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Statistical Assessment of the Banks' Competitiveness at the Financial Market: Theoretical and Methodological Aspect

The article is devoted to the vital problem of substantiating theoretical and methodological aspects of statistical assessment of the banks' competitiveness at the financial market. The growing market competition makes the bankers chose competition methods by relating their business success to the business performance of their competitors, investors, corporate and private clients. The bank product competitiveness is assessed by comparing the economic parameters of an analyzed service with the benchmarking parameters, by group of parameters. A method based on the theory of effective competition is proposed for use as an option of the assessment of the competitiveness of a commercial bank. It enables for applying a universal method that allows for computing the integral coefficient of the competitiveness of a commercial bank by estimating the most important criteria of its operation.

The assessment of the bank competitiveness has to include an analysis of the internal environment, covering quantitative and qualitative characteristics of its operation, and an analysis of external environment. The assessment involves differential and complex methods of assessment. The assessment of the internal environment includes a quantitative analysis of its financial position and a qualitative analysis of its image and competitiveness of its services. The method enables to produce the integral coefficient of competitiveness; it is based on the assessment of the internal and external environment of the banks that are main competitors, by computing a number of criteria. An analysis of the financial position of a bank is the central one, as it aims to produce a quantitative measure of the capacities promoting the development of a bank in future. The main advantage of the proposed method for the assessment of the competitiveness of a commercial bank is its feasibility, because it is based on data from published reports and results of market analyses. The comparative assessment of the operation of banks that are main competitors allows for quick and robust computation of each bank's position at the financial market, whereas the results of the analysis give good idea of their business conditions and allow for the dynamic assessment of the effectiveness of the national bank system.

Key words: *statistical assessment, bank's competitiveness, indicators of bank's competitiveness, economic parameters, theory of effective competition.*

The development of countries and regions is largely conditional on the existence and effective operation of the banking sector. The economic activity in industries, the performance of small and medium business, the increased real monetary incomes of the population are factor stimulating financial organizations to expand the scopes and range of client services, introduce advanced technologies, enhance the quality of bank services and competitiveness.

Scientific publications are mostly confined to emphasizing the need to introduce or improve statistical assessment of the banks' competitiveness at the financial market. But studies of problems involved in practical use of the statistical monitoring results for making decisions aimed at performance enhancement in banks are still lacking, which raises the importance of relevant themes at the current phase of the bank sector development in Ukraine [3; 8].

The article's objective is to highlight the theoretical and methodological aspect of the procedures of a statistical study of the banks' competitiveness.

The bank's competitiveness is determined by its capacities to operate in profit-making ways given the existence of a competitive market. The integrative index showing the effectiveness of utilization of all the categories of resources is formed by indicators of bank stability conditioned by the production and sales of competitive bank services. As bank services are homogenous, all the entities operating at financial markets have to put emphasis on tariff policies as a significant factor of the competition.

Various methods for assessment of the competitiveness of commercial banks can be found now. Most of them are based on enclosed and hardly accessible data, thus complicating considerably the assessment process. Yet, far from all of them are capable of highlighting the essential meaning of the competitiveness because of incomplete coverage of its criteria [1].

An analysis of one sector, most often the financial one, or an assessment of the bank operation with overlooking its qualitative characteristics obviously limits the practical significance of these methods when the assessment of the overall bank competitiveness is required. Studies of various approaches to the assessment of its criteria lead us to conclude that a single and commonly acceptable structure of bank's competitiveness indicators is yet to be built.

Due to the growing competition at the financial market, bankers have to associate their business success with business performance of their competitors, investors, corporate or private clients when deciding on the methods of competitive behavior. Although driven by different goals, all of them seek for high quality assessment of the bank competitiveness, which should include comparisons with main competitors.

The competitiveness can also be increased through the enhanced client services of banks, because a stable client base is a guarantee of the stable operation, and an efficient system for management of client feedback is capable to improve the quality of client services by 50%. Also, the competitiveness of a commercial bank as a financial intermediary between market actors is largely dependent on the socio-economic stability in a country. The assessment of the bank's competitiveness needs, therefore, cover the analysis of internal environment, including quantitative and qualitative parameters of its operation, and the analysis of the external environment.

It follows that a single accurate criterion for the competitiveness assessment cannot exist. Such integral indicator should cover absolute and relative ones; dynamic and static ones; objective and subjective ones. The competitiveness of a bank product should be assessed by comparing its parameters with benchmarking ones. This comparison should be made by group of economic parameters. Differential and complex methods of are used in the assessment.

The differential method for competitiveness assessment is based on the comparison of individual parameters of products in question and benchmarking ones. When a need is taken as the benchmark, the individual parameter of the competition should be computed by the formula:

$$k_{i_{(0)}} = \frac{A_i}{A_{i_{(0)}}} \cdot 100\%, \qquad (1)$$

where $k_{i(0)}$ denotes individual parametrical indicator of the competition, by i parameter $(i = 1, 2, ..., n)$; A_i denotes the value of i parameter for the product in question; $A_{i(0)}$ denotes the value of i parameter that needs to be achieved to have a need fully met.

In practices of banking the group indicator needs to be computed using benchmarking parameters, by the formula:

$$K_g = \sum_{i=1}^{n} k_{i(0)}, \qquad (2)$$

where K_g denotes the group indicator of competitiveness by benchmarking parameters.

It should be noted that if at least one of the individual indicators is equal to 0, i. e. a parameter does not conform to the obligatory norm, the group indicator will also be equal to 0, and a product will be classified as a non-competitive one.

The group indicator of competitiveness by economic parameters is computed by the formula:

$$K_{ge} = \sum_{i=1}^{n} k_{i_{(0)}} \cdot W_i, \qquad (3)$$

where K_{ge} denotes the group indicator of competitiveness by economic parameters; W_i denotes the weight of i parameter in the set of n economic parameters characterizing a need.

The value of this indicator measures the relevance of the bank service in question by the whole set of economic parameters. The weight of each economic parameter is defined by expert assessment.

The primary tasks involved in the above problems are related with building and feasibility assessment of an all-purpose method for computation of the integral coefficient of the commercial bank's competitiveness by assessing its key operation criteria.

As an option of the competitiveness assessment of a commercial bank, we offer a method based on the theory of effective competition, by which a bank will be the most competitive if it has the highest criteria of quality of assets and liabilities, sufficiency of capital, profitability, image and competitiveness of its services compared with its main competitors operating in the competitive environment similar to all the actors of the financial market. Built on the assessment of internal and external environments of banks that are main competitors by computing a number of criteria, this method allows to derive the integral coefficient of competitiveness.

The components of the commercial bank's competitiveness reflect quantitative and qualitative aspects of its operation and key internal and external factors of its success, which positive change signals the increasing stability of its competitive position at the financial market.

The assessment of the bank's internal environment includes analysis of quantitative data on its financial position and quality analysis of its image and competitiveness of its services. The analysis of the bank's financial position is central one, as it aims to produce a quantitative measure of the capacity for future development of a bank. The analysis should be made using the computed indicators combined by the assessment criteria:

– quality of assets and liabilities;
– sufficiency of capital;
– profitability of operation.

The nomenclature of indicators by each criterion and their role in the quantitative assessment of the capacities are shown in Table 1 (by data from [6]).

Table 1

Indicator The role in assessment

Indicator	The role in assessment
Ratio of regulatory capital to risk-weighted assets	The indicator measures the sufficiency of capital in deposit institutions, which determines the capacity of financial institutions to counteract shocks
Ratio of regulatory capital of 1 level to risk-weighted assets	The indicator measures the sufficiency of capital in deposit institutions on the concept of normative capital of the Basel Committee on Banking Supervision (according to the principles of Basel I and Basel II)
Ratio of non-valid assets without inclusion of reserves to capital	The indicator measures the sufficiency of capital; an important indicator of the capacity of bank capital to cover losses caused by bad loans
Ratio of non-valid assets to total gross loans	The indicator is used as a proxy to assess the quality of assets in a credit portfolio
Profit rate on assets	The indicator is designed for assessment of the bank profitability (the efficiency of assets)
Profit rate on capital	The indicator is designed for assessment of the capital efficiency in banks
Ratio of liquid assets to total assets	The indicator reflects inconsistencies between the liquid assets and liabilities and gives an idea of how deposit corporations can deal with the liquidity problems. The liquidity level demonstrates the capacity of deposit corporations to counteract shocks
Ratio of liquid assets short-term liabilities	The indicator reflects inconsistencies between the liquid assets and liabilities and gives an idea of how deposit corporations can deal with the liquidity problems in short terms
Ratio of net open position in foreign currency to capital	The indicator reflects the sensibility of banks to market risks specific to capital. It shows the inconsistency between currency position on the side of assets and liabilities (the open position), allowing to assess the potential vulnerability of the sector of deposit corporations specific to capital, caused by the dynamics (fluctuations) of currency exchange rate

The analysis of abovementioned indicators should be performed dynamically, for five periods or longer.

Table 2 (by data from [2; 6]) shows the results of their assessment.

Table 2

Results of the Assessment of the Commercial Bank's Competitiveness
(Data for III Quarter of Respective Years)

Indicator / Year	2013	2014	2015	2016	2017	2015
Ratio of regulatory capital to risk-weighted assets	17,92	15,96	7,09	14,22	15,27	60354,9
Ratio of regulatory capital of 1 level to risk-weighted assets	13,50	11,61	3,48	10,38	11,53	41507,9
Ratio of non-valid assets without inclusion of reserves to capital	31,80	54,98	84,18	91,60	82,25	68,8
Ratio of non-valid assets to total gross loans	14,02	16,73	25,58	31,01	56,44	32541,3
Profit rate on assets	0,35	−1,25	−6,88	−1,11	−0,05	53,9
Profit rate on capital	2,32	−9,03	−80,26	−10,76	−0,42	7840,5
Ratio of liquid assets to total assets	22,81	24,31	29,92	39,36	53,16	13,0
Ratio of liquid assets short-term liabilities	88,27	86,75	83,80	88,41	97,47	10633,1
Ratio of net open position in foreign currency to capital	9,01	23,67	95,22	118,04	89,08	17,6

The qualitative analysis the bank's competitive position is built on the assessment of two criteria: the image and the competitiveness of services. The image is a key competitive advantage of a bank, enabling for its success in present and future. Banks may have various visions and approaches to creating and maintaining the image, but each bank obviously seeks for the reputation of reliable, strong and effective business partner. It follows that the image assessment is a foremost phase in the analysis of the bank competition.

The image assessment by the set of indicators is performed by an expert group who process data about a bank by an established scale. After that the indicators are ranked by expert method, to derive the coefficient of significance for each bank.

The assessment of the competitiveness of bank services is the key phase in the analysis of the bank operation, as its results are related with financial performance and image. The competitiveness of services is determined by two parameters: quality and price of services. Their relationship is assessed by comparing the competitive advantages of banks that are main competitors as providers of high quality services with optimized prices. This assessment is based on the computation of quality and price coefficients using respective indicators and building the function of "price – quality" correlation by the least square method. Its results are coefficients of the competitiveness by bank activity: lending, cash and settlement service, securities. The sum of the coefficients constitutes the overall index of the competitiveness of bank's services, providing a criterion for the assessment of the internal environment in each bank [5].

At the same time, the bank's competitiveness depends on not only its internal operation but on the external factors as well, which may have extremely negative effects for all the economic sectors, especially for banks. The strongest ones are budget deficit, inflation, imbalanced effective demand and supply, living standards of the population, the development of advanced technologies, growth rate of GDP, the social development at region and country level. These factors' effects may trigger problems with bank's liquidity and, consequently, with the competitiveness, if even the internal operation is flawless.

It shows that the assessment of the external environment of a bank is an important phase in the competitiveness assessment, which includes the sequential analysis of indicators combined in the following groups:

– the dynamics of living standards of the population;

– the dynamics of non-financial sectors;

– the results of regulation.

The analysis by the two former criteria should be conducted at region level, where a bank operates, whereas the analysis by the latter criterion should concern the financial condition at country level. It should be noted that some indicators need to be computed using the data from statistical reports, and others are produced by the official statistics office. As regards the vector of indicators in question, all of them tend to maximum, and a special scale is constructed for their assessment.

Close correlation between macroeconomic indicators used for computing the criterion of economic regulation should be born in mind. Rate of refunding, inflation and reserve ratio have different vectors determined by the objectives of monetary policy in a given time. Today, the indicators in question have relatively low levels along with stable inflation rates. Although good for banking business, this can provoke monetary expansion followed by inflation growth. Due to the complexity of analysis, ratios of the regulation need to be assessed on the assumption about break-even operation of banks given equal bank rates.

It should be noted that the main advantage of this method is accessibility, because it is built on data from published reports and results of market analysis. Being built on the comparative assessment of the operation of banks that are main competitors, the method allows for quick and sound assessment of each bank's position at the financial market.

The competitiveness assessment includes analysis of the internal and external environment of a bank, and use of the various key criteria of bank operation enhances the quality of assessment. Besides this, the competitiveness of bank services is assessed by nine activities, including the above mentioned lending, cash and settlement service, securities, plus emission, operations with payment and credit cards etc., enabling for an extensive analysis of the competitive advantages of the bank in question relative to other assessed banks.

It should be noted that in the qualitative assessment of the bank's operation the criterion of the bank's share in the financial market tends to be overlooked. Although this factor is considered as a competitive advantage, we believe that because it does not correlate with the bank's financial efficiency, image or competitiveness of services, it cannot be an explicit criterion of the bank's competitiveness [4; 7].

We believe that the above approach to translating quantitative indicators into scores by means of reduction coefficient taking into account maximal and minimal values of the indicators of banks covered by the analysis is more appropriate than other benchmarks. This method for score assessment was selected as appropriate as a result of analysis and practical applications of alternative approaches, conducted as part of this method elaboration. Each indicator obviously has normatively fixed limitations, but the criterion level also exists, fixed by each bank with consideration to specific business conditions and strategic goals. Therefore, the estimates derived for the analyzed

banks may deviate widely from the normative values, because what is good for one bank may be absolutely inacceptable for another one. This being born in mind, the conformity of financial estimates of the banks to the normative values was accounted for, but it was not taken as an essential of the algorithm for score assessment of the banks' operation.

It should be noted that once the normative values of the indicators are used, the competitiveness assessment can be performed for one bank, without assessing its competitors. We believe that a comparative analysis of the operation of the banks that are main competitors of one leader-bank would be incorrect due to the operational specifics and different strategies of banks.

When the external environment of banks is assessed, the reduction coefficient will be computed considering maximal and minimal values by year. It should also be noted that the indicators for population and non-financial sector of the economy reflect equal conditions for banks competing with each other in a given region, whereas the indicators for regulation can be regarded as equal for the external environment of all the domestic banks.

In view of the above, the assessment of the banks' competitiveness by the proposed method involves collection and processing of various categories of data, allowing for the analysis of:
• the financial efficiency, in particular the share of money invested in risky assets, the coverage of risky assets by equity;
• the profitability of operation, the profitability of services to private and corporate clients;
• the development of priority activities;
• the quality of services and the efficiency of tariff policy,
and to have an idea of the banks' image, resulting from the assessment of its components: the reputation of director and the culture of customer service.

Once the above methodological aspects are considered, reliable results of the statistical assessment of the competitiveness of banks that are main competitors can be produced, and their competitive advantages and disadvantages and positions at the financial market can be identified. The analysis of external environment of the banks that are main competitors lays the ground for evaluating the social and economic performance of a region and its attractiveness for baking business. Given the regular monitoring of the internal and external environment of a bank and its competitors, this analysis can provide a comprehensive view of their business conditions and allow for evaluating the banking system efficiency over time.

The scientific study devoted to this topic includes a critical analysis of factors and criteria determining the bank's competitiveness. Recommendations on competitiveness enhancement of the domestic banking system, i. e. its long-term operation efficiency, are elaborated. Further statistical studies of the banking system will focus on problems associated with practical implementation of the results of statistical monitoring, for taking management decisions on enhancing the bank performance.

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Теоретико-методологічний аспект статистичної оцінки конкурентоспроможності банків на фінансовому ринку

Стаття присвячена актуальній проблемі обґрунтування теоретико-методологічних аспектів статистичної оцінки конкурентоспроможності банків на фінансовому ринку. Важливість розробки підходів до розв'язання цієї проблеми зумовлена тим, що загострення ситуації на досліджуваному ринку змушує банкірів при виборі методів конкурентної боротьби пов'язувати успіх своєї діяльності з розвитком бізнесу своїх конкурентів, інвесторів, корпоративних і приватних клієнтів. При цьому оцінювання конкурентоздатності банківського продукту проводиться шляхом зіставлення економічних параметрів аналізованої послуги з параметрами бази порівняння за їх групами. Як один із варіантів оцінки конкурентоспроможності комерційного банку запропоновано використовувати універсальну методику, що базується на теорії ефективної конкуренції.

Оцінка рівня конкурентоспроможності банку передбачає аналіз внутрішнього середовища, що охоплює кількісні та якісні характеристики його діяльності, й аналіз зовнішнього середовища, при цьому використовуються диференціальний і комплексний методи оцінки. Оцінка внутрішнього середовища банку включає кількісний аналіз його фінансового стану і якісний аналіз іміджу та конкурентоспроможності послуг. Методика дозволяє отримати інтегральний коефіцієнт конкурентоспроможності через оцінку найважливіших критеріїв його діяльності, вона побудована на оцінці внутрішнього і зовнішнього середовища банків – основних конкурентів шляхом розрахунку ряду критеріїв. Аналіз фінансового стану банку є основою цього напряму, оскільки має на меті отримання кількісної оцінки потенціалу, за рахунок якого здійснюється подальший банківський розвиток. Основною перевагою пропонованої методики оцінки конкурентоспроможності комерційного банку є доступність, оскільки вона ґрунтується на базі даних звітності, що публікується, та на результатах аналізу ринку. Порівняльна оцінка діяльності банків – основних конкурентів дозволяє швидко й об'єктивно визначити позицію кожного банку на фінансовому ринку, а виконаний аналіз дає найбільш повне уявлення про умови їх розвитку та уможливлює оцінку ефективності роботи банківської системи країни в динаміці.

Ключові слова: *статистична оцінка, конкурентоспроможність банку, показники конкурентоспроможності банку, економічні параметри, теорії ефективної конкуренції.*

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Теоретико-методологический аспект статистической оценки конкурентоспособности банков на финансовом рынке

Статья посвящена актуальной проблеме обоснования теоретико-методологических аспектов статистической оценки конкурентоспособности банков на финансовом рынке. Обосновано, что нарастающая конкуренция на финансовом рынке заставляет банкиров при выборе методов конкурентной борьбы связывать успех своей деятельности с развитием бизнеса своих конкурентов, инвесторов, корпоративных и частных клиентов. Оценку конкурентоспособности банковского продукта проведено путем сопоставления экономических параметров анализируемой услуги по параметрам базы сравнения по группам. Как один из вариантов оценки конкурентоспособности коммерческого банка предложено использовать методику, которая базируется на теории эффективной конкуренции.

Ключевые слова: *статистическая оценка, конкурентоспособность банка, показатели конкурентоспособности банка, экономические параметры, теория эффективной конкуренции.*

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ВІТАЄМО З ЮВІЛЕЄМ

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