

OPTIMIZATION AS A TOOL OF ACHIEVEMENT STRATEGIC GOAL OF COMMERCIAL BANK DEVELOPMENT IN CRISIS PERIOD

Volodymyr Kotkovskyy

Ph.D., University", e-mail: vs-kotkovskiy@i.ua, Krivoy Rog, Ukraine

Elena Guzenko

Ph.D., University", e-mail: guzenko.elena@kneu.dp.ua, Krivoy Rog, Ukraine

Abstract: The article analyzes the crisis, which affected the banking system of Ukraine, deeply characterizes the provision profit of optimization modeling for structural units of the bank, and gives the author's vision of computational model evaluating the viability of the bank in crisis along with propositions for structural and logical scheme of construction stages simulation of strategic management at the commercial bank optimization controller.

Keywords: optimization, regulator, strategic goal, adaptive performance, economic and mathematical model, simulations, evaluation criteria, commercial bank, banking tool, management cycle, strategic development, crisis segment.

The crisis of a modern economy in Ukraine prompts us to search more advanced and reasonable strategic decisions. Banking sector also is now in quite a predicament, as crucial transition from certain stabilization in functioning, to essential variables of positions in the future took place. As a result, we have displays of negative impacts as past anticipated bank development strategy, along with modern current problems, which have to be solved in the conditions that are real nowadays. Thus, it is clear that the attention of domestic banks to their own development strategy and the strategy of competitors has significantly increased. There is an urgent need to develop more efficient management tools to control strategic ways of development of domestic banks, which is only possible under the condition of elaboration of realistic and quality program in the context of maximizing revenues from services rendered and minimizing costs that accompany their service cycle.

Authors of the article, according to the results of the research, believe that the basis of strategic decisions for Ukrainian commercial banks should become optimization controller. That consideration came out from the following thesis: income and expenses won't be able to create the necessary conditions to receive a realistic amount of margin and implementation of planned strategic development programs without optimization controller. According to this, there is no doubt in the actualization and modernity of article subject. Domestic commercial banks must save existing capacity and use all possible optimization controllers for its extension.

Multiple scientific developments in the field of strategic development of the banks, available scientific projects in the various elements of financial management showed popularization of selected subject to research. Quite balanced and fundamental research is outlined in the writings of scholars, such as: B. Bundy [1], O. Lyubun [2], O. Kopylyuk and O. Muzychka [3], A. Golovko, V. Grushko, M. Denisenko and others [4]. The above mentioned scientists are quite meaningful, and recognize key parameters of strategic development of commercial banking and outline possible ways of improvement and tactical approaches for its adaptation.

For the risen problem of optimization of certain aspects in banking system quite

valid research was made by following scholars: B. Samorodov [5], D. Denisenko [6], S. Hayluk [7], O. Crickley [8]. In their studies, scientists reasonably offer optimization elements when making strategic decisions and recognize the feasibility and necessity of continuous expansion in search of more efficient instruments of commercial bank management. However, in their writings, scientists are very limited in describing overall cycle of optimization elements, which could influence on maximizing margin value in banks and their competitiveness.

Subject and purpose of the research is to develop and rationalize the implementation to the model of strategic management decision making process, optimization controller, identifying key elements, by commercial bank.

Nowadays situation proves feasibility and necessity of more activity from commercial banks to improve the level of competitiveness and financial stability. This phenomenon in the financial and economic system of domestic commercial banks has to become a priority for their future development. Functioning under the conditions of permanent and quite dynamic changes is making the work of banks more complicated; on the other hand there is an urgent need to develop more modern management, on the basis of existing scientific research or on the basis of international experience. Each bank independently identifies the actions of its activity and key strategic goals, develops tools to achieve them, however, this approach does not work on each single case, as there is an impact of macroeconomic factors.

Before moving to the development of strategic management decision making by commercial bank on the base of optimization controller, the authors consider it essential to describe the current condition of banking sector in Ukraine. The results of completed research show that the role of banking institutions has significantly increased, because they are forming institutional systems overall, influencing on efficiency of credit distribution, structure of interest rates, solutions in the implementation of principles of monetary policy.

Today's banking sector of Ukraine can be characterized by the following crisis factors: significant reduction of income and level of evaluation criteria of borrower's financial conditions, credit resources; high level of depreciation of UAH; increasing the share of bad loans in the terms of agreements; significant outflow of funds from deposit accounts, etc. The above listed crisis factors prove that there is a lack of conditions for strategic development for domestic commercial banks. This thesis is supported with the manifestations of the financial crisis in the banking system of Ukraine (fig. 1).

Noteworthy, that I. Andryikiv [9, p. 131] suggests the following: «...to overcome the financial and economic crisis, interaction of financial and non-financial sectors, coordination among all government authorities and businesses are required».

To our mind, banking sector of Ukraine requires an active monitoring system, which would be the main tool not only for supervision and control domestic banks work, but primarily could be a method to develop measures for financial system stabilization in the country, by increasing the stability of the banks themselves.

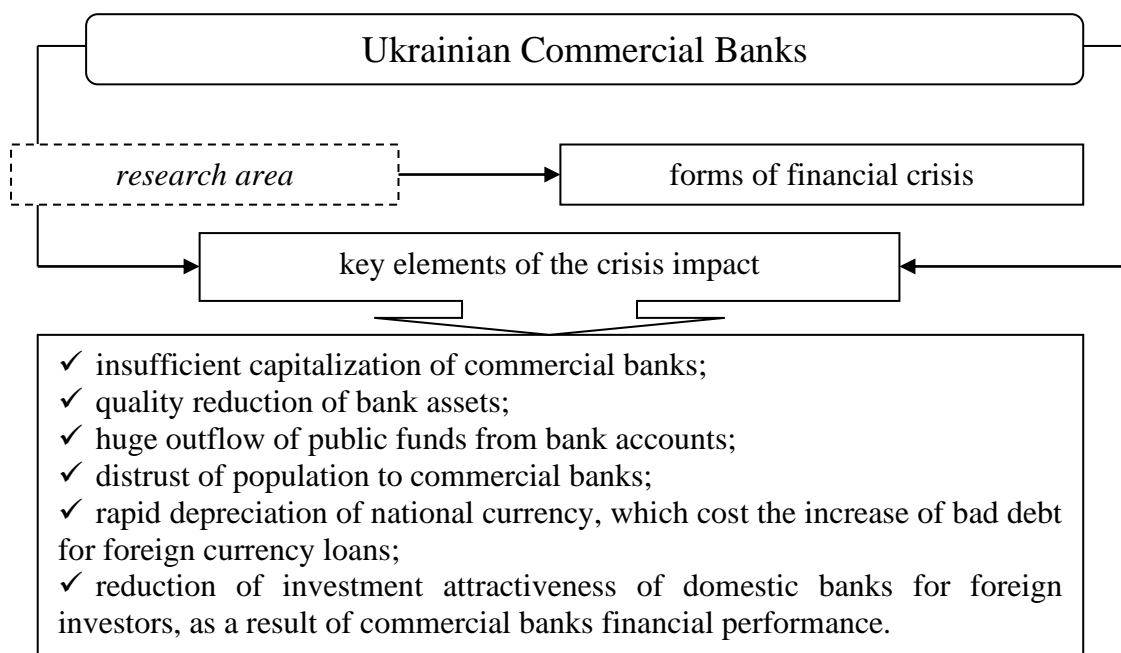


Figure. 1. The scheme of key elements of the form of financial crisis in domestic commercial banks (authors' suggestion)

Given the above, we see that Ukrainian commercial banks have to be directed to the number of scientific developments, which would provide banks with available stabilization controller for the period of strategic management cycle development under crisis conditions.

In particular, N. Halapup and G. Golovach, believe, that: «... all financial crises and overcoming their consequences lead to changes in structure of the banking system, as the banking sphere is the most sensitive to their influence» [10, p. 363]. Scholars think that a financial crisis has to impel commercial banks for timely prediction of both internal and external crisis situations, develop mechanisms for their prevention and mitigation

It is possible to evaluate the influence of financial crisis on the Ukrainian commercial banks functions according to the official online database of NBU, which provides main indicators of Ukrainian banks [11]. We can follow the changes, which have happened with income and expenses values in the banking institutions of Ukraine during 2009-2014 years of functioning, while reviewing the problem given in our research (fig. 2).

Looking at the dynamics of income level in Ukrainian banks, we see that on 01.01.2015 the income value was 201 billion (UAH), comparing with 2009 this value is 67 billion (UAH) higher. During 2013-2014 years, Ukrainian banking institutions increased income by 41 billion (UAH). During the study period growth rate of income in Ukrainian bank reached 46.85%, and the growth rate of expenses – 75.33%. This trend shows us the existing cost increase advantage comparing to the growth rate of income. As a result, in 2014, which had a great influence on the financial crisis in banking activity in Ukraine, we got a financial result – loss worth 52.97 billion UAH [11].

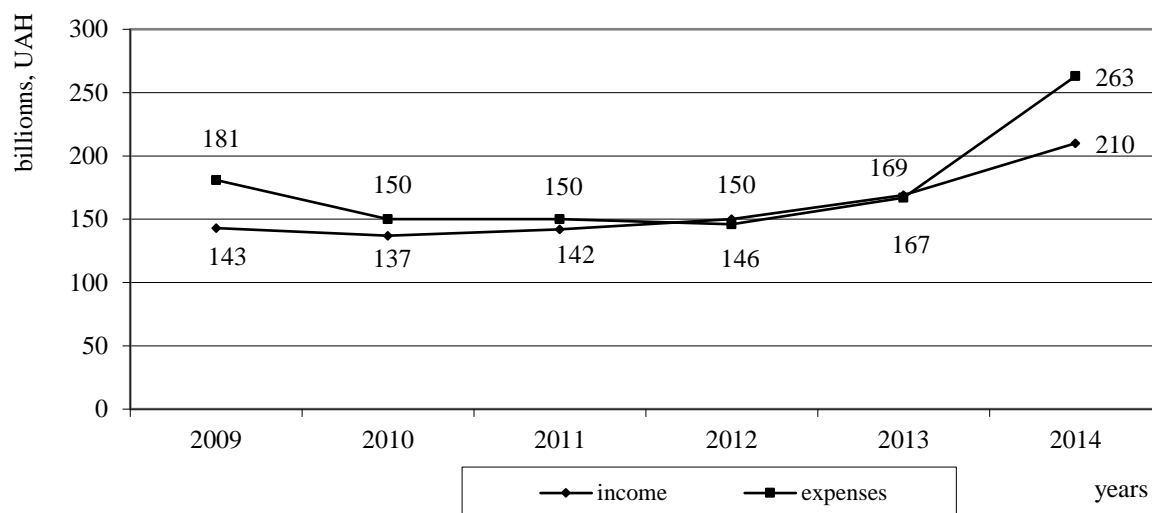


Figure. 2. Dynamic graph of income and expenses of Ukraine 2009-2014 years in billions, UAH [11]

Therefore, banking system of Ukraine started 2015 with unresolved problems from 2014 [12]:

- high depreciation on UAH, economy downturn, military operations in the eastern region and Crimea annexation, insufficient corporate governance, which caused deterioration of quality of loan portfolio;
- due to the growth of negatively classified debts banks had to create significant reserves for active operations, which inevitably caused a negative impact on capitalization of bank institutions. In one year banks made contributions to reserves in the amount of 103 billion UAH. This became a determination factor for banks to suffer losses – only in 2014 losses of the banking sector amounted to almost 53 billion UAH;
- rapid solving of the problem of accumulation of negatively classified debts is not conducted with existing number of unsolved issues, particular in tax area. The process of reforming the judicial system of Ukraine requires intensification, along with fighting against corruption;
- the growth of currency risks for Ukrainian banks due to presence of short open foreign exchange position and high level of dollarization is a potential threat to the stability of banking system;
- distortion of statistical reporting capabilities by some banks makes it difficult to estimate the real level of bank lending-related entities.

Analysis shows, that no banking institution is able to develop effective management mechanism, which would be based on the criteria of stability, liquidity and profitability, without macroeconomic policy level. However, the banking institution may adapt the already existing and proven management techniques.

In the opinion of many domestic and foreign scientists, banking institutions are strongly advised to involve economic and mathematical elements when developing ways to improve their performance. In many cases it is suggested to apply a development of measures based on optimization controller. On this occasion B. Samorodov [5, p. 58] states the following: «... under the current conditions it became increasingly important to optimize the process of management of bank's financial resources». The scholar believes, that “nowadays there is a need in developing and

using new adequate mathematical optimization technologies, which, with high reliability, could reflect the basic parameters of the investigated object» [5, p. 58].

In turn, G. Kishchenko [13, p. 41], exploring the problem of optimizing profits structural unit for banking institution, noted quite important key points. Scientist proves the presence of quite substantial advantages in case of adaptation of provisions of optimization modeling bank profits structural units (chart 1).

Today commercial banks in Ukraine are developing leverage operational management systems to regulate negative processes, which are occurring in the economics of the country. Most of them are searching ways for optimal resource allocation through the optimization of financial performance and getting effective results from bank productivity.

Chart 1

Feasibility argumentation of adaptation optimization controller (based on the provisions of modeling optimization profits structural units of the bank)

Argumentation tools (advantages)	Main actions of financial managers of the bank in adaptation cycle	Results from involving optimization controller
Indicators of volume and number of banking products and services adaptation	The introduction of an innovative approach in calculating the return on the bank's structural units based on the formation of information flow in the context of the determination of the volume and number of banking products and services	sales of banking products increased for both: tactical and long-term planning
Accepted elements of control and regulation of pricing adaptation	Singling out a particular trend in the cycle of banking management structure to adapt accepted elements of control and pricing regulation process, which will determine the optimal pricing for banking product	Optimization element pricing formation cycle to establish factors that are influencing on fluctuations of the cost banking product
Adaptation of strategy providing structural assessment of the bank separate financial entity	Development of optimization management model for structural units of commercial banks setting out the key elements of coherence in actions to increase the competitiveness	Comprehensive assessment of the sold banking products volume with the development of an effective optimization model for expansion of component assortment
Cost effective methods of evaluating the bank expenses from operating activities adaptation	Systematic financial monitoring of bank spending policy in the context of operating performance level for the optimization of the banking product price factor	Implementation of cost optimization and development of the bank management model based on innovative components

* Note: generalized, systematized and supplemented by the authors based on sources [13, p. 41]

Made researches show that there are almost no instances of usage of classical optimization methods in the context of the assessment of various work areas. Only theoretical and methodological studies of individual researchers are shown in scientific works as advisory measure, which could provide optimization as established evaluation criteria generalized nature. Methods of optimization, such as Hook-Jeeves, Nelder-Mead, Rozenbroka, Powell, Cauchy, Newton, etc. [1] should be recommended for usage for financial managers and banks' analysts.

In our opinion, special attention should be paid to the optimization options of the

bank's expenses. This assertion is based on the results of the viability of the banking system study: instability in macroeconomic policy; high levels of inflation and risks; lack of corrective actions from lawmakers regarding adaptation of domestic commercial banks to the real crisis conditions. In such case one of the key elements should be previous diagnostics of negative trends in the domestic commercial banks activity. In particular, D. Denisenko [6, p. 17] believes that: "...bank's expense optimization should be the process of formation expenses on the best way under given criteria expressing development strategy of the bank". In this case D. Denisenko claims that «...optimal expenses' management could be determined as selection of such parameters, which could provide the best process of formation of bank's expenses under the given criteria» [6, p. 17].

Stated above information proves the necessity of constant updates in management decisions regarding the strategic model of commercial bank. Optimization, as a tool for reaching the strategic goal should be accompanied by the timely evaluation of the existing crisis situation, which appeared to be on Ukrainian banking sector and a particular commercial bank. This refers to the breach of the viability of domestic commercial banks, which is a crisis event itself. In this regard, some interesting considerations are suggested by L. Lihonenko, M. Tarasyuk and O. Hilenko [14], who point out that "...in such a situation it is advisable to prevent the deployment crisis process by using enterprise sustainability model for managing". Considering the functioning specificity of commercial banks and studies of the listed above scientists we suggest our vision of model of commercial bank's viability:

$$\alpha = \{\alpha_4; \alpha_3; \alpha_2; \alpha_1\} \quad (1)$$

where: α – model of commercial bank's viability;

α_1 – parameters that characterize the break-even activity or reaching targets of financial and economic activity in accordance with the set strategic goals and objectives of commercial bank;

α_2 – parameters that characterize the financial equilibrium, i.e. the ability to generate cash flows in necessary amounts and before the deadlines, which would be enough to fund cash expenses associated with operating and investment activities of commercial bank;

α_3 – parameters that characterize assets quantity to be enough to meet obligations to return borrowed capital and ensure necessary level of assets' liquidity, which are funded from the borrowed funds;

α_4 – availability of net assets of commercial banks (the difference between the market value of existing assets and total liabilities).

On this occasion O. Bondar [15, p. 57] points out that «... crisis events ... may cover all the parameters of viability, then we can define this state as a systemic crisis». In their turn, V. Kramarenko, I. Vanesko, A. Dudar, T. Chugunova and others [16] ascertain the fact that presence of crisis in the banking activity leads to the search of scientific management parameters. Scientists substantiate that «... adaptation of fundamental procedure of scientific research must be based on the base of such models of decision making, which would include innovation and optimization segment. Effective controlling system must be included to the base of adaptive resource».

It is proved, that fundamental procedure of scientific research (scientific

method) usually is based on the following key elements: surveillance; formulating hypotheses; test hypotheses; adaptation of the model selected.

We believe that modern commercial banks should involve such scientific procedure as modeling. In most cases scientists interpret conceptual category of "modeling" as a single systematic way to see options for the future, and identify potential consequences of alternative decisions, which would allow comparing them objectively.

Banking filed professionals are advised to adapt the following steps of a model building process for strategic management of domestic commercial bank based on optimization segment (picture 3).

Suggested SMCB model based on optimization controller could be adapted in case of saving the classical building of economic and mathematical model (EMM). We believe that on the stage of EMM problem formulation bank professionals should determine main tools which should be involved in achieving optimization solution for strategic management in the future.

Next stage of the model building process should involve a few actions of commercial bank specialists: goal and baseline information determination (time norms for key financial tools' processing); setting the number of source data for adaptation of the model of strategic management of commercial bank; outlining requirements for optimization controller, which should effect on profit and expenses behavior of commercial bank; financial forecast of planned strategic criteria of a commercial bank.

Quite important stage of SMCB modeling is the process of checking the model for accuracy. Exactly this stage, to our mind, should answer the question of the feasibility of optimization controller adaptation in the system of commercial bank strategic management. Specialists of the bank must model the financial situation along with optimization controller from the position of the real situation, along with the future development strategy. At the same time the information flow for «model usage» stage is being built. At this stage commercial bank specialists should adapt developed measures, which were the base of modeling cycle and trace how optimization controller has influenced the behavior of revenues and expenses of commercial bank. Along with all mentioned above there will be a possibility to evaluate potential benefits of the commercial bank strategic model or make necessary adjustments to limit them.

The very last stage of modeling is «model recovery» stage. This means commercial bank should modify the model of the strategic management model. This model must be renewed by bank's specialists based on the changes, which appeared during implementation of optimization controller.

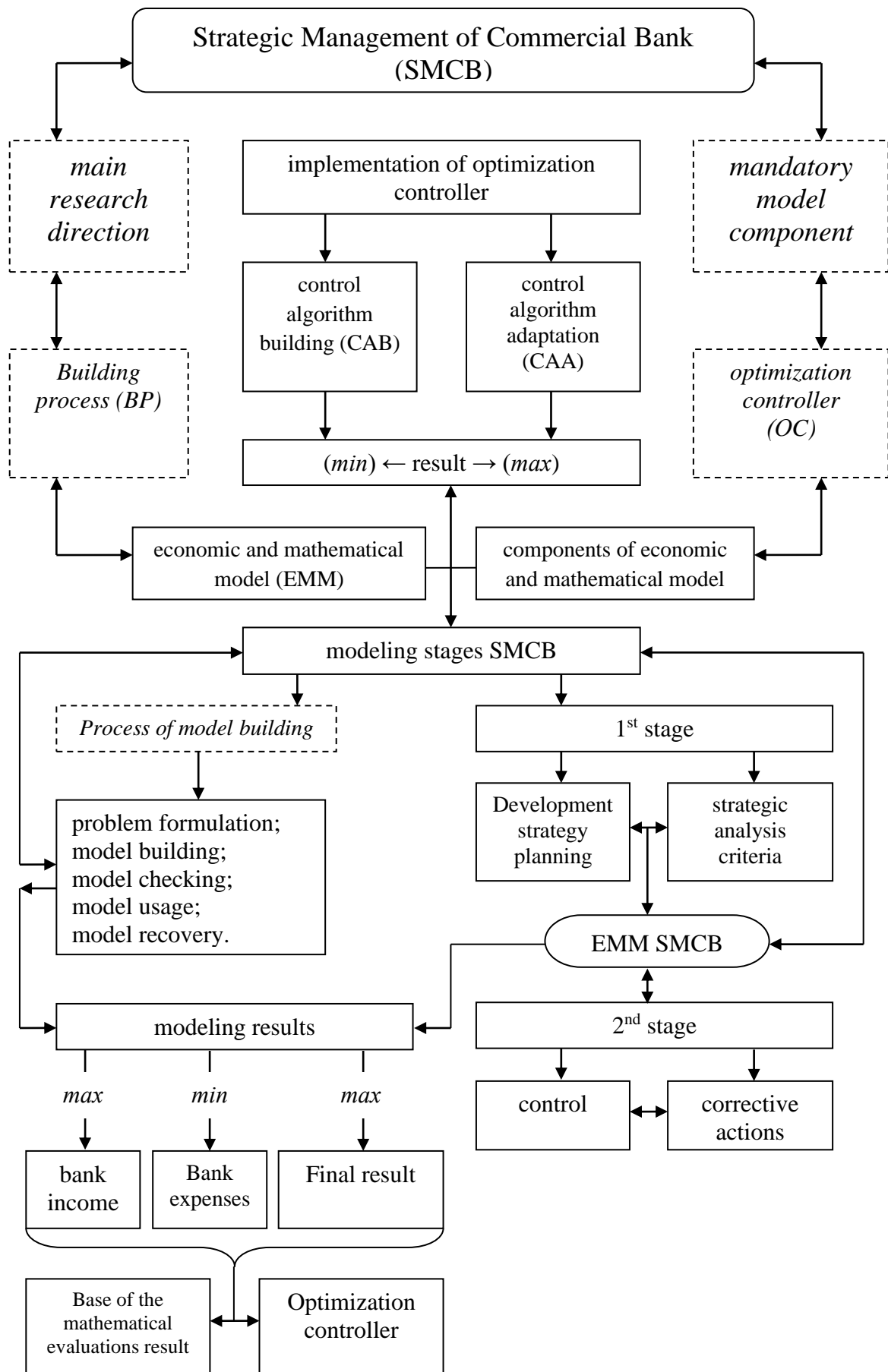


Figure. 3. Structural-logical scheme of stages modeling building SMCB on the base optimization controller (authors' suggestion)

We have to mention that in case of actual adaptation of commercial bank strategic management model along with optimization controller, bank specialist may

face some problems.

From an adaptation practice of modeling elements in different economic cycles we know, that model's effectiveness is going down under the potential errors: inaccurate assumptions; limited information; practice usage poorness; excessively high cost of adaptation cycle of the model and users' fear because of limited knowledge of functioning specifications of chosen model's tools.

Considering research results listed above we can draw the following conclusions: at first, domestic commercial banks are functioning under the conditions of protracted financial crisis, which causes significant impact on various strategic aspects of their development; secondly, under crisis conditions commercial banks have to activate the process of adaptation of existing scientific achievements in the field of strategic development; thirdly, solve the financial problems of the bank from the perspective of maximizing revenues and minimizing costs by increasing efficiency levels of their cycle management; fourthly, the policy of commercial bank strategic management should be modified with the optimization controller taken into account; fifthly, commercial banks should predict the adaptation of modeling cycles of future development through the proposed stages of basic model development.

Generally, bank specialists have to pay more attention to expanding the range of banking services, which would generate income and would be more appropriate in terms of the existing crisis in the country.

Next step of the research should be theoretical and methodological algorithm development for optimization controller, which could be considered from the innovation criteria position for commercial bank activity determination under the conditions of crisis. Certainly, optimization controller, to our mind, might have universal scientific calculation plane and as multifactor model could help commercial banks make smarter management decisions in the future.

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