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Improving Approach to Conditions' Statistical Assessment for Ukraine Banking Sector Competitive Development Under the Foreign Banks Presence in the Financial Market

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Abstract. It is substantiated that most of the existing methods and models for assessing the development of the banking sector of the economy do not take into account the competitive conditions for banks of different groups – with national capital and foreign banking groups. This determines the relevance of the study to improve the methodical approach to statistical assessment of competitive conditions in the development of the banking sector in the presence of foreign banks in the financial market.

The scientific work proposes to assess the competitive conditions in the banking sector, in particular those created for domestic banks under the influence of foreign presence, by the level of the coefficient of competitive internalization. Eight gradations of the coefficient level were established by the expert method.

Due to the use of mathematical calculation method and official statistics, it was found that the level of competitive internalization in the banking sector of Ukraine over the past decade is mostly dangerous, with a tendency to deteriorate. The coefficients of competitive internalization for the banking sectors of the Commonwealth of Independent States and the European Union have been calculated. It is determined that the level of influence of foreign banks in the banking sector of Ukraine can be compared with the conditions of competitive development of national banks of Moldova and Slovenia.

The use of competitive internalization coefficient in practice as a statistical data will create a basis for determining the direction of integration processes. We are convinced that the integration of Ukrainian banks into the banking sector of Moldova or Slovenia is possible.

1. Introduction.

Processes of globalization and integration that increase competition characterize the modern development of the global financial market. In particular, the manifestations of such processes are internationalization and internalization in the country's banking sector in the presence of foreign banks through open access to the financial market. Internationalization processes related to the activities of foreign banks in the banking sector exist in almost every country. These processes differ from those

that characterize the operating conditions of banks with domestic capital under the influence of the presence of foreign banking groups, which actively use the tools of internalization as an advantage in competition in the market of a particular country. Therefore, in our opinion, it is necessary to distinguish such processes [1].

2. Analysis of recent research and publications.

The opening of the national financial market for foreign banks has both positive and negative consequences. The publications of many researchers prove this. Thus, G. Clarke, R. Cull, M. Soledad, M. Peria, S. Sánchez [2], S. Claessens [3] point to the positive effects of the foreign banks' presence through increased competition for banks with national capital, which encourages them to operate more efficiently and to develop. Meanwhile, the scientific works of S. Chava, A. Purnanandam [4], T. Levitt [5] noted the negative consequences for the country's banking sector from the conditions of fierce competition with international banks. The manifestations of competition and internalization in the banking sector are still being investigated, in particular N. Apergis [6], I. Repková and D. Stavárek [7], K. Ly and K. Shimizu [8], G. Plantin [9], Pawlowska [10]. The foreign banks' influence on the development of the banking sector and the competitiveness of domestic banks is especially relevant for post-Soviet countries, given changes in the economic mechanism of the economy and the bank-centric financial system, which is formed over a short historical period – less than 30 years.

In our opinion, unrestricted access to the financial market of international banks, being more financially powerful having wider range of banking products, may lead to certain inhibition of national players' development. This situation has developed in countries with transforming and developing economies. Therefore, it is important to determine the foreign banking capital optimal amount, which would not provoke the creation of a foreign monopoly and the displacement of national banks.

The need for such a statistical indicator and methodical for assessing competition conditions confirms the relevance of the study.

3. The research objective.

The purpose of the article is to enhance the approach to assessing the conditions of competitive development of the country's banking sector in the presence of foreign banks in the financial market.

4. Presentation of the main material.

To evaluate the conditions of competition in the banking sector, scientists use indicators that indicate the level of concentration of economic entities, but without taking into account the sector's specifics. Thus, competition assessed by: the index of concentration (assets, capital, deposits) or market share of a certain number of leading banks (mostly three, five or ten); the Herfindahl-Hirschman index (defined as the sum of the squares of the shares of all firms operating in the market); the Hall-Taidman index (calculated on the basis of comparing the ranks of the market entity); the Gini index (the percentage of the size of the industry to the percentage of market participants); the coefficient of relative concentration (the ratio of shares of the largest market participants in their total number to the shares of products of these entities in total production); entropy index, Linda index and others [10; 11; 12]. These indicators provide an opportunity to determine the monopolization of the market, as well as a formal point of view indicate the nature of competitive relations in the market, but not about its competitive conditions.

Non-structural methods are also used to assess competition. Non-structural methods have been developed based on the banks' competitive behavior within the new empirical theory of industry markets including: the Panzara-Ross model [13], the Bresnahan model, the Barroso-Modesto model and others. These methods have recently become common in banking science and practice. The method of assessing market competition by the Lerner index allows to assess the deviation of banking services price from competitors and provides an opportunity to determine the competitive opportunities of individual banks [14]. However, such approaches, as well as the previous ones,

emphasize the monopolization of the market, but do not characterize the competitive conditions that formed due to the entry of a certain number of foreign banks and their assets.

At the international level, namely in the studies of the International Monetary Fund (2012) [15] and the World Bank (2017-2018) [16], the indicators such as the share of foreign banks in assets and in their total number are used. It is the use of the results of these studies on the presence of foreign banks in countries, groups of countries, regions and in the world in general has allowed to justify the existence of the problem and its trends worldwide.

In our opinion, the indicator of the share of foreign banks in the assets of the banking sector of the country has the advantage of these indicators, as it shows to businesses and individuals their meaning for lending. However, the share of the number of foreign banks in their total number is needed in terms of dispersion of assets by foreign banks, especially since the value of this indicator is many times higher than the share of foreign banks in assets. This fact allows the market to be not monopolistic, but to have a certain concentration. In addition, no gradations have been developed for the indicators, so only a comparison is possible.

A comparative analysis of trends in the presence of foreign banks in countries, carried out based on International Monetary Fund data [15] shows that the conditions of competitive internalization in the banking sector of the host country are different. Thus, based on the data, the trends clearly indicate the fact of significant influence of foreign capital on the development of national banking sectors due to the mostly high level of their participation in the assets of post-Soviet and former socialist states – new EU members.

A comparison of the International Monetary Fund (up to 2009) and the World Bank (2014) data suggests that the global trend increasing the shares of both non-resident banks and their assets in the banking sectors of the countries continues. The presence of foreign banks in the countries has polar opposite trends: in some countries, the share of foreign banks in number and assets is 100% or close to this value, in others - the lack of foreign capital (for example, in Japan). Most countries have values of both indicators from 5% to 70-90%. In developed countries, the relative number of foreign banks is much larger than their share in assets, and the values of indicators show the competitive advantages of the banks with national capital. In the former socialist countries of Eastern Europe, the new EU members, the share of the number of foreign banks and their participation in assets is more than 50%, which indicates higher competitive position of foreign capital.

Post-Soviet countries Armenia, Georgia and Kyrgyzstan have a significant influence of foreign capital in the banking sector. In Belarus, the share of non-residents' capital in banking assets increased (1.7 times from 2009 to 2014), in Ukraine it decreased (2 times) and the number of banks decreased significantly, mainly due to domestic ones. In the banking sector of the Russian Federation, the indicators are less meaningful than in Belarus and Ukraine. In our opinion, increasing the quota for non-resident capital should be relevant to the competitive position of banks with national capital.

For Ukraine, the presence indices of foreign banks have been calculated according to official data from 2007 to 2018.

Index of the presence of foreign banks in the country's banking sector by their assets (IPA_{fbs}) calculated by the formula:

$$IPA_{fbs} = A_{fbs} \,/\, A_{bsc} * 100, \tag{1}$$

where A_{fbs} – assets of banks with foreign capital, UAH;
A_{bsc} – assets of the banking sector of the country, UAH.

Index of the presence of foreign banks in the country's banking sector by their number (IPN_{fbs}) calculated by the formula:

$$IPN_{fbs} = N_{fbs} \,/\, N_{bsc} * 100, \tag{2}$$

where N_{fbs} – number of banks with foreign capital, units;
N_{bsc} – number of institutions of the banking sector of the country, units.

It is established that the tendencies of changes of indices on the banking sector of Ukraine are different (Fig. 1). Thus, the share of foreign banks in their total number tends to increase, and the share of foreign banks in assets – to decrease. The dependencies are described by a linear equation with a high correlation coefficient ($R_1 = 0,83$; $R_2 = 0,84$).
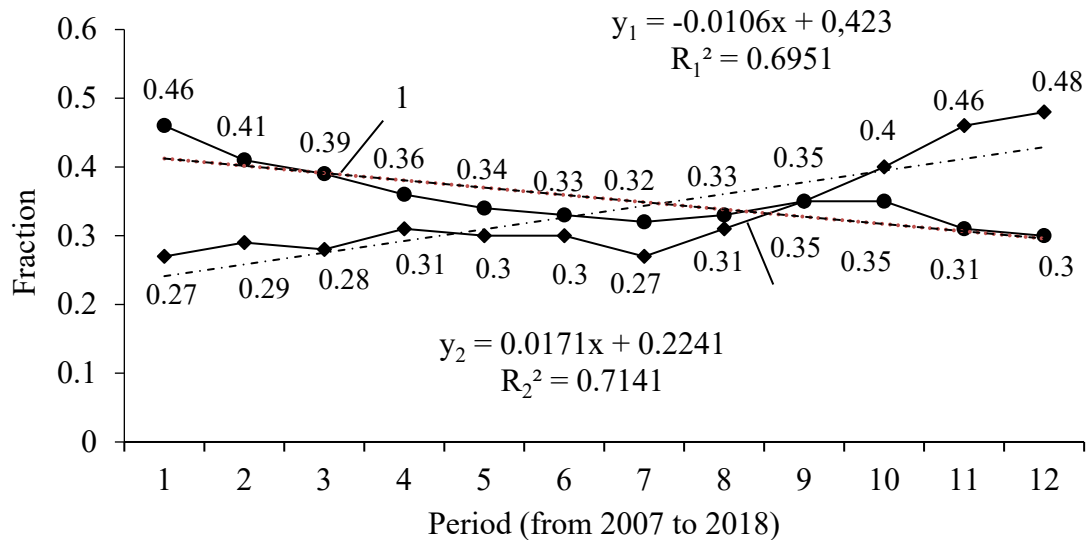

Figure 1. Trends in indices of foreign banks' presence in the banking sector of Ukraine by their assets (1) and number (2)

Diverse changes in indicators make it difficult to evaluate the conditions of competitive internalization. Therefore, it is necessary to develop a methodology that would reflect the competitive conditions in the banking sector, in particular those created for domestic banks under the influence of foreign banking groups. It is desirable that the initial data for evaluation would be statistical indicators.

A method for assessing the competitive conditions for the development of the banking sector, based on the calculation of the coefficient of competitive internalization (*ICI*):

$$ICI = IPA_{fbs}/100 * N_{fbs}/100, \qquad (3)$$

where IPA_{fbs} – index of presence of foreign banks in the banking sector of the country by their assets, %;
N_{fbs} – index of presence of foreign banks in the banking sector of the country by their number, %.

As the impact of the presence of foreign banks in the banking sector has both positive and negative consequences, the level of competitive internalization should be optimal.

It is proposed to determine the level of competitive internalization on the basis of scientifically substantiated eight gradations, which are established by the expert method:

$0,00 \leq ICI \leq 0,02$ – minimum level;
$0,02 \leq ICI \leq 0,04$ – low level;
$0,04 \leq ICI \leq 0,06$ – optimal level;
$0,06 \leq ICI \leq 0,08$ – satisfactory level;
$0,08 \leq ICI \leq 0,10$ – unsatisfactory level;
$0,10 \leq ICI \leq 0,20$ – dangerous level;

$0,20 \le ICI \le 0,40$ – critical level;

$0,40 \le ICI \le 1,00$ – extracritical level.

Ukrainian scientists and practitioners believe that if the share of foreign capital in the authorized capital exceeds 40%, its inflow is a threat to the recipient country.

According to the calculations, the level of competitive internalization in the banking sector of Ukraine from 2007 to 2018 has been defined mainly as dangerous (Fig. 2). The results of correlation-regression analysis of change in the coefficient of competitive internalization indicates a tendency to its increase. The trend is described by a parabolic curve of the second order, which is characterized by a high bond density ($R^2 = 0.80$; $R = 0.89$).
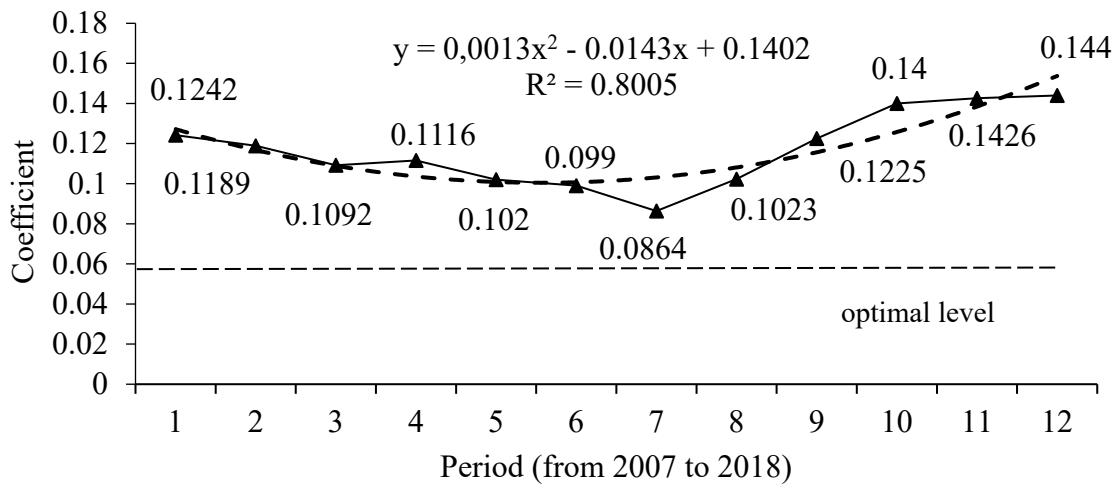

Figure 2. Trends in the coefficient of competitive internalization in the banking sector of Ukraine

The deterioration of competitive conditions of development, which is indicated by the increase in the value of the indicator, was due to the mass withdrawal of domestic banks from the market due to the political crisis and the introduction by the National Bank of Ukraine of international financial stability requirements. The presence of foreign capital in the last three years has not significantly affected the competitive conditions for the development of the domestic segment of the banking sector. The tendency to deterioration of competitive conditions (increase in the coefficient of competitive internalization) is confirmed by statistical data on maintaining the high value of the index of presence of foreign banks by their number in the next 2019 – 0.47.

The banking sector of Ukraine has an insufficient level of capitalization, a high level of dollarization, is insufficiently financially stable and competitive for stable development in the conditions of competitive internalization, which confirms the hypothesis of the advantages of foreign banks.

Calculations of the coefficient of competitive internalization allow to make comparisons between countries on the conditions of competitive development of their banking sectors (Table 1).

Table 1. The level of competitive internalization by country

Country	2014		2007	
	Coefficient of competitive internalization	Level according to gradation	Coefficient of competitive internalization	Level according to gradation
1	2	3	4	5
The world	0.0455	optimal	0.0476	optimal
Post-Soviet countries				
Azerbaijan	0.0056	minimum	0.0450	optimal
Belarus	0.2015	critical	0.1007	dangerous

Continuation of table 1.

Armenia	0.6800	extracritical	0.4485	extracritical
Georgia	0.4288	extracritical	0.3828	critical
Kazakhstan	0.0429	optimal	0.0507	optimal
Kyrgyzstan	0.6557	extracritical	0.5187	extracritical
Moldova	0.1350	dangerous	0.1672	dangerous
Russian Federation	0.0136	minimum	0.0187	minimum
Ukraine	0.1023	dangerous	0.1242	dangerous
Uzbekistan	0.0120	minimum	0.0144	minimum
New EU member states				
Bulgaria	0.4030	extracritical	0.5092	extracritical
Estonia	0.7275	extracritical	0.6887	extracritical
Latvia	0.3190	critical	0.3705	critical
Lithuania	0.6825	extracritical	0.6440	extracritical
Poland	0.5776	extracritical	0.5106	extracritical
Romania	0.6478	extracritical	0.7565	extracritical
Slovakia	0.5025	extracritical	0.8096	extracritical
Slovenia	0.0875	unsatisfactory	0.0840	unsatisfactory
Hungary	0.4480	extracritical	0.5952	extracritical
Croatia	0.4680	extracritical	0.3870	critical
Czech Republic	0.5270	extracritical	0.5440	extracritical
EU member states				
Austria	0.0286	low	0.0190	minimum
Belgium	0.2162	critical	0.0546	optimal
United Kingdom	0.0812	unsatisfactory	0.0784	satisfactory
Greece	0	minimum	0.0434	optimal
Denmark	0.0144	minimum	0.0162	minimum
Ireland	0.3060	critical	0.5490	extracritical
Spain	0.0026	minimum	0.0014	minimum
Italy	0.0072	minimum	0.0070	minimum
Cyprus	0.0756	satisfactory	0.1342	dangerous
Luxembourg	0.8740	extracritical	0.9405	extracritical
Netherlands	0.0188	minimum	0.0420	optimal
Germany	0.0182	minimum	0.0143	minimum
Portugal	0.0828	unsatisfactory	0.0450	optimal
Finland	0.1848	dangerous	0.1430	dangerous
France	0.0020	minimum	0.0036	minimum
Sweden	0	minimum	0	minimum
Developed countries				
China	0.0004	minimum	0.0030	minimum
USA	0.0341	low	0.0621	satisfactory
Japan	0.0002	minimum	0	minimum

In obedience to the accepted gradations, level of the coefficient of competitive internalization in the banking sectors of world is optimal, in economically developed countries and most EU countries – minimum (shows that the conditions of development of banks with national capital are the best and competition exists between resident banks). In the banking sectors of the new EU member states its level is mostly supercritical, in some post-Soviet countries it is from minimum to extracritical, and in Ukraine it is dangerous.

Based on the value of the ratio, the influence of foreign banks in the banking sector of Ukraine can be compared with the banking sector of Moldova from the Commonwealth of Independent States, from the EU member states – with the banking sector of Slovenia. This indicates the possibility of integration processes between banks with the Ukrainian capital, and for example, banks in Moldova or

Slovenia. The competitive conditions for the development of the national banking sector in Azerbaijan, Kazakhstan, Uzbekistan and the Russian Federation is best, and the trend is positive. Ukrainian capital can be present in the banking sectors of Azerbaijan, Kazakhstan, Uzbekistan, under conditions of co-competition. In the banking sector of the vast majority of new EU member states, the conditions for competitive development are tough and Ukrainian banks in the financial market of these countries will not develop.

5. Conclusions.

The research was based on the fact that processes of internationalization are characteristic of the activities of banks in their presence in the foreign financial market. Banks use internalization as the basis of a competitive strategy. These processes increase competition, and therefore change the conditions in which national banks operate and the development of the banking sector of a country.

As a result of the research, the methodical approach to the statistical assessment of the competitive conditions of the banking sector development in the presence of foreign banks on the financial market was improved. It is proved that most of the existing methods and models of assessment of the development of the banking sector of the economy in the scientific literature do not take into account the competitive conditions for banks of different groups – with national capital and foreign banking groups. Therefore, the scientific work proposes to assess the competitive conditions in the banking sector, in particular those created for domestic banks under the foreign banks presence, by the level of the coefficient of competitive internalization. Eight gradations of the coefficient level were established by the expert method.

The calculations of the ratio prove that the level of competitive conditions in the banking sector of Ukraine from 2007 to 2018 has been defined mainly as dangerous, and their deterioration has been noted. Comparing the conditions of competitive development in the banking sectors of the countries shows that the influence of foreign banks in the banking sector of Ukraine can be compared with the banking sector of Moldova from the Commonwealth of Independent States, from the EU member states – with the banking sector of Slovenia. This indicates the possibility of integration processes. The banking sectors of these countries are similar in terms of competition, so Ukrainian banks can withstand her. Regarding the new EU member states, it should be noted that the banking sectors of these countries have largely failed to compete with the banks of developed European countries. Therefore, the banking sectors of these countries cannot be a positive example.

The best conditions for the development of the national banking sector are created in Azerbaijan, Kazakhstan, Uzbekistan and the Russian Federation, and the trend is positive. Ukrainian capital under conditions of co-competition may be present in the banking sectors of Azerbaijan, Kazakhstan and Uzbekistan. The legal framework and regulations of the central banks of these countries can be used as an example of creating competitive conditions through certain mechanisms.

In general, it is necessary to introduce such mechanisms for regulating the banking sector of Ukraine, the implementation of which in practice would ensure the optimal presence of foreign banks in the national financial market. This is necessary so that, firstly, the development of banks with Ukrainian capital is not constrained, and secondly – there is no significant risk of underfunding of the economy as a result of capital outflows of foreign banks.

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