Features of Foreign Investors Evaluating the Level of Competition in the Banking Market

Nadiia Grebeniuk

PhD Student, Department of Business, Trade and Stock Exchanges, Chernivtsi National University of Yuriy Fedkovych, Chernivtsi, Ukraine

Jinan Mehdi Mohammed

MS, Lecturer in Higher College of Technology, Accounting and Finance, Sultanate of Oman

Abstract

The article substantiates that when developing strategic guidelines for investing, investors from abroad should monitor the Ukrainian banking services market, which allows to assess barriers to entry and exit from the market, the level of saturation of banking services, and also analyze the dynamics of competitors' behavior. A conclusion is drawn about the different levels of competition in different segments of the Ukrainian banking market in the context of state, foreign and private banks. The results of the calculations showed that by the end of 2016, state banks were monopolists in the market of deposit services for individuals, the market of credit services of individuals, the market of commission income; foreign banks in the market of credit services for individuals, private banks in the market of deposit services for legal entities, securities market.

Introduction

Since 2005, when the Austrian group Raiffeisen Int. bought by Ukrainian bank Aval, the domestic banking system is of interest to foreign investors. During 2005-2008, the number of banks with foreign capital increased from 23 to 53, which led to the accumulation of foreign capital in the authorized capital of Ukrainian banks in 2008 at 36.7%. However, after the financial crisis of 2008-2009 and the significant destructive impact it has inflicted on the financial system of Ukraine, the number of banks with foreign capital, which comes from the EU, has sharply decreased. Between 2012 and 2016, the vast majority of foreign capital in the banking system of Ukraine is capital from Russia, which in the period of intensification of political relations between Russia and Ukraine can not but affect the economic security of the latter. Thus, the restoration of the interest of foreign investors from the EU and the US to the Ukrainian banking market should take place in the context of assessing the new situation that has now emerged in Ukraine.

Over the past two years, the banking system in Ukraine has undergone one of the deepest crises in the years of independence, which has resulted in increased regulatory requirements for banks, the gradual introduction of risk-based oversight and the rapid decline in the number of financial intermediaries, which in most cases performed fake operations to serve interests. As of March 1, 2017, 93 banks functioned in Ukraine, compared to 113 units in 2016 and 151 units in 2015, according to a similar date. In addition to the destructive influence of the factors of the internal financial environment, the stable functioning of the banking system depends to a large extent on a number of external events and processes: the military conflict in eastern Ukraine and annexation of the Crimea, the loss of Ukraine's main trading partner, the volatility of export commodity prices, the recession in the real economy, and also social tension in society. At the same time, foreign investors, as a rule, enter the financial services market during the period of its recovery after prolonged stagnation, so timely identification of this period is an urgent task of financial analysts. Evaluating the level of competition in this case serves as one of the main components of the task.

1. Literature review

The issue of banking competition, approaches to its evaluation and its impact on the efficiency and stability of the functioning of the banking system participants are actively investigated by foreign and domestic scientists and specialists from international organizations.

The conducted empirical studies clearly demonstrate that the higher the level of competition in the banking system, the lower the probability of manifestation of destabilizing factors in the national economy. In particular, researchers at the World Bank Center (How Does Bank Competition Affect Systemic Stability, 2012.) have found a direct correlation between the level of concentration in the banking market and financial stability in the country, as increased competition encourages banks to take more diversified risks and take rational management decisions.

Banking competition serves as a mechanism for selecting the most rational and effective approaches and techniques of banking business, namely solving a complex of operational, technological, investment and organizational and managerial problems that arise in the activities of each bank. It should be noted that the criterion of efficiency of the bank are indicators of profitability of its activities.

A significant number of jobs (Carletti, 2007; Koetter, 2012) confirms the direct relationship between the level of market banking competition and the efficiency and reliability of the banking institution.

 We fully support the view of the authors that the state of competition in the market reflects the efficiency of the functioning of the banking institution in the process of obtaining, maintaining and increasing the competitive position on the market, that is, the ability of the financial institution to meet the needs of consumers and resist negative shocks from the outside.

O. Yakusheva notes that the strengthening of the level of competition in the market of banking services encourages managers of financial institutions to increase the volume of financial resources in innovation, thereby improving their position in the market, expanding the client base and improving the organization of business processes.

It is worth pointing out that it is not necessary to restrict competition in the banking market exclusively between banking institutions, since today there is a significant number of participants in the market that provide related financial, credit and investment services (credit unions, insurance companies, factoring companies, pawnshops, edgefangering platforms etc).

Quite often, in the literature, one can find the statement that the more participants in the market, they will certainly compete for the best positions, as the level of rivalry between them increases. However, according to the theory of quasi-competitive markets, even in a small number of banks (high concentration of banks), the competitive behavior of banks can be observed on the market. The main objective reasons for such a situation in the banking services market are asymmetry of information, an extensive subsidiary and representative network of banks, the bank's entry into the financial and industrial group, the use of innovations, and the improvement of litigation.

2. Main results of investigation

The basis of most techniques and approaches to assessing the level of competition in the banking market is the analysis of the market structure. To determine the level of competition in the market, the following characteristics are used (Serheeva, 2003; Zherdetska 2009).

- Indicators of direct influence, reflecting the impact of each individual bank on the market as a whole (Bain, Tobin, Lerner index);

- indexes of indirect influence describing the level of competition in the system as a whole (the Herfindahl-Hirschman index, the index of concentration, the index of relative concentration, the entropy coefficient, the coefficient of variance of market shares, the Gini coefficient, the Hall-Thyidman index, the H-statistics (the Panzar-Ross model) those others).

Based on the critical analysis of existing approaches, the methodical approach to assessing the level of competition in the market of banking services of Ukraine on the basis of the adaptation of the Herosky model is proposed in the paper, based on which the construction of the econometric model of the dependence of the standardized value of the measure of profit on the standardized value of the degree of concentration

(Herfindahl index) state, foreign, private banks. In contrast to the existing approaches, the level of competition is proposed to be defined as the parameter of the Herosky regression equation, proportional to the standardized value of the degree of concentration, weighted by the maximum possible value of this parameter, obtained with the maximum values of the degree of profit and the minimum values of the standardized index Herfindahl. Consequently, the proposed approach considers banks as institutions that maximize their profits and compete for consumers by adopting balanced pricing and non-price decisions.

Formalization of the level of competition in the market of banking services based on the adaptation of the model of Herosky has the following form:

$$\widetilde{\pi}_r = \alpha \cdot \widetilde{NF}_r + \beta \cdot \widetilde{K}_r + \theta \cdot \widetilde{\pi}_r(t-1) \qquad (1)$$

where $\widetilde{\pi}_r$ – standardized value of profit; r – index of participant of Ukrainian banking market; $\widetilde{NF}_r$ – standardized value of accumulated unpredictable factors in profit-generation models; $\widetilde{K}_r$ – the standardized value of the degree of concentration in the context of the r-th participant in the market; $\widetilde{\pi}_r(t-1)$ – standardized value of profit measure over the previous period; α, β, θ – constants that reflect the influence of the factors taken into account in the model of the value of the amount of profit, in particular β is a quantitative characteristic of competition in the Ukrainian banking market.

Taking into account a number of accepted hypotheses regarding the formalization of the level of competition in the market of banking services of Ukraine, in particular, the neglect of the lags of delay and the influence of accumulated unrecognized factors in the income model, the econometric model (1) takes the form (2). This form of the model is due to the consideration of the direct proportional dependence of the resultant trait (the profit of a certain group of banks in the market of banking services of Ukraine) from the factor (concentration measure) as a standardized regression equation without a free coefficient.

$$\widetilde{\pi}_r = \beta \cdot \widetilde{K}_r, \widetilde{\pi}_r = \frac{\pi_r - \overline{\pi}_r}{\sigma_{\pi_r}}, \widetilde{K}_r = \frac{K_r - \overline{K}_r}{\sigma_{K_r}} \Rightarrow \qquad (2)$$

$$\Rightarrow \frac{\pi_r - \overline{\pi}_r}{\sigma_{\pi_r}} = \beta \cdot \frac{K_r - \overline{K}_r}{\sigma_{K_r}}$$

where π_r – the value of the amount of profit, calculated on the basis of normalization using the natural method; $\overline{\pi}_r$ – arithmetic mean simple profit; σ_{π_r} – mean square deviation of profit; K_r – the degree of concentration of the concentration of the market of banking services of Ukraine, is expressed as the value of the indicator Gerfindahl; $\overline{K}_r$ – mean square deviation of the degree of concentration in the context of the r-th participant in the market; σ_{K_r} – mean square deviation of degree of concentration.

Consider the symbols of formula (2), whose values are complex functional dependencies:

$$\pi_r = \frac{p_r - \min_r\{p_r\}}{\max_r\{p_r\} - \min_r\{p_r\}}, K_r = \left(\frac{k_r}{\sum_r k_r}\right)^2 \qquad (3)$$

where p_r – the value of profit in the context of the r-th participant in the banking services market of Ukraine; $\max_r\{p_r\}, \min_r\{p_r\}$ – the maximum and, accordingly, the minimum value of profit within the range of data on the considered participants of the Ukrainian banking services market; k_r – Importance: the volumes of deposits of individuals in the market of deposit services to individuals, volumes of deposits of legal entities in the market of deposit services to legal entities, volumes of loans to individuals in the market of credit services for individuals, volumes of loans to legal entities of the market of credit services to legal entities, volumes of securities in the market securities and non-interest income.

Taking into account the symbols (3) introduced for the estimation of the degree of profit and the degree of concentration, formula (2) takes the form:

$$\frac{1}{\sigma_{\pi_r}}\left(\frac{p_r - \min_r\{p_r\}}{\max_r\{p_r\} - \min_r\{p_r\}} - \overline{\pi}_r\right) = \beta \cdot \frac{1}{\sigma_{K_r}}\left(\left(\frac{k_r}{\sum_r k_r}\right)^2 - \overline{K}_r\right) \qquad (4)$$

The practical application of the formula (4) for assessing the level of competition in the Ukrainian banking market requires a preliminary collection of statistical data in the dynamics from 2013 to 2016, broken down by groups of state, foreign and private banks. In our opinion, a separate assessment of the level of competition in the context of different groups of Ukrainian banks allows for taking into account the excellent conditions for the organization of banking activities in terms of building internal business processes, access to financial resources, as well as strategies for the development of banks. In the allocation of banks to groups taken into account the decision of the NBU Board of February 10, 2017, No. 76-RSH, according to which:

- state-owned banks - institutions in which the state directly or indirectly owns more than 75% of the authorized capital.

- banks of foreign banking groups - institutions in which foreign banks or financial and banking groups own a controlling interest;

- private equity banks - institutions in which among the ultimate owners of a qualifying holding are one or more private investors that directly and / or indirectly hold at least 50% of the authorized capital.

The assessment of the level of competition in the market of banking services of Ukraine is proposed to be carried out in the context of various segments of the activities of financial institutions, namely, lending to corporate and individual clients, attracting deposits from individuals and legal entities, conducting securities transactions, performing commissions (cash and settlement servicing of customers, providing agency services).

Let's move on to assessing the level of competition between groups of Ukrainian banks. An example of the implementation of this methodical approach is proposed to be considered in the context of a group of state-owned banks. So, we will form two arrays of statistical data, the basis for formalizing the econometric model of Herosky: a factor factor - the volume of deposits of individuals and the productive - the profit of state banks (Table 1). Statistical data on various segments of activity by foreign and private banks, as well.

Other statistical data necessary for the formation of the input data array to assess the level of competition in the banking services market is taken on the official website of the National Bank of Ukraine.

Table 1. Dynamics of the volume of deposits of individuals and profit of state banks of Ukraine from 2013 to 2016, ths. UAH

Title of the Bank	Year			
	2013	2014	2015	2016
The volume of retail deposits				
OSCHADBANK	35 927 188	36 590 124	53 947 725	69 147 979
UKREXIMBANK	17 266 241	21 870 001	24 376 264	24 456 598
UKRGAZBANK	5 710 786	6 860 114	10 972 727	13 558 053
RODOVID BANK	35 181	6 695	liquidated	liquidated
CALCULATION CENTER	0	0	0	0
DERZHEMBANK	0	0	0	liquidated
UBRD	0	0	0	0
PRIVATBANK	x	x	x	151 039 802
Volume of profit / loss of banks				
OSCHADBANK	678 784	-8 564 446	-12 273 078	468 169
UKREXIMBANK	198 616	-9 805 548	-14 132 383	-1 011 106
UKRGAZBANK	1 001 973	-2 801 124	259 672	293 681
RODOVID BANK	-70 298	-266 802	liquidated	liquidated
CALCULATION CENTER	996	4 896	-28 886	2 091

DERZHEMBANK	-2 911	2 135	7 643	liquidated
UBRD	94	-11 076	570	-3 145
PRIVATBANK	x	x	x	-135 309 076

On the basis of the data in Table 1, it is necessary to calculate the derivative indicators - the degree of concentration as the indicator Gerfindahl (the square of the share of each bank of the group in the market of deposit services to individuals) on the basis of the application of formula (3). The results of calculations are given in Table 2.

Table 2. The measure of the concentration of deposits of individuals in the dynamics from 2013 to 2016 in the context of a group of state-owned banks

Title of the Bank	2013	2014	2015	2016
OSCHADBANK	0.3716	0.3137	0.3650	0.0717
UKREXIMBANK	0.0858	0.1121	0.0745	0.0090
UKRGAZBANK	0.0094	0.0110	0.0151	0.0028
RODOVID BANK	0.0000	0.0000	liquidated	liquidated
CALCULATION CENTER	0.0000	0.0000	0.0000	0.0000
DERZHEMBANK	0.0000	0.0000	0.0000	liquidated
UBRD	0.0000	0.0000	0.0000	0.0000
PRIVATBANK	x	x	x	0.3422

After determining the degree of concentration on the market of deposit services for individuals - a factor of the model of Herosky, we proceed to the implementation of the next stage of the methodical approach to assessing the level of competition in the banking services market in Ukraine - the value of the amount of profit as a normalized by the natural method of the value of profit.

The application of the natural method of normalization is due to the nature of the indicator of profit as an indicator of the stimulator, the growth of which occurs as a result of increased competition in the relevant market. So, applying formula (3) on the basis of the data in Table 1, we obtain the value of the effective feature of the Herosky model shown in Table 3.

Table 3. The degree of profit of participants in the market of deposit services for individuals in the dynamics from 2013 to 2016 in the context of a group of state-owned banks

Name of the Bank	Year			
	2013	2014	2015	2016
OSCHADBANK	0.6986	0.1265	0.1292	1,0000
UKREXIMBANK	0.2508	0.0000	0.0000	0.9891
UKRGAZBANK	1,0000	0.7140	1,0000	0.9987
RODOVID BANK	0.0000	0.9723	liquidated	liquidated
CALCULATION CENTER	0.0665	1,0000	0.9800	0.9966
DERZHEMBANK	0.0628	0.9997	0.9825	liquidated
UBRD	0.0656	0.9984	0.9820	0.9965
PRIVATBANK	x	x	x	0.0000

Thus, based on the results of the above calculations according to the degree of profit (Table 3) and the degree of concentration (Table 2), the level of competition is proposed to determine as a parameter of the Herzog regression equation proportional to the standardized value of the degree of concentration, weighted by the maximum possible value of this parameter, obtained at the maximum values of the measure of profit and the minimum values of the standardized index Gerfindahl:

$$\beta_r^* = \frac{\beta_r}{\beta_{max}} \cdot 100 \tag{5}$$

$$\max_t \left\{ \frac{1}{\sigma_{\pi_r}} \left(\frac{p_{rt} - \min_r\{p_{rt}\}}{\max_r\{p_{rt}\} - \min_r\{p_{rt}\}} - \overline{\pi}_{rt} \right) \right\} = \beta_{max} \cdot \min_t \left\{ \frac{1}{\sigma_{K_r}} \left(\left(\frac{k_{rt}}{\sum_r k_{rt}} \right)^2 - \overline{K}_{rt} \right) \right\}$$

where β_r^* – evaluation of competition in the range from zero (monopoly) to 100% (perfect competition);

β_r – quantitative characteristic (absolute value) of the level of competition as a parameter of the Heros regression equation near the standardized value of the degree of concentration;

β_{max} – theoretically the maximum possible value of the quantitative characteristic (absolute value) of the level of competition, obtained at the maximum values of the degree of profit and the minimum values of the standardized index Gerfindahl.

The consistent application of formula (5) allows obtaining the following results of the assessment of the level of competition among market participants of deposit services for individuals in the period from 2013 to 2016 in the context of a group of state-owned banks (Table 4).

The obtained results show that the most monopolized in the market of deposit services for individuals in Ukraine is a group of state-owned banks, among which, until 2015, Oschadbank took the leading position, and after 2016 - Privatbank. Due to the nationalization of PrivatBank, at the beginning of 2017, the level of competition among private banks increased by 41.78 and 64.61 percentage points, as against 2013 and 2015, respectively. At the same time, the level of competition among foreign banks in the market of deposit services for individuals is decreasing.

Table 4. Estimation of the level of competition among market participants of deposit services for individuals in the dynamics from 2013 till 2016

Group of banks	2013 .	2014	2015 .	2016 p.	average	Max β_{max}
Absolute values β_r						
State	1.9963	0.4281	0.4479	0.6814	1.2906	16.0000
Foreign	57.0348	31.1141	55.0546	36.0320	43.0535	67.9631
Private	7.5106	6.9935	1.9740	17.6496	9.7749	24.2610
Listed on the scale of 0 to 100% β_r *						
State	12.4767	2.6755	2.7992	4.2586	8.0661	
Foreign	83.9202	45.7808	81.0065	53.0170	63.3483	
Private	30.9573	28.8260	8.1365	72.7486	40.2905	

Table 5. Estimation of the level of competition among market participants of deposit services for legal entities in the dynamics from 2013 till 2016

Group	2013	2014	2015	2016	average	max
Absolute values						
State	0.8629	0.1148	0.5369	8.5490	2.7220	2.5571
Foreign	64.9275	35.0690	53.6576	43.2122	27.0229	44.7778
Private	36.0674	30.6691	6.9035	13.9996	10.0407	19.5360
Listed on the scale of 0 to 100%						
State	5.8453	0.7780	3.6369	57.9094	18.4381	
Foreign	90.2032	48.7210	74.5461	60.0343	37.5427	
Private	50.1081	42.6083	9.5909	19.4496	13.9494	

The bankruptcy of a number of banks, the loss of business of their savings led to a partial flow of capital to state banks as peculiar guarantors of the additional security of their investments. Thus, in 2016, the level of competition among state-owned banks amounted to 57.9%, which is 52.06 percentage points more than in 2013. At the same time, there is an increase in the leading positions of individual private banks, since by the end of 2016 the estimated indicator has decreased by 61.2% compared to 2013.

Crisis processes in the banking sector over the past three years, falling rates of economic growth in the country, and lowering business activity and solvency of economic entities are key factors in reducing the volume of loan portfolios of banks of different groups. And so today the key task of banking institutions is to resume lending. That is why competition for borrowers in the domestic market is rather rigid by providing favorable conditions for lending to business representatives.

Table 6. The dynamics of competition between market participants of credit services for legal entities

Group	2013	2014	2015	2016	average	max

	Average values					
State	2.4332	0.3683	0.4593	8.1771	2.7395	2.8355
Foreign	36.1390	22.6434	25.7710	27.5536	16.1107	25.6436
Private	11.3460	8.6958	2.6709	20.6660	14.9193	11.6596

Table 6 (cont.) The dynamics of competition between market participants of credit services for legal entities

Group	2013	2014	2015	2016	average	max
Average values						
Listed on the scale of 0 to 100%						
State	28.9161	4.3766	5.4583	97.1786	32.5570	
Foreign	54.8904	34.3923	39.1428	41.8503	24.4700	
Private	24.4821	18.7636	5.7632	44.5924	32.1923	

These tables are clearly demonstrated by the fact that with the nationalization of Privatbank the level of competition among state-owned banks (from 5.5% to 97.2%) and private banks of Ukraine increased sharply (from 24.5% to 44.6%). During 2013-2016, the level of competition among banks of foreign banking groups in the market of credit services for legal entities decreased by 23.8.

According to the calculations, it was found that by the end of 2016 there was a rapid decrease in the level of competition in the lending market of individuals among the state and foreign banks. In particular, Ukrsotsbank, Kredobank, Alfa-Bank were the main providers of loan capital for the population among the institutions of foreign banking groups.

Table 7. Estimation of the level of competition of credit market participants for individuals in the dynamics from 2013 till 2016

Group	2013	2014	2015	2016	average	max
Absolute values						
State	3.9389	1.1009	0.8947	0.0379	1.4249	1.4795
Foreign	33.5676	7.5879	11.8719	1.0925	5.7422	11.9724
Private	13.2602	15.6780	2.2057	11.5804	9.6734	10.4795
Listed on a scale from 0 to 100%						
State	38.8396	10.8552	8.8221	0.3738	14.0503	
Foreign	95.1139	21.5003	33.6390	3.0957	16.2704	
Private	37.5728	44.4237	6.2499	32.8131	27.4097	

The objective explanation for the sharp decline in competition among state-owned banks in 2016 was the privatization of Privatbank, whose lending policy is focused on the implementation of intensive consumer lending.

With the strengthening of competition and traditional segments of banks (depositing and lending), banks are forced to look for other profitable activities, among which the key role is taken by securities operations. It is worth noting that the activity of banks in the stock market requires a sufficient amount of regulatory capital, an effective system of risk management and an appropriate level of organizational and informational and analytical support of the bank.

Table 8. Estimation of the level of competition of securities market participants in the dynamics from 2013 till 2016

Group	2013	2014	2015	2016	average	max
Absolute values						
State	2.3755	0.3172	0.4733	6.9411	4.4383	2.9091
Foreign	19.7340	30.3351	27.0131	21.3366	27.0131	25.0864
Private	24.6552	143.1403	30.8080	6.2230	30.8080	47.1269
Listed on a scale from 0 to 100%						
State	25.1427	3.3574	5.0099	73.4659	46.9760	
Foreign	8.4496	12.9887	11.5663	9.1358	11.5663	
Private	10.5568	61.2891	13.1912	2.6645	13.1912	

At the end of 2016, the level of competition among private banks for the sale of securities decreased by 10.5 percentage points compared to the previous period.

Relative to an alternative source of revenues for the bank is the provision of related services and the implementation of cash and settlement customer service.

The dynamics of the level of competition in the market of commission income by the group of Ukrainian banks is presented in Table 9.

Table 9. Estimation of the level of competition of market participants of commission income in the dynamics from 2013 till 2016

Group	2013	2014	2015	2016	average	max
Absolute values						
State	1.7997	0.3616	0.4026	0.1716	0.4026	0.6276
Foreign	28.9238	14.6069	25.7289	18.3821	25.7289	22.6741
Private	13.1135	19.2048	3.1710	14.3288	13.2425	12.6121
Reduced to a scale from 0 to 100%						
State	5.5656	1.1182	1.2449	0.5308	1.2449	
Foreign	96.4614	48.7142	85.8064	61.3047	85.8064	
Private	43.7336	64.0482	10.5752	47.7868	44.1640	

The most monopolized in the market of commission income is a group of state-owned banks, since in 2016 the estimated value is 0.53%, which is 5.03 percentage points less than at the beginning of the investigated period. At the same time, competition among foreign and private banks in this segment of the market is moderate.

Conclusions

Thus, the proposed improved scientific methodological approach and the results of its testing on the activities of domestic banks for the period 2013-2016 confirmed the hypothesis that each segment of the banking services market has its own level of competition, which should be taken into account when developing a strategic map of foreign investors' Ukrainian banking market. In addition, the developed methodological principles allow determining the competitive structure of the industry, which allows foreign investors to form a well-balanced strategy for choosing an investment object depending on the range of financial services available and the service that is planned to be developed in the light of the prospects of the Ukrainian market.

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