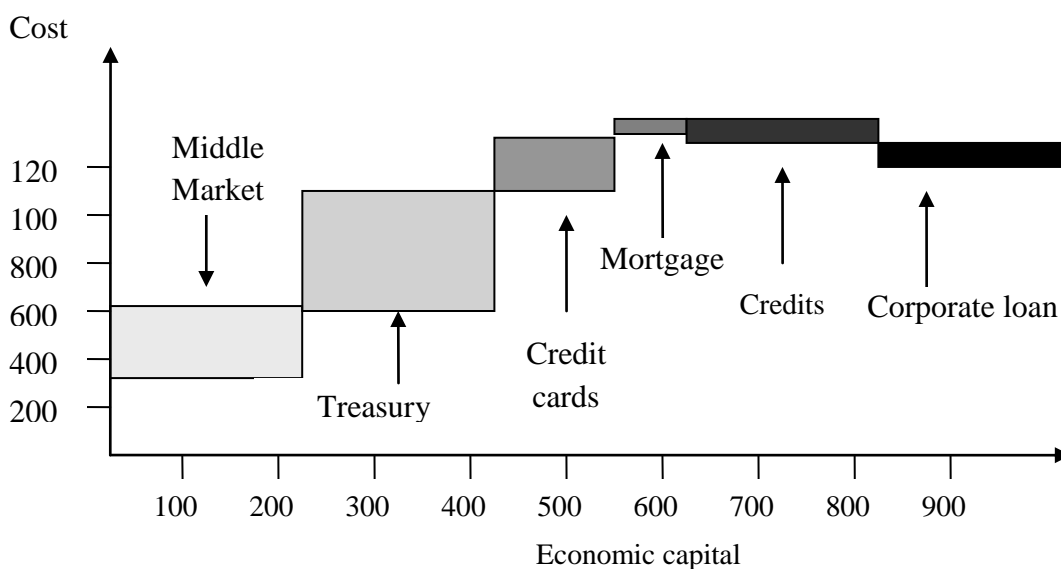


Figure 1 – Creation of value added stock exchange with specific areas of the bank.

Figure 1 presents the comparison of shareholder added value of each banking product to the economic capital required for their manufacturing and selling banking products which are classified according to the efficiency of value added per unit of resources which have been used. Products which are on the left of the graph create added value. The board of bank must find ways to ensure sales of these products through additional investments.

Products inside the graph (credit cards, mortgage) are not that effective, the bank management must improve their efficiency by reducing their costs, scale effects or other additional incentives. The products which are on the right side of the graph (small business, corporate loan) are the least effective and in most cases are active "destroyers" of stock exchange value. The management has to use an aggressive policy to find the causes of low efficiency in order to improve it.

Based on above there is a formula which allows to assess the risk of adjusted capital profit (2):

$$RAROC = \frac{E - EL}{RC} = \frac{E - EL}{(MRC + CRC + ORC)}, \quad (2)$$

where E is a net profit with expenditures on partial hedging and credit risks;

EL are expected losses as a result of economic risk;

RC is the capital reserved against the overall unhedged risk (it consists of unpredictable losses as the result of market, credit and operating risks).

It should be noted that each bank has its own responsibility to reserve capital against losses arising as the result of unpredictable risks because the level of abruptness of different risk types is different for every bank and depends on many factors (bank specialization, spectrum of active operations, "risk appetite" etc.)

The formula (2) is based on the assumption that between market, credit and operational risks there is an absolute positive correlation (+1). In practice, we can observe both positive and negative correlation between market and credit risks, whereas operational risk doesn't normally have a significant relationship with two

types mentioned above. Correlations between risks of different origin could possibly reduce the amount of the reserved capital, but currently this problem hasn't been solved yet. Therefore, in updated versions of RAROC method they implement full-scale economic modeling by Monte Carlo method aimed to build a joint distribution of losses under conditions of simultaneous display of all types of risk which would take into account all apparent relationships between them. If you can build a joint distribution of losses due to major risk factors, the cost of capital which is reserved against the overall risk is determined by analogy to VaR as a quantile of this order distribution α (formula (3)):

$$RC(\alpha) = \inf \{ x \mid P(L > x) \leq \alpha \} E(L) \quad (3)$$

where L is a random variable which reflects losses size;

E(L) are expected losses.

However, in practice the risks are assessed separately at the same level of trust and time horizon (without modeling their joint distribution), and then they aggregate obtained assessments, based on ideas about the relationship between risks.

It should be noted that assessing risks mentioned above is a difficult task, but if everything has been performed correctly one can get a possibility to use RAROC method for different aims such as:

- pricing of financial instruments and banking products;
- assistance in timely profitability assessment of all banking products, which will increase effectiveness of business plans and budgeting;
- making it possible to determine the fair value of loan of banking products including the risks taken by the bank.

RAROC has the following formula:

$$RAROC = \frac{RAR \text{ (Profit including risk)}}{RAC \text{ (Risk - Capital)}} = \frac{\text{Direct and indirect profit} - \text{Direct and indirect expenditures} - \text{Expected losses (credit, market, operating etc)}}{\text{Economic capital needed to cover unpredictable losses (credit, market, operating, etc)}}, \quad (2)$$

The relationship between RAROC and EVA is determined by the following formula:

$$\text{RARORAC} = \frac{\text{EVA}}{\text{RAC} + \text{HR}_{\text{Capital}}} = \frac{\text{RAR}}{\text{RAC}}, \quad (3)$$

Banking product is considered to be profitable if $\text{RARORAC} \geq \text{HR}_{\text{capital}}$.

$\text{RARORAC} \geq \text{HR}_{\text{capital}}$ creates economic profit.

So, we have determined that RARORAC is an integrated approach linking risk, capital and cost . It can assess the current and future cost of the bank in terms of various business areas, risk types, banking products. With its help we can assess the current and future cost of the bank in terms of different business areas, risk types, banking products.

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