IMPROVEMENT OF ASSESSMENT OF FINANCIAL STABILITY OF THE BANK

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1. Introduction

The banking system is an important component of a market economy, is crucial to forming and supporting a basic level of trust in society to the national currency unit and the state. During 2000-2007, the banking system of Ukraine has developed rapidly, improved its quantitative and qualitative characteristics that increased the competitiveness of Ukrainian banks. The activities of banks in this period was characterized by improvement in asset quality, capital base, capacity, attraction of deposits, increased efficiency, which is a sign of sufficient stability.

The year 2008 marked a watershed in the development of the banking system of Ukraine. If the first three quarters were a period of rapid growth and expansion, the fourth quarter was the time of the collapse of the financial sector.

Before the crisis, the banking system of Ukraine has developed rapidly. The number of operating banks had reached 184. During the year there was a strong increase their assets. Ten largest banks controlled nearly half of all assets. However there was a trend to a sharp increase in lending, the liberalization of access to credit. The size of the deposit portfolio also showed a positive trend, rising by almost 30%. Along with this there is an active expansion of foreign capital into the banking sector of the country. The share of foreign banks in the structure of assets reached 50%. It was the banking sector that received 43% of foreign investments into Ukrainian economy in 2008.

Since early September 2008 deteriorating macroeconomic situation began in Ukraine. In the IV quarter financial crisis the country embraced economic and the caused by global trends and structural weaknesses of the Ukrainian economy. Sharp depreciation of the hryvnia, which in the last months of 2008 fell by 60% caused the catastrophic economic deterioration [12] .

These facts shaken confidence in the banking system, the process of outflow of deposits from banks. Started at the same time the liquidity of banks decreased due to reduced access to foreign exchange reserves. Taking into consideration the fact that, most loans were issued in foreign currency before the crisis, the devaluation of the hryvnia caused the payment ability of borrowers. A number of banks were facing the threat of default.

In this situation, the tendency to change the ownership structure and the active intervention of the NBU in fiscal policy turned out. In 2009, the financial crisis continued.

In 2010, Ukraine's economy continued its gradual emergence from the crisis, but it is early to speak about the final overcoming the symptoms of recession. Positive background for the revival of the financial system is stable hryvnia exchange rate and the absence of mass bankruptcies of banks (there is a decision on the

Elimination of only 13). A negative factor is a significant number of problem loans and almost complete stagnation in lending. Assets of the banks are gradually increasing, growth in deposits is going on (most of them is made in national currency). Despite signs of improvement symptoms, situation in banking system is still difficult. The loss of 13.027 bln. by the Ukrainian banks in 2010 may point to some problems in banking sector.

For September 2011, the State Registry have registered 198 Ukrainian banks. During the first 9 months of this year none of the banks was excluded. In the process of liquidation for September 1, 2011 20 banks in Ukraine are in the process of liquidated.

Losts of banks continue to exceed revenues. During the first 9 months of this year, like in the previous year negative financial results were fixed - "minus" 4.553 bln. That is much more less than in January 2011 (where "minus" was 13.027 billion . UAH.) and for January 2010 (the "minus" was 38.45 bln.) [12].

Therefore, assessing the financial stability of banks is quite significant and has its practical value.

2. Evaluation methods and indicators of financial stability

The importance of was issues related to assessing the financial stability of the Ukrainian banks, resulted in sustained attention of the scientific community. An important contribution to the solution of this is done by many scientists [1, 3, 7, 14]. For appropriate analysis the following methods were suggested:
- graphic display of both indicators of time series data and calculate descriptive statistics of characteristics of these series [13, 15];
- graphic analysis of the financial stability of banks using the methods of analytic geometry [11, 14];
- application of econometric modeling [1, 16], etc.

In our opinion, the use of different methods for assessing the financial stability of banks is valid.

Possible variability of the analyzed indicators of financial stability of banks and do not contribute to the multiplicity of a single definition of financial stability assessment of the bank, which requires special attention to finding new approaches to this assessment. An important issue is to find a generalized approach that can be applied both in terms of various indicators of financial stability, bank, and combine in a single assessment. That is the main goal of this work.

The development of tools for analyzing the stability and functioning of an individual bank, and their combination allows to develop a methodical approach that will allow you to define a generalized assessment of the financial stability of the studied subjects of management. Such an approach should be considered in accordance with the performance of banking activities that characterize the development of either a individual bank or a set of banks. At first glance, this system of indicators seems general, but in this case, it is necessary to take into account that

not all indicators of a group of banks can be used to summarize the activities of a individual bank and vice versa. That is, you need to consider separate indicators in the development of a methodological approach for the definition of a generalized assessment of the financial stability of one bank or a set of banks.

It is desirable to include, for example, the internal indicators of bank development into indicators of sustainable development of an individual bank. It is necessary to estimate the financial stability of the bank based on the completeness of relevant indicators and a quality of a proposed assessment.

As to the completeness of the system of indicators definition, which would give a generalized assessment of the bank stability, it is necessary to emphasize the following:

1. the determination of completeness of the business entity performance evaluating is a difficult task, which is largely determined by the possible generalization of the varieties of stable bank development and plenty of indicators, which are used in carrying out such an analysis. Taking into account the fact that banking can be defined as a set of interrelated junctions of its main varieties, as one of the criteria for generalized estimate, we can choose the indicators that are interrelated. For example, if we consider the functioning of the bank as whole, interrelated junctions of the main activities are resources attraction and their proper placement. That is, it would be possible to choose the dynamics of the amount of provided loans and attracted deposits as a complete system of analysis indicators to determine a generalized assessment of bank stability. The complement system may not be taking into account risks of credit and providing adequate volume of deposits. The corresponding values of risks include the amount of loans and borrowed resources. If considered separately the assessment of bank stability in terms of the above-mentioned risks, the system can also be defined as the complete. As a complete system of indicators for the analysis of financial stability the bank can consider the structure of credits granted to the terms of the necessary resources. In this case, it makes it possible to identify such indicators as the volume of loans on real estate and volume of long-term deposits, highly liquid assets and the volume of on-demand deposits, etc. Thus, as a complete system of indicators we mean a set of indicators that takes into account the most important aspects of bank activities in terms of their types and directions. Such a system of indicators can be replaced by another, more advanced, that does not disprove the completeness of the chosen system of indicators, but rather defines its various key aspects and shows the overall coherence of a complete system of indicators;

2. it is necessary to take into account that the choice of indicators to assess the financial stability of banks should contribute to the quality of such assessment. That is, the chosen system of indicators, the assessment determined with their help, and the chosen directions of the impact on the bank should not as a result worsen the marked development stability.

If we talk about the quality of assessment of the bank stability, it should be noted that it is quite hard to define it in terms of continuity of a stable development of the bank. This is due to the fact that the financial stability of any business entity can

have variable trends during the whole period of existence of such a subject. The issue of quality assessment of sustainable development of the bank, the problem of implementing these methical approach objectives is the ability to review a generalized assessment as a means of analyzing the stable operation of the bank.

Thus, the economic focus of assessing the financial stability of the bank should display qualitative changes in the bank development, a tool for comparing the functioning of the bank, both in terms of different time intervals, and from the point of view of selected for assessment determination of indicators of banking activities. Assessing the financial stability of the bank should not only consider the generalized dynamics of each of the selected indicators of performance of banking activities, but also the dynamics of these indicators relative to each other.

The practicability of such definition is linked to the concept of financial stability of the bank, according to which the main point in the consideration of the stability is the admissible variation of the trend line of the chosen indicator over time, which determines the balanced state of the bank, and summarizes the quantitative values of such stability. Thus, a generalized value of the bank stable development in the terms of selected indicator system is an allowed mutual variation of such indicators over time.

Thus, the assessment of bank stability can not be defined as the average measure (which emphasizes, for example, O. V. Halyts (О. В. Галиць) [4]), because such an assessment should consider both the qualitative component of changes in the test indicator of banking activity, and quantitative one. Proper assessment can not be regarded as a value that is within certain limits (for example, the researches of Ukrainian scientists: V. V. Glushchenko (В.В. Глущенко), M. M. Pereshibkin (М.М. Перешибкін), V.S. Serba (В.С. Серба), O.V. Krukhmal' (О.В. Крухмаль) [5, 8]) because such an assessment depends largely on the bank development conditions.

3. Nonparametric methods as the basis of analysis of economic processes

To create a methical approach to assess the bank financial stability it is appropriate to use nonparametric methods of statistical analysis, which enable us to generalize the dynamics of the individual sets of data samples [10]. Among these approaches a special attention should be paid to Wilcoxon test, which allows you to analyze changes in the analyzed time-series data on the basis of grades and their total values between the corresponding values of the differences of the studied data sets, taken at the end of the module. The greater the value of a Wilcoxon test, the more variety there is analyzed the data series, and vice versa - the smaller are the values of Wilcoxon test, the more we can assume the mutual dynamics of the studied series [10]. That change of signs in the test data sets trends and is a sign of sustainable development, which appears in the values of the corresponding ranks for Wilcoxon test, and their sum total determines the degree of stability in terms of sustainable development of the bank.

If we consider the absolute values of the analyzed data sets, using the Wilcoxon test may give the opposite result. So let's get on the absolute values of the analyzed data sets to their relative performance. As such a measure is advisable to choose the rate of change of absolute values of the studied parameters. The need for such a transition is associated primarily with the stability of the bank and substantial consideration, which can be determined by the rate of change of the studied parameters.

We can assume that the definition of quality is the evaluation of financial stability of the bank provides a preliminary analysis of the rate of change of the analyzed system of indicators (Fig. 1) [6].

Assessing of the banks financial stability by using the Wilcoxon test may be the basis for a comparative analysis of different banks. The application of this assessment is based on the fact that, firstly, the relative values of the indicators of banking activities are analyzed and, secondly, the value of the Wilcoxon test itself is measured and the relative, with the result that gives an independent assessment.

Thus, the proposed approach to assessing the bank financial stability allows the analysis of the effects of the various components of the banking business. It can be argued that qualitative assessment was obtained. At the same time such an estimate can be made, both in terms of different periods of operation and development of the bank and in terms of a set of possible indicators on the definition of a bank's activities at the same time intervals.

4. General approaches to assessing the financial stability of the bank

The question remains open concerning the definition of a generalized estimates by using different indicators of financial stability of the bank. If such indicators are relatively few, their evaluation can be presented in two or even three-dimensional space. Then the best estimate will be that one which has the smallest distance to the start, in this case, the two-dimensional or three-dimensional coordinates of the analyzed data space.

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│        The choice of indicators to assess the fina021cial stability of bank │
└─────────────────────────────────────────────────────────────────────┘
                                  │
                                  ▼
┌─────────────────────────────────────────────────────────────────────┐
│   The calculation of the rate of change of the first indicator (RCFI) and the second │
│           indicator (RCSI) of the chosen system of indicators         │
└─────────────────────────────────────────────────────────────────────┘
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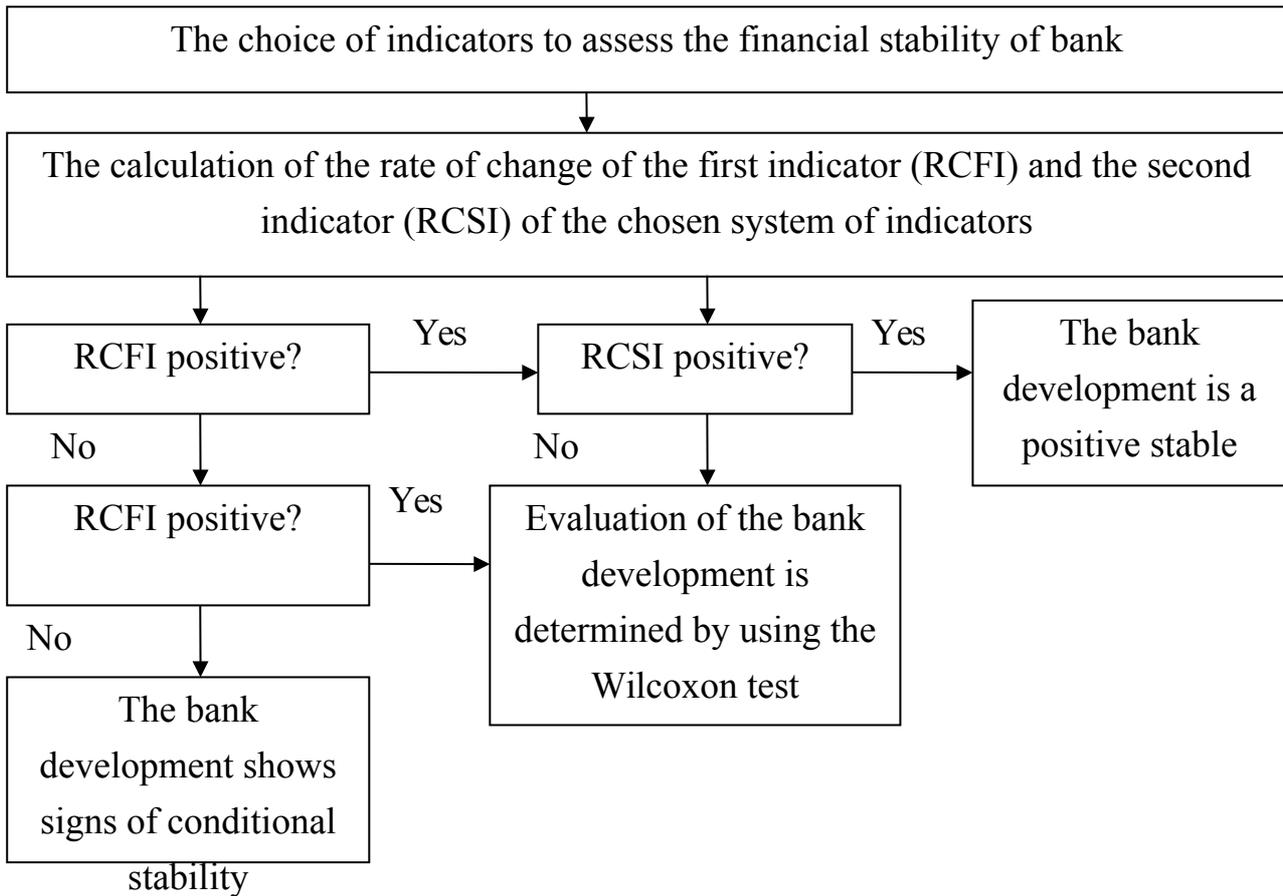

Fig. 1. The rate of change of banking activity indicators (as a component of quality assessment of the financial stability of the bank)

A generalized assessment of the bank financial stability is calculated as the Euclidean distance indicated by the points (according to the selected indicators system) in the multidimensional space of the studied indicators of banking activities by the beginning of the coordinate system of the analyzed data space, where each of the coordinate components of this point is determined by using the Wilcoxon test:

$$UO = \sqrt{(kr1)^2 + (kr2)^2 + ... + (krn)^2} , \qquad (1)$$

where UO - a generalized assessment of the financial stability of the bank;
$kr1, kr2,..., krn$ - Wilcoxon test for individual assessment of bank financial stability of the in terms chosen set of indicators concerning bank activities.

The general scheme of this approach on the definition of assessment of bank financial stability can be represented as in Fig. 2 [6].

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│         The system of indicators for the bank financial stability   │
│                      assessment chosen                              │
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│ 2. The rate of change in the dynamics of definite indicators of     │
│    banking activity out of selected system of indicators is calculated│
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│    3. The qualitative component of the bank financial stability     │
│                      assessment is analyze                          │
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│ 4. The period and the complexity of (according the number of indicator)│
│       the bank financial stability assessment are determined        │
└─────────────────────────────────────────────────────────────────────┘
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5. Short-term period — Yes → 6. The complexity of assessing — High

5. Short-term period — No → 8. The need for an updated assessment

6. The complexity of assessing — The low → 7. Assessment is criterion Wilcoxon test value

8. The need for an updated assessment — No → 7. Assessment is criterion Wilcoxon test value

8. The need for an updated assessment — Yes → 9. A set of values of Wilcoxon test value according to definite indicators out of the selected system of indicators is determined

9. A set of values of Wilcoxon test value according to definite indicators out of the selected system of indicators is determined

10. Calculated total assessment of the bank financial stability as the Euclidean distance in multidimensional space is calculated
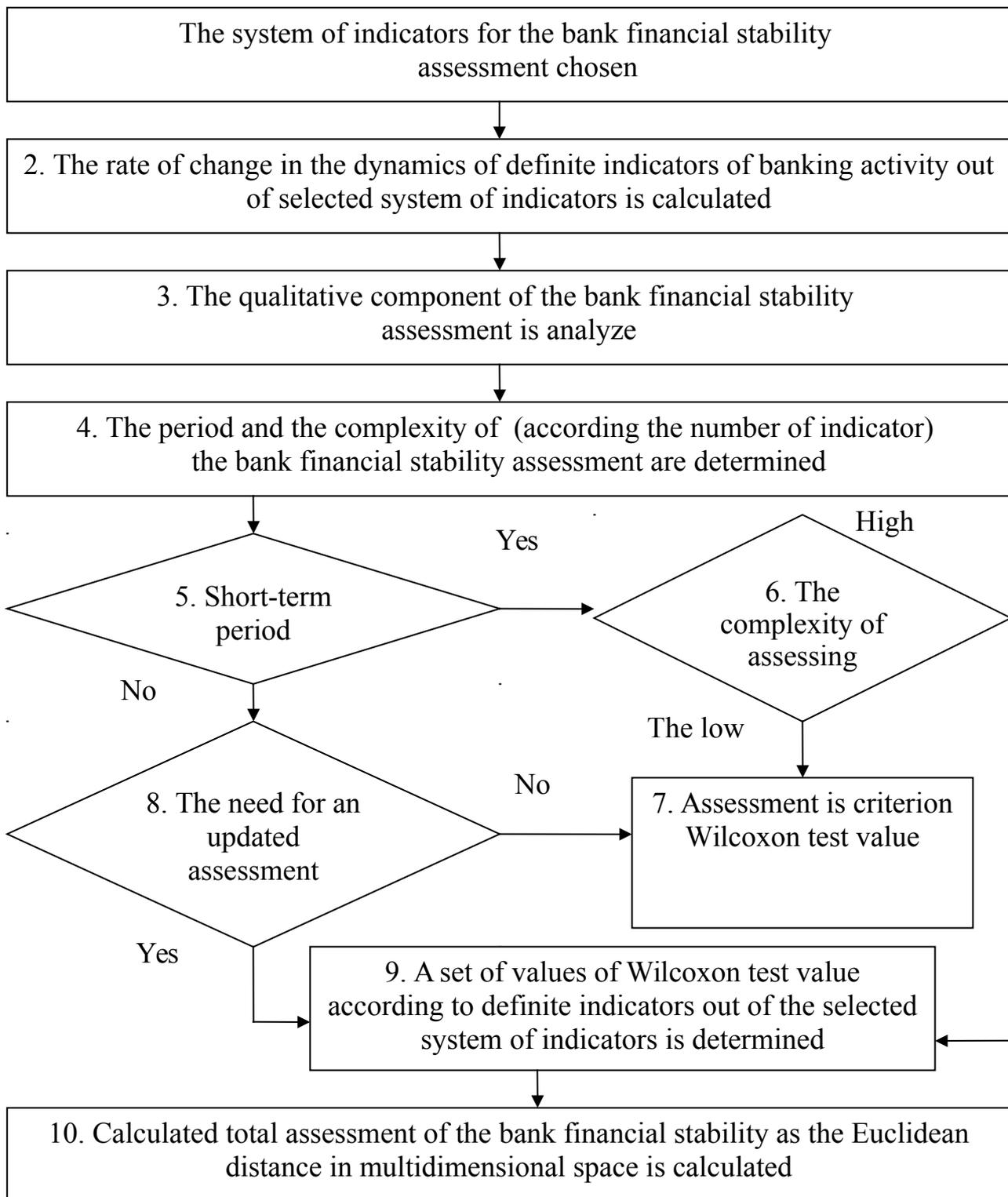
Fig. 2. The general scheme of the bank financial stability assessing

The proposed approach concerning estimate the bank financial stability accounts various aspects of the banking by choosing indicators system and can be used for its synthesis in terms of different time intervals. This approach allows us to

analyze the structural influence of individual components of the chosen indicators system with respect to the stable functioning of the bank. The distinguish feature of the proposed approach is to combine graphical and analytical approaches to determining of the bank financial stability. At the same, analytical approaches include both non-parametric statistical techniques and methods of determining the final value of the integral estimates, based on the consideration of the Euclidean distance in multidimensional space. It allows to take into account not only multiple types in the generalized estimation of the bank financial stability, and to provide a balanced assessment, which is suitable for comparative analysis.

5. Conclusion

The proposed approach can be considered as a basis for a comparative analysis of developmental stability as an individual bank as set of banks. This will determine objectively different approaches to overcome the crisis in the banking sphere and the appropriateness of these or other instruments of influence in order to achieve sustainable banks development. This approach has found practical application in the Ukrainian banking. As a further studies can determine the direction of a comparative analysis of the functioning of banks, using the proposed approach.

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