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TECHNOLOGY DEVELOPMENT, IMPLEMENTATION OF BANKING PRODUCT

The complexity and diversity of the problems of pricing on banking products due to the wide range of questions related to lack of developed methodological tools of pricing in conditions of the modernization of the national banking system.

Considering the approaches to the pricing of bank products (BP) and pricing in the banking sector, it is reasonable to consider common to all economic activities pricing issues as theoretical basis characterized by uncertainty pricing technology that requires further clarification.

Summarizing the theoretical aspects of pricing bank products and considering the practical aspects of pricing, we have determined that technology banking product is a set of interrelated activities (financial, organizational, informational, technological and legal) that combines unique technology services, which regulates relations between the client and the bank, focused on customer satisfaction as part of his banking product.

When pricing banking products the following stages can be determined:

1. Defining strategy and strategic objectives of the bank
2. Pricing policies and strategies of the bank
3. Selection and justification of pricing methods of BP
4. Introduction (implementation) / modernization of banking products
5. Analysis of fixed prices for banking products
6. Monitoring compliance with fixed prices to achieve the strategic objectives of price policy of the bank and its strategic goals totally.

Let's perform detailed description of each stage and determine their specific aspects.

The first stage of pricing the banking products is to determine (define) the strategic goal of the bank that in future have an impact on all aspects of its activity, including the questions of pricing. Thus, the behavior of the bank in the market will depend on the choice of a particular strategy. According to this the types of policy will be determined: aggressive, moderate, conservative.

The key importance (sense) of strategy formulation is to find ways to overcome the market competition. Therefore, the strategy of the bank can be described (characterized) as conceptual basis of its activity that determines the priority objectives, goals and ways to achieve them and differentiates the bank from competitors. It helps to make key decisions concerning future markets, product and organizational structure, etc for bank manager at all level of its activity.

Each of these policies has defined goals of entering the bank in the market that are different. Thus, specific pricing banking products will be formed precisely at this stage.

After defining the strategic goals the bank establishes pricing policy. According to it the directions of development and principles are determined following which the bank will set prices for their products. The next stage of pricing bank products is the choice and justification of pricing methods that are correspondent to the current pricing policy and strategy of the bank. In particular, at this stage it should be determined which method (cost, market or combined) will be used for setting prices for the products.

Justifying the methods of establishing the prices for the bank products such factors should be determined, which will influence pricing the bank products. After that the systematization should be made depending on the place of appearing (external, internal) and directions of influence (stimulants, disincentives).

Thus, the external factors that affect the pricing of banking products is the level of state regulation of prices, market conditions of banking services, the level of competition, inflation, exchange rate, the size of the budget deficit, the price elasticity of demand. Internal products are divided into those relating the products (cost of bank products, terms, level of risks that appear in its implementation, the stage of life-time of banking products, etc.) and those relating the bank (pricing policy, strategy of the bank, its specialization, size, the stage of life-time, interests and intentions of the shareholders (owners), organization of management accounting of the bank, etc.)

After systematization of factors at the place of origin they should be divided into factors-stimulant (prices for banking products are increased during increasing) and factors-disincentives(decrease prices for these products during increasing). Determination of mechanism of impact of these factors on pricing bank products and their division on stimulants and disincentives is individual for each bank depending on its policy and character of the product.

It is necessary to consider the technology of implementation/modernization of these products during pricing. Therefore, the implementation/modernization of banking products can be identified as the fourth stage of pricing. General concept of development coordination of new and modernization of existing products in most banks is assigned to the department of development and implementation of banking products (DDIBP). To achieve the objectives other departments of the bank provide its information in the package of documents. Schematically implementation/modernization technology of banking products is presented in Figure 1.

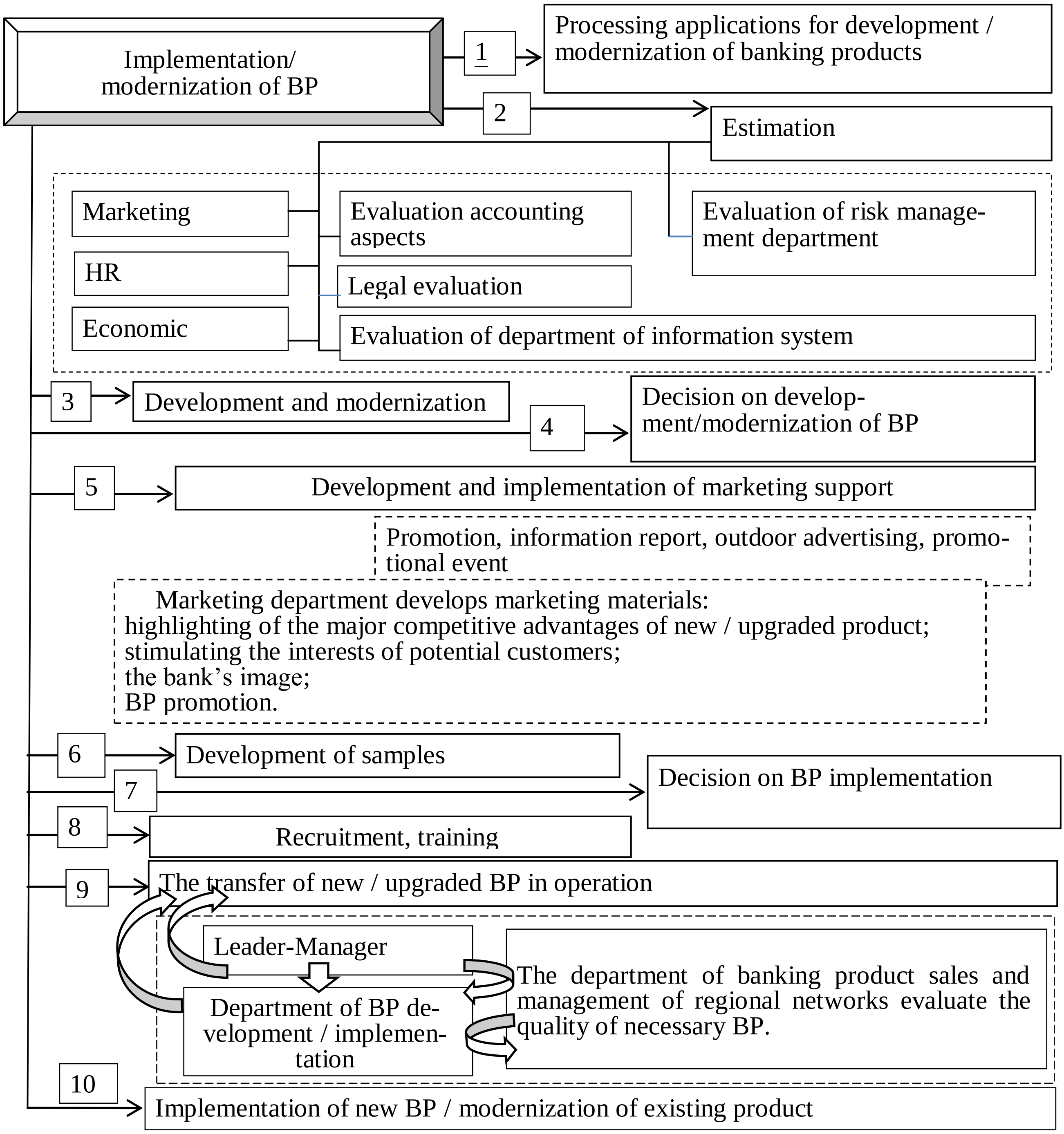

Figure 1 – Technology and implementation / modernization of banking products during market pricing

It is a set of regulatory documents that at first contain all complex information needed for formation of the goal, determination of the economic sense of the banking product and secondly, they regulates the mechanism of implementation and realization of banking product by bank's departments. Also they contain the conceptual description of banking product, technologies and rules for the formation of analytical characteristics of banking products.

Required documents are formed separately in credit and investment, saving and funds creation, cash and settlement banking products including current internal documentation that contains sufficient information for quality customer service. The required documents must contain at least one document of each category.

The first step of implementation/modernization of banking product is the request to the department of development and implementation of banking products. The staff of DDIBP and marketing department must judge the application and conclude if it corresponds established plans taking into account the current system priority and the current strategy of the bank as a whole. Then the application is judged by other structural departments in the sphere of marketing, financial and economic, legal questions, risks, information banking systems, internal security and accounting.

The second step of implementation/modernization of banking product is formation of evaluations. The formation of evaluations includes the results of marketing evaluation, HR, economic, legal, accounting aspects, evaluation of management information systems and risk management.

The next step is the evaluation that is a part of risk management. Based on the results of marketing and economic evaluation it judges the risks namely market, credit, operational, and so on. Also this department assesses application characteristics. All information formed in departments is focused in DDIBP. For further consideration achieved results are passed to authorize body (collegial body of the Bank is authorized to make decisions on development / modernization / implementation of banking products). Authorized body or CEO (chief executive officer) decides to implement/modernize banking products.

The next step is the development/modernization of banking products. Within the framework of the budget including the planned profitability of banking products the marketing plans that have to be highlighted:

- the main competitive advantages of the new banking product or modernization of existing;
- stimulate interests of existing and potential clients;
- strengthen the confidence and image of the bank;
- promotion of banking products.

The development of package of documents is the essential condition for implementation of a new banking product. Department of development and implementation of banking products with legal department, accounting, risk management develop document templates that are the part of business processes, namely contracts for banking products including business requirements derived from the development and implementation of banking products.

Recruitment and training of employees is an essential process in the implementation of banking products. The bank requires skilled personnel to achieve the goals regardless if it is saving and funds creation, credit or cash settlement of banking products. To realize the bank’s goals it is necessary to develop, give employees training materials, project motivation and recruitment, to carry out the trainings of bank’s staff who are involved in the implementation of banking products.

To minimize costs and risks during implementation of banking products let’s consider expedient to carry out a pilot project. Under “pilot project” is meant experimental introduction of banking products in several departments of the bank in order to understand expediency (practicality) of existing. If required it will give opportunity to identify additional factors that have an impact on the implementation of banking products, as well as to give an opportunity at an early stage to consider the shortcomings and offer market competitive banking products. The technology of implementation of banking products including «pilot project» is depicted in Figure 2.

Implementation of «pilot project» provides the introduction of banking products in some offices / departments of the bank. List of offices / departments is determined by DDIBP that will allow testing new banking products including all factors that affect pricing and implementation process in the future.

Throughout the period of the «pilot project» at least once a week it is necessary: to perform measurements that include data of the effectiveness of sales, profitability of sales, the presence of risks (including operational), the effectiveness of marketing support , compliance of software, etc.

According to the proposed concept the final stage is the analysis of established prices for banking products and monitoring their compliance with the achievement of the strategic objectives of pricing policies and objectives of the bank.

In our opinion, that the pricing of banking products is necessary to consider the level of risk associated with them. For this, we developed an algorithm for the analysis of risks to banking products.

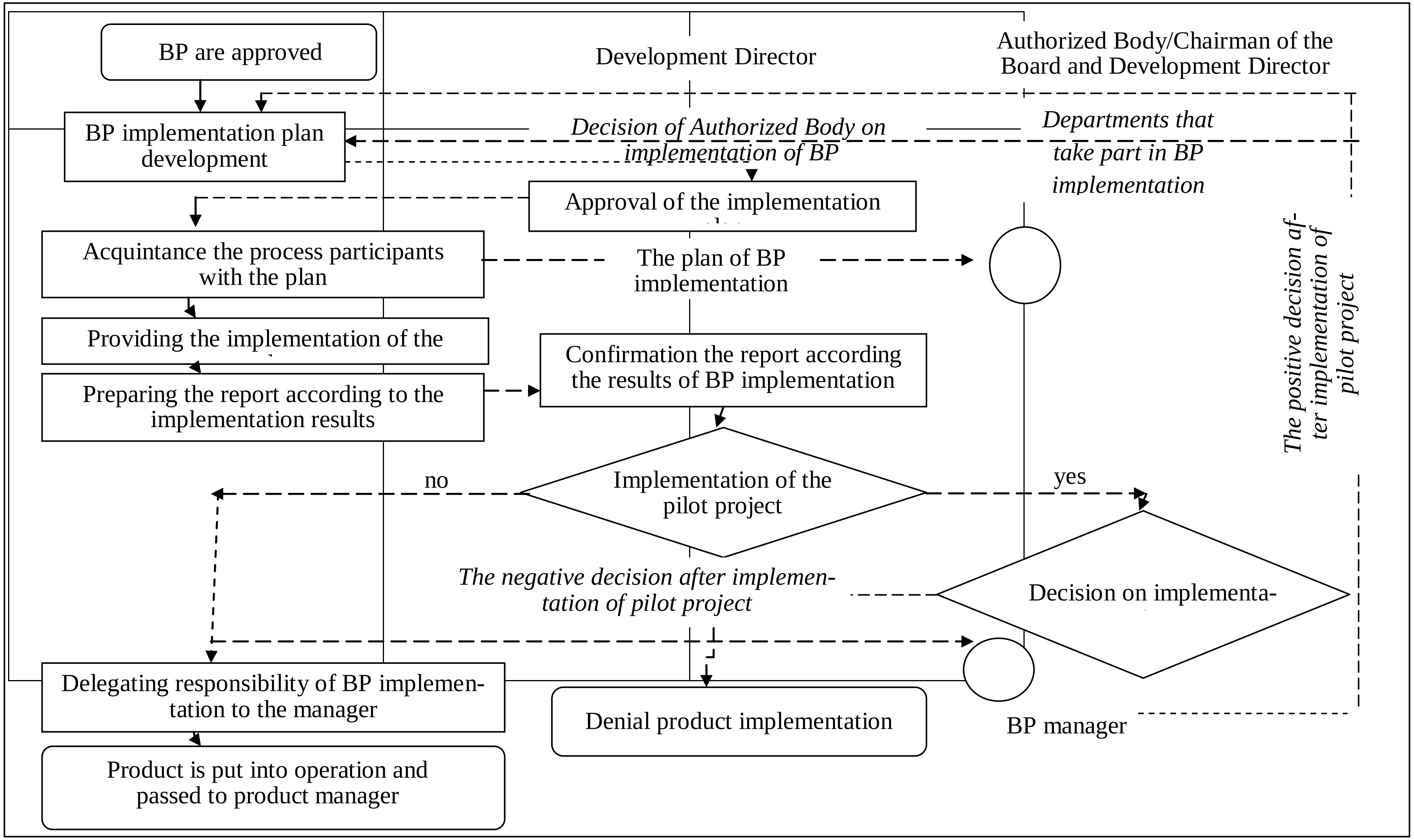

Figure 2 - Technology of implementation of banking products including «pilot project»

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 3.

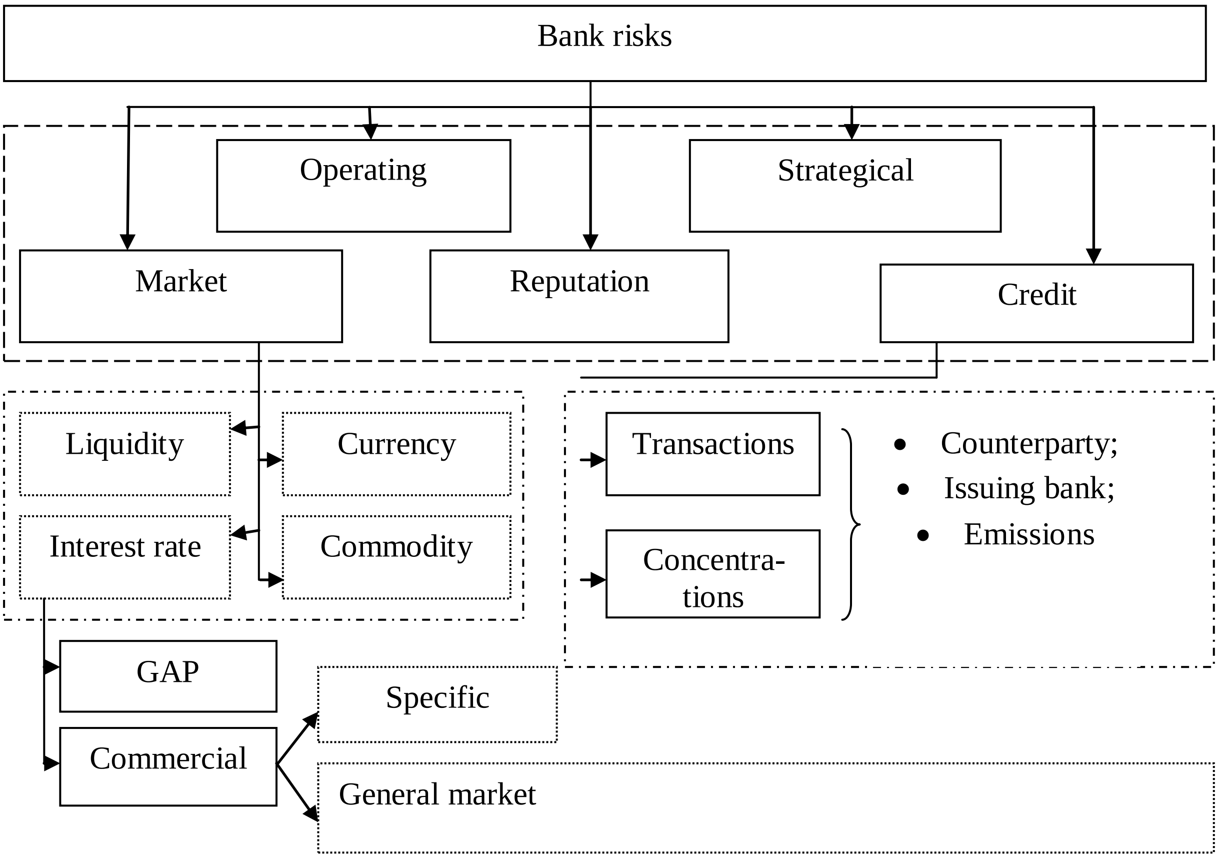

Figure 3 – Main types of bank risks

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. 4).

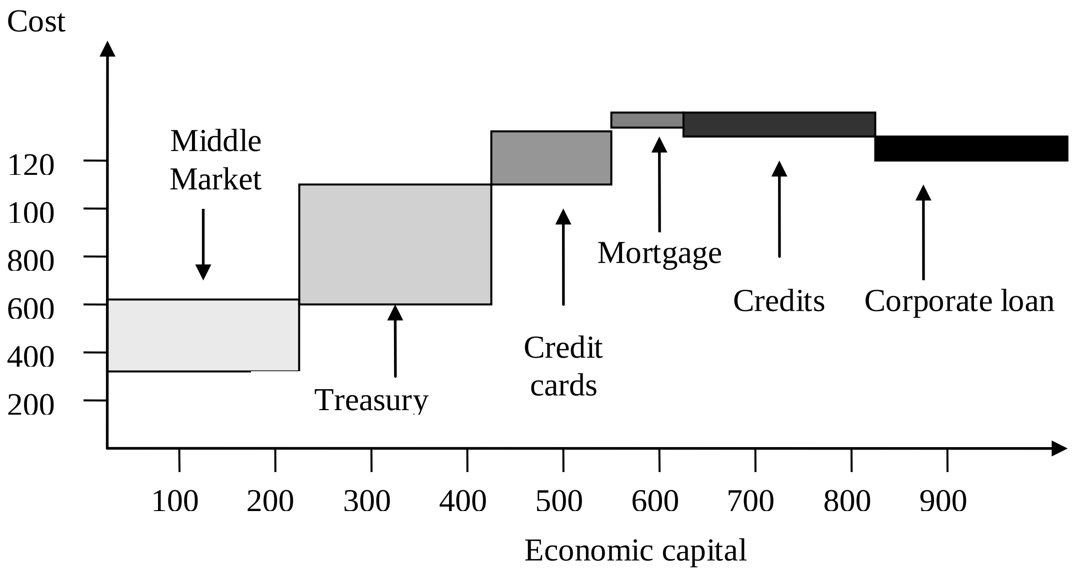

Figure 4 – Creation of value added stock exchange with specific areas of the bank.

Figure 4 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):

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

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 modelling 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 quintile of this order distribution α (formula (3)):

$$RC(\alpha) = \inf \{ xP(L \rangle x) \rangle a \} - E(L) \quad , \tag{3}$$

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 (4):

$$RAROC = \frac{RAR(\text{Profit including risk})}{RAC(\text{Risk - Capita})} =$$

$$= \frac{\text{Direct and indirect profit - Direct and indirect expenditures - Expected losses (credit, market, operating etc)}}{\text{Economic capital needed to cover unpredictable losses (credit, market, operating, etc)}}, \quad (4)$$

The relationship between RAROC and EVA is determined by the following formula (5):

$$\text{RARORAC} = \frac{\text{EVA}}{\text{RAC+HR}_{\text{Capital}}} = \frac{\text{RAR}}{\text{RAC}}, \quad (5)$$

Banking product is considered to be profitable if RARORAC ≥ HRcapital creates economic profit. This means that the product can be introduced in the market.

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.

Pricing of banking products is an important task, the implementation of which provides the necessary resources to the bank and effective distribution. Analysing aforesaid the following conclusions should be made described concept of pricing of banking products will allow banks to set prices for products including influence of certain bank factors and market value amounts of financial resources. This technology will prevent losses for the bank. It should be noted that the losses from the introduction of bank products that are not competitive in quality and price, can be significant and influence the size of the profit and the reputation of the bank.

Implementation of banking product and «pilot project» will enable the study of positive and negative developments in the implementation of further decisions on the feasibility of its implementation. This will allow to identify additional factors that have an impact on the implementation of banking products and initially providing an opportunity to consider the shortcomings and offer market competitive banking products.

Pavlenko, L. D. Technological development of the process of banking products' implementation [Text] / L. D. Pavlenko, O. A. Kryklii, O. V. Krukhmal // Methodological bases and practice of sustainable development implementation : monograph / ed. by O. Prokopenko. N. Kostuychenko. – Poland : Drukarnia i Studio Graficzne Omnidium, 2014. – P. 111–122..