

# Indicative Express-Estimation of Financial Security of Banking Activity

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**Abstract**—The article is devoted to the actual problems of determining the level of financial security of the overall banking system of a country or that of a particular bank. Competitiveness, profitability and financial stability either of a bank or banking system of a country are defined to be directly dependent on the level of their financial security. It also determines various methodological approaches to evaluation of financial security of Ukrainian banking system. The authors suggest a complex (indicator) approach to express-evaluation of the levels of financial security of a bank based on analysis of its economic standards and key financial ratios in order to find causes and prevent crisis situation at a banking institution at the initial stages. This approach makes it possible to create the necessary prerequisites for the correct choice of levers and methods to neutralize potential banking risks. The article deals with specification of indicators of financial security level of banking activity, outlines the necessity of appropriate amount of such indicators for optimal analysis and determination of the most influential indicators for financial security of banks. Based on the analysis of up-to-date samples of indicators for evaluating financial security of banks the authors put forward their own system of indicators. They insist that each indicator allows not only determining the absolute or relative value of evaluation subject, but also, in accordance with the defined criterion, obtaining the dynamics and tendency of changes in the indicators. Calculating the basic growth rates it can help to estimate further state of financial security of banking activities.

**Keywords**—*financial security, financial security of the bank, assessment of financial security*

## I. INTRODUCTION

The efficient functioning of the powerful banking system is a necessary prerequisite for sustainable economic growth of any country. Nowadays, under the conditions of constant economic transformations, Ukrainian banks have been undergoing a serious time check which causes the high vulnerability of the banking system to economic and political instability of the country. Therefore, one of the important tasks facing the domestic banking system and individual banks as well is to ensure their financial stability and reliability what makes financial security of the overall

banking activity of the country the predominant one. The issues of managing the process of formation and use of their resource base, identification of the financial leverage and methods that ensure their stability and efficiency have been gaining more significant role in banking institutions. Financial security is an indicative component of the efficiency and productivity of risk management, operational and financial management, personnel management and marketing. Complicated financial relations in the conditions of globalization of cash flows nature, property relations and customer base nature become of particular relevance determining financial security of modern banking system. It promotes the necessity of actions preventing total banking losses or part of their income or their overall insolvency due to internal and external threats, i.e. the assessment of financial security of banking activities.

## II. RELEVANT RESEARCH

A significant number of economists have paid their attention to the problems of financial security, its causes and preventative measures at various levels, i.e. state, economic sectors and individual economic players. The economic nature of financial security is based on the essence of such concepts as "threat", "security" and "national security". A. Wolfers [1], G. Sytnyk together with coauthors [2], V. Lipkan and others have made a major contribution to the understanding of this aspect. Besides, the term "national security", which was first officially used by President of the United States T. Roosevelt in 1934, is now documented in legislative acts of many countries of the world. The Law of Ukraine "On National Security of Ukraine" defines the national security of Ukraine as "the protection of state sovereignty, territorial integrity, democratic constitutional order and other national interests of Ukraine from real and potential threats" [3]. Undeniably, economic security of the country is the basis of its national security the main criterion of which, according to L. Dmitrichenko [5], is the ability of country's economy to maintain or at least rapidly renew the level of its social reproduction under the conditions of critical reduction (termination) of the supply of resources (goods, services, technologies etc.) or internal or external

crisis situations. N. Zachosova [6] outlines financial security as an integral part of economic security which is a state of national economy able to maintain resilience to internal and external threats, to provide high competitiveness in the global economic environment and characterizes the ability of national economy to achieve sustainable and balanced growth.

Consequently, it promotes different approaches to the interpretation of the definition of "financial security". O. Baranovsky [7] gives the most detailed understanding of financial security and defines it as the essential part of economic security of the individual, household, business entity, entrepreneurship, economic complex, the sector of the national economy, economic system, the region, the state, society (and national security as well), interstate economic entities and the world economy as a whole, which is based on independence, efficiency and competitiveness of the financial and credit sector. It is reflected through a system of criteria and indicators which characterize the balance of finance, sufficient liquidity of assets and the availability of necessary monetary, insurance and international reserves.

O. Baranovsky [8], A. Epifanova [9], M. Kolodizeva [10], S. Pokerezhnoi, O. Plastuna [11] and others have also analyzed the various aspects of financial security, paying attention to the problem of its evaluation in the financial institutions. But the amount of multiple models and methods of the financial security of banking activity assessment makes the problems of their choice still controversial. It determines the necessity for improvement of methodological approaches to the process of assessing the financial security of banking institution and the development of a system of indicators for such estimation.

### III. RESULTS

A sufficient level of financial security and its efficient management define the process of sustainable bank functioning and development in the conditions of market economy. The importance of the banking security level is caused by the ability of financially stable and safe banks to solve the issues of their resource, personnel, informational and physical security efficiently.

It should be mentioned that financial security of a particular bank is closely connected to the overall banking system of a country. Being interdependent the problems of any bank can cause a "domino effect" and lead to a crisis of the whole banking system. As well as structural problems in the banking sector can undermine trust in any single bank. A modern bank is the main financial intermediary which provides entrepreneurship business entities with loans and gives social services to population. Functioning in the exchange sphere, it greatly influences all stages of social reproduction, providing economic entities with the necessary credit resources. The amount of income of a particular bank, its ability to satisfy the needs of clients and as a consequence the economic development of the country in general will depend on its efficiency and security.

Thus, being the financial intermediaries that facilitate the channeling of funds between lenders and borrowers their financial security influence economic security of other market players. Each bank functions in the corresponding system of the same institutions and common space.

Therefore, their activity should be regulated with the interests of clients, investors, competitors and the state. It makes the issues of banks' financial security urgent not only for the banks themselves but other economic entities.

#### *A. Methodological basis of evaluation of bank's financial security*

A complex analysis of conditions and results of banks' activity determine their financial security. It requires certain methodological tools of financial security evaluation, forming sets of general indicators which will allow performing quantitative estimation of dynamics and basic tendencies of bank's financial security. According to the analysis of economic references we can prove the lack of a single approach not only to the evaluation methodology of banks' financial security, but to the types of evaluation. We share the opinion of O. Baranovsky [8] who defines such types of banks' financial security evaluation (assessment):

- Express (prompt) evaluation is based on the calculation and analysis of a number of indicators in terms of bank's financial security functional components which are mostly temporal and let top management of the bank or other interested persons evaluate financial security any time.
- Tactical evaluation involves analyzing the level of financial security in terms of capital and assets, credit and investment, currency security assessing the safe level of income and expenditure of the bank.
- Strategic evaluation involves calculating the integral index of the level of bank's financial security on the basis of versatile analysis of its indicators.

We believe that express (prompt) assessment of financial security of the bank deals with urgent actions directed to overcome uncontrolled factors caused by the external environment adjusting the bank's internal control factors. It should be mentioned that analyzing the main approaches to the assessment of bank's financial security levels we can classify them according to the methodological areas and types of assessment on the basis of some typical similarities:

- Approaches based on economic standards of banks' activity as the main criteria for assessing financial security of banks (express evaluation, tactical evaluation).
- Approaches based on indicators of banks' financial performance (express evaluation, tactical evaluation).
- Approaches based on economic and mathematical modeling (strategic evaluation).
- Approaches based on expert judgment techniques (tactical rating evaluation). Thus, the first two approaches can be used for prompt assessment of financial security. Besides, we can indicate that financial health and hence - the financial security of banks greatly depend on the availability of economic standards which regulate banking activities, their justification and total observance [12, p. 170].

While considering normative requirements, it is necessary to remember that normative requirements of the National Bank have a very general nature and describe work

of an average bank. Thus, depending on the type of a particular bank and its characteristics, these normative requirements have to be more flexible and cannot be limited to requirements defined by the National Bank only. Approaches to evaluating banks and their activity shall directly depend on market share of a particular banking institution, types of banking activity, number of its clients etc.

In order to prevent possible critical situations at the very beginning as well as identify their triggers, it is necessary to rely on complex approach to evaluating the levels of bank's financial security. It is to be based on general analysis of banking activity, meeting normative economic requirements by a banking institution and its overall financial performance. Such complex approach enables the choice of appropriate levers and tools to neutralize potential threats in activity of a banking institution. Besides, this approach to evaluating the levels of financial security of a bank represents a bundle of qualitative and quantitative analysis, thus, enabling an analyst-manager to get a holistic and clear idea of banking activity, its rating as well as define potential threats to financial security.

Herby, this approach has an indicative nature, which means it is necessary to choose particular indicators (economic and financial) which describe financial security based on comparative analysis of the defined indicators with their margin (normative) values. These indicators include various aspects of bank's financial performance and assess it according to various types of banking activity. Threshold values of indicators are represented by margin (normative) values. If they are not considered properly, this can lead to negative consequences or trends (potential threats) in terms of financial stability and security of a banking institution.

Although indicators are compulsory and indispensable elements which have to be considered while organizing smooth banking activity, standardized set of indicators for estimating bank's financial security is not yet developed. Definitely, the nature of bank's activity has its peculiarities and has an impact on selecting indicators and their margin values for estimation bank's financial security.

Analysis of available indicators indicates that the problem of evaluating bank's financial security has several dimensions and is not limited to the choice of particular indicators but also requires defining the most significant ones for measuring bank's financial security. Consequently, it is necessary to develop a system for selecting these indicators and defining their values.

In this respect it is worth considering the system for selecting indicators to evaluate bank's financial security developed in [13]. The system relies on the following principles:

- Measurability principle: the indicator has quantitative nature and thus its value can be measured in absolute or relative terms. Moreover, indicator values are to be available for the researcher (e.g. represented in banking reports).
- Predictability principle: further dynamics of an indicator is subject to prediction. This principle is important due to the fact that management of any process is to be predicted in some way.

- Principle of importance: any indicator is to be significant for analyzing banking activity and represent its quantitative parameters.

Evaluation of financial security of a bank can be described as dynamic process (it is changeable, can be modernized due to various factors etc.). Nevertheless, it is function of a lever for improving banking activity is permanently increasing. Due to these facts and results of scientific research [7; 10; 13; 14; 15; 16] on defining indicators for evaluating bank's financial security, it is possible to outline the following groups of indicators:

#### 1) *Capital adequacy.*

##### a) *Normative requirements of the National Bank.*

- Normative amount of minimal regulatory capital (N1), minimal amount of 200 mln UAH (if the bank had a banking license before 11 July 2014 is to be 200 mln UAH; 300 mln UAH – after 11.07.2020; 400 mln UAH – after 11.07.2022; 500 mln UAH – after 11.07.2024).
- Normative adequacy of regulatory capital (N2), represents a ratio of bank's regulatory capital to balance total of bank's assets and off-balance liabilities (normative value is greater than or equal to 0.01).
- Normative adequacy of core capital (N3) which is defined as a ratio bank's main capital to the amount of its assets and off-balance sheets, which are multiplied by corresponding quotients of credit risks (normative value is greater than or equal to 0.07).

##### b) *Financial indicators.*

- Quotient of own banking capital concentration. It is defined as a ratio of bank's own capital to its debits (optimal value is greater than or equal to 0.1).
- Reliability quotient is the ratio of bank's regulatory capital to its liabilities (optimal value is between 0.25 and 0.3).
- Financial leverage quotient is a ratio of bank's own capital to its liabilities (optimal value 1:20).
- Ratio quotient between bank's own capital and liabilities which is defined as ratio of bank's liabilities to bank's own capital (optimal value is between 0.15 and 0.2).
- Ratio quotient of bank's own capital to attracted funds (optimal value is greater than or equal to 0.05).
- Quotient of statutory capital concentration in bank's own capital. It is determined as a ratio of statutory capital to bank's own capital (optimal value is between 0.15 and 0.5).

#### 2) *Indicators of bank's liquidity.*

##### a) *Normative requirements of the National Bank.*

- Normative of immediate liquidity (N4). It is defined as a ratio of high-liquidity assets to current bank's liabilities (normative value is greater than or equal to 0.2).
- Normative of current liquidity (N5). It is defined as a ratio of bank assets with repayment period within

31 days to bank's liabilities with similar repayment periods (normative value is greater than or equal to 0.4).

- Normative of short-term liquidity (N6). It is defined as a ratio of bank's assets to its liabilities with repayment period within one year (normative value is greater than or equal to 0.6).

*b) Financial indicators.*

- Concentration quotient of high-liquidity funds in the general structure of net assets (any growth of this indicator value is considered positive).
- Quotient of high-liquidity funds and liabilities balance (any growth of this indicator value is considered positive).
- Quotient of high-liquidity funds and interest repayment balance (optimal value is between 0.15 and 0.2).
- Quotient of loans and attracted deposits ratio balance (optimal value is between 0.17 and 0.8).

*3) Profitability indicators.*

*a) Profitability of bank's statutory capital* – is measured as a ratio of net profit to bank's statutory capital.

*b) Profitability of net assets* – is calculated as a ratio of bank's net profits to its net assets.

*c) Income profitability* – is calculated as a ratio of bank's net profits to taxation indexes of overall bank's income.

*d) Capital profitability is calculated* as a ratio of bank's net profit to annual (monthly) average size of its capital.

*e) Assets profitability is a ratio of bank's net profit to annual (monthly) average size of its assets.*

*f) Net interest margin.* This indicator is defined as a ratio of difference between interest income and interest losses of a bank to annual (monthly) average of bank's assets.

*4) Qualitative assets indicators.*

*a) Normative requirements of the National Bank.*

- Normative of maximum credit risk as for a single counterpart (N7). The indicator is measured as a ratio of total bank requirements and financial liabilities to the counterpart to bank's regulatory capital (normative value is less than or equal to 25).
- Normative of high credit risks (N8). The indicator represents a ratio of total credit risks in relation to a particular counterpart (or a group of counterparts) to bank's regulatory capital (normative value is less than or equal to 8-fold size of bank's regulatory capital).
- Normative of maximum possible credit risk of operations with bank's counterparts (N9). The indicator is determined as a ratio of total bank requirements and bank's financial liabilities in relation to its counterparts to the general amount of capital of the 1<sup>st</sup> and 2<sup>nd</sup> levels reduced by the amount of assets value defined by the National Bank (normative value is less than or equal to 25%).

*b) Financial indicators.*

- Quotient of bank's general credit activity. The indicator represents a ratio of bank's credit portfolio to its assets balance (any increase of this indicator value is considered positive).
- Level of assets with increased risk. The indicator is a ratio of profit-generating bank assets to its general assets (any increase of this indicator value is considered positive).
- Quotient of distressed loans concentration in bank's net assets (any decrease of this indicator value is considered positive).
- Quotient of overdue loans (any decrease of this indicator value is considered positive).
- Quotient of covering loans with bank's own capital. the indicator is determined as a ratio of bank's credit portfolio to the amount of bank's own capital (optimal value is greater than or equal to 0.05).

Each of the above-mentioned indicators reflects absolute or relative value of bank's financial security. They contribute to defining dynamics of further development trends. Their thorough and complex evaluation provide express assessment of bank's financial security.

*B. Development of tools for express evaluation of bank's financial security*

Calculation of groups of indicators characterizing the financial security of a bank made it possible to identify separate trends by each group of indicators. To define the level of the financial security of a banking institution concretely and efficiently, their zone ranking by dynamics of positive (negative) trends of changes in indicators of relevant groups is suggested. Appropriateness of such ranking is based on the statement claiming that the level of financial security is identified by changes in value of key indicators of financial security.

Due to singling out stimulant and destimulant indicators, dynamics of values of each stimulant indicator is regarded as positive if there is the trend for their growth. The trend for the growth of values of destimulant indicators over an analyzable period is regarded as negative.

In addition, possession by some indicators of normative-boundary values that are determined by normative instructional documents or scientifically grounded results of research conducted by economist-scientists are of great importance.

Correspondence of the actual level of a specific indicator to its normative-boundary value is outlined on the basis of such indicators in the first place (the value of an indicator is within regulated boundaries). With the mentioned correspondence, the dynamic trend is regarded as positive, and with the disparity it is regarded as negative.

Thus, the system of evaluated indicators makes it possible to alert and prevent danger. The highest level of security is achieved provided that the whole complex of indicators is within affordable boundaries of threshold limit values, and threshold limit values of one indicator are obtained without detriment to other indicators. Beyond threshold limit values of indicators a bank loses its ability to

resistance, dynamic self-development, competitiveness in internal and external markets and can even become an object of a takeover.

Everything mentioned above suggests a conclusion that summarized characteristics of the dynamics of actual values of indicators of financial security makes it possible to outline indirectly certain boundaries of zones of its levels, i. e. to evaluate it quickly and efficiently. The following zones of the levels of the financial security of a bank are defined depending on normative-boundary values of indicators or a positive or negative trend of their dynamics:

- Zone of the high level of the financial security characterized by stable and/or growing positive trends of dynamics by all indicators of estimation of the financial security of a bank (values of all indicators in evaluation groups are 100% positive with a stable and/or growing factual trend of their dynamics).
- Zone of the normal level of the financial security characterized by less than 50 % of indicators with negative trends of the dynamics of their values in the aggregate of evaluation indicators in the groups of evaluation of the financial security of a bank.
- Zone of the low level of the financial security characterized by the equal numbers of evaluation indicators with positive and negative trends of the dynamics of their values in groups of evaluation of the financial security of a bank (indicators of a group contain 50% of indicators with the positive trends of dynamics, and 50% of indicators with the negative trends of dynamics of their values).
- Zone of the critical level of the financial security characterized by predominance of indicators with negative trends of dynamics of their values (more than 50 %) in the aggregate of evaluation indicators in the groups of evaluation of the financial security of a bank.
- Zone of the catastrophic level of the financial security characterized by stable and/or growing negative trends of dynamics by all indicators of the financial security of a bank (values of indicators in evaluation groups are entirely characterized by negative and/or negatively growing trends of dynamics of their values).

Thus, zone ranking of the levels of the financial security of a bank defines the extent of current and potential abilities of a bank to ensure its operation (existence) and protection of its legal financial interests offering resistance to internal and external threats for the purpose of stable development currently and in the future.

Suggested system of indicators of efficient and quick evaluation of the financial security of banking activity was tested on the data of financial statement of the joint-stock company “OTP Bank” [17] over the period from 2015 to 2017.

Appropriate normative and finance indicators were calculated (table. 1), their correspondence to normative (optimal) values was analyzed and positive or negative trends of the groups of the indicators reflecting the level of the financial security of this bank were revealed.

TABLE I. INDICATORS OF PROMPT EXPRESS EVALUATION OF FINANCIAL SECURITY OF OTP BANK JSC PERIOD OF 2015-2017

Indicators	2015	2016	2017
<b>1) Bank's Capital Adequacy</b>			
<b>a) National Bank Normative Requirements</b>			
normative amount of minimal regulatory capital, mln, UAH	1646.2	2560.9	3642.4
normative adequacy of regulatory capital	9.1	12.3	15.66
normative adequacy of main capital <sup>a</sup>	-	-	-
<b>b) Financial indicators</b>			
quotient of own banking capital concentration	0.08	0.10	0.12
reliability quotient	0.13	0.11	0.14
ratio of bank's own capital to its liabilities	0.08	0.11	0.13
ratio of bank's own capital to attracted funds	0.09	0.12	0.14
financial leverage quotient	11.85	8.69	7.46
quotient of statutory capital concentration in bank's own capital	2.23	2.41	1.75
<b>2) Indicators of Bank's Liquidity</b>			
<b>a) Norms are a national bank of Ukraine</b>			
normative of immediate liquidity	47.93	48.41	53.78
normative of current liquidity	57.32	53.3	68.4
normative of short-term liquidity	90.16	91.65	92.85
<b>b) Financial Indicators</b>			
concentration quotient of high-liquidity funds in the general structure of net assets	10.02	7.50	2.42
quotient of high-liquidity funds and liabilities balance	0.84	0.86	0.89
ratio of high-liquidity funds to interest repayment balance	0.38	0.61	0.36
ratio of loans to attracted deposits	0.84	0.79	0.83
<b>3) Profitability Indicators</b>			
profitability of bank's statutory capital, %	-172.9	17.53	20.14
profitability of net assets, %	-173.0	37.21	13.05
income profitability, %	-81.77	94.98	34.87
capital profitability, %	-34.9	43.11	26.02
assets profitability, %	-63.2	42.36	35.7
net interest margin, %	-12.0	10.2	8.2
<b>4) Qualitative Assets Indicators</b>			
<b>a) Norms are a national bank of Ukraine</b>			
normative of maximum credit risk as for a single counterpart	25.01	23.31	15.18
normative of high credit risks	61.15	60.04	15.18
normative of maximum possible credit risk of operations with bank's counterparts	25.10	22.78	15.22
<b>b) Financial Indicators</b>			
quotient of bank's general credit activity	0.12	0.10	0.06
level of assets with increased risk	0.89	0.86	0.59
quotient of distressed loans concentration in bank's net assets	0.86	0.74	0.26
quotient of overdue loans in bank's credit portfolio	0.78	0.53	0.41
quotient of covering loans with bank's own capital	1.52	0.98	0.67

<sup>a</sup>. Reckons from January 1, 2019.

Source: Author's development based on sources [17]; [18]

Results of express assessment of financial security of joint-stock company “OTP Bank” indicate that in 2017 reached the Zone of Normal Level of Financial Security (fig.1).

Indicators Groups	Indicators of Bank's Capital Sufficiency	Indicators of Bank Liquidity	Profitability Indicators	Indicators of Bank's Assets Quality
Years				
2015	Zone of Critical Level of Financial Security	Zone of Normal Level of Financial Security	Zone of Catastrophic Level of Financial Security	Zone of Normal Level of Financial Security
2016	Zone of Low Level of Financial Security	Zone of Normal Level of Financial Security	Zone of High Level of Financial Security	Zone of Normal Level of Financial Security
2017	Zone of Normal Level of Financial Security	Zone of Normal Level of Financial Security	Zone of High Level of Financial Security	Zone of Normal Level of Financial Security

Fig. 1. Zone ranging of financial security levels of OTP Bank JSC period of 2015-2017

This trend was generated by the bank's complying all standards included to the groups of indicators of the financial security of the bank, diminishing the part of overdue credit indebtedness by 33.5 % in 2017 comparing to 2016, increase in quick assets by 28.8 %, transition from unprofitable to profitable activities. In consideration of the normal level of the financial security of the joint-stock company "OTP Bank", achieving the essential level of financial independence and in context of interrelation of the bank with macroeconomic and microeconomic threats to operation is regarded as the main task of rise and/or preservation of the sufficient level of the financial security.

In practice, declared goals may be achieved on conditions that the system of the financial security of the joint-stock company "OTP Bank" is formed, the bank interacts with the systems of the financial security at meso- and macroeconomic levels, a kind of threat is identified timely, preventive measures are adequate, the impact of revealed threats on the financial result of the bank's operation and the main objective of its financial security is minimized by means of strategic, tactical and operative management. Strategic management makes it possible to maximize the market value of the bank.

Tactical management stipulates minimization of financial risks and formation of the optimum structure of the capital. Operative management ensures optimization of the movement of cash flows of the bank and maximization of the financial result of its activities.

#### IV. CONCLUSION

The article outlines a complex (indicator) approach to express evaluation of the levels of financial security of a bank based on analysis of its economic standards and key financial ratios in order to find causes and prevent crisis situation at a banking institution at the initial stages. This analysis promotes efficient management of bank's financial security activating financial control directed to the achievement of the highest level of financial productivity of the bank, minimizing threats in the process of achieving financial interests both in the current period and in the long-term perspective. The dynamics trends of the suggested indicators

of financial security of banking activities solve the problem of its evaluation in such way:

- Identify the level of financial security of an individual bank, attributing it to the appropriate type of financial security.
- Comparing the results of zonal ranking of financial security levels to other banks.
- Comparing the results of zonal ranking of financial security levels of a particular bank to a similar levels of financial security of the general banking system.

A suggested indicative approach of express-assessment of financial security of banking activities provides the bank with necessary tools for early detection of its crisis development, investigating the main determining factors. It helps to prevent possible crisis situation at a banking institution providing the high level of financial security of banking activity as well.

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