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The Influence of Capital Concentration on the Banking Sector of Ukraine

Hasuik Maria,
Ph. D., Assistance Lecturer of the Department of Banking,
Lviv Institute of Banking
of the University of Banking of the National Bank of Ukraine (city of Kyiv);
e-mail: mary.oharchyk@gmail.com

Abstract. In this article theoretical views on the relationship between the concentration and the financial stability of the banking sector are identified, the positive and negative effects of increasing concentration on the financial stability of the banking sector are considered. Comparative analysis between the value of Herfindahl – Hirschman index in the domestic banking system and its value in European countries are made. Special attention is paid to the comparison of Herfindahl – Hirschman index with the share of assets of banks with foreign capital in total assets of the banking system in European countries. The influence of capital concentration and the share of foreign capital on the level of financial stability of the domestic banking sector are investigated with particular attention.

Keywords: concentration, capital, Herfindahl – Hirschman index, Z-score, financial stability, foreign capital.

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Вплив концентрації капіталу на банківський сектор України

Гасюк Марія Олександрівна,
кандидат економічних наук,
асистент кафедри банківської справи
Львівського інституту банківської справи
Університету банківської справи Національного банку України (м. Київ);
e-mail: mary.oharchyk@gmail.com

Анотація. Розкрито теоретичні погляди на взаємозв'язок між концентрацією і фінансовою стійкістю банківського сектору. Здійснено порівняльний аналіз між значенням індексу Херфіндаля – Хіршмана у вітчизняній банківській системі і його значенням у країнах Європи. Досліджено вплив рівня концентрації капіталу та частки іноземного капіталу на рівень фінансової стійкості вітчизняного банківського сектору.

Ключові слова: концентрація, капітал, індекс Херфіндаля – Хіршмана, Z-score, фінансова стабільність, іноземний капітал.

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Влияние концентрации капитала на банковский сектор Украины

Гасюк Мария Александровна,
кандидат экономических наук,
ассистент кафедры банковского дела
Львовского института банковского дела
Университета банковского дела Национального банка Украины (г. Киев);
e-mail: mary.oharchyk@gmail.com

Аннотация. Раскрыты теоретические взгляды на взаимосвязь между концентрацией и финансовой устойчивостью банковского сектора. Проведенный сравнительный анализ между значением индекса Херфиндаля – Хиршмана в отечественной банковской системе и его значением в странах Европы. Исследовано влияние концентрации капитала и доли иностранного капитала на уровень финансовой устойчивости отечественного банковского сектора.

Ключевые слова: концентрация, капитал, индекс Херфиндаля – Хиршмана, Z-score, финансовая стабильность, иностранный капитал.

Формул: 4; рис.: 2; табл.: 0; библи.: 13.

Introduction. Over the past few decades several structural features of the global banking environment changed, producing major changes in bank business models across

Europe and also worldwide. The role of banks in the financial system increased, banks and financial markets became more closely linked and integrated and business



models changed in several important ways. Strengthening influence of financial globalization on national economies is a characteristic feature of modern international economic relations. Intensification of integration process in the financial markets, competition for access to capital, technology mediation development, financial instruments standardization and free movement of capital are the reflection of these processes.

The main task for today is to create an effective structure of the domestic banking system. The World Bank experts noted that for effective functioning of the Ukrainian banking system should be done transformation the banking sector by consolidation and concentration of capital [1]. The problem of searching optimal bounds of capital concentration in the banking system is comes down to a choice between perfect competition and stability.

The aim article is to investigate the effect of concentration of the banking system of Ukraine and foreign capital on its level of financial stability.

Main results of research. According to the Bank for International Settlement, the world has seen a rapid consolidation of banks during the past several decades, which has caused a decrease in the number of banks and an increase in banks' average size. At the same time, studies in this sphere show that banking consolidation and changes in the structure of the banking industry significantly affect not only the performance of individual banks but also the stability of the entire banking system. The researches dealing with this correlation show two possible connections in the sense that the concentration may promote stability and it can also be a source of instability.

Historically, relatively high levels of concentration in banking have been tolerated, or even encouraged by governments, based on a view that a less competitive banking sector may be less prone to banking failure and crises, and more conducive to financial stability [2].

There have been a number of arguments advanced in support of that view. First, Allen and Gale said that less concentrated banking sector with many small banks is more prone to financial crises than a concentrated banking sector with a few large banks. Proponents of the «concentration-stability» view hold that large banks can diversify better so that banking systems characterized by a few large banks will be less fragile than banking systems with many small banks. In the same line of thought, Berger et al. highlight the risk channel as favoring the positive relationship between concentration and stability. They show that the overall bankruptcy risks supported by a bank decreases with the increase of their market power. Indeed, banks will hold a larger capital share, which increases their ability to absorb losses [3].

Second, concentrated banking systems may enhance profits and therefore lower bank fragility. Hellmann, Murdoch, Stiglitz and High Vives support the idea that profits provide a «buffer» against adverse shocks in an instable financial framework and increase the franchise value of the bank, reducing incentives for bank owners to take excessive risk [4; 5].

Another points of view in favor of concentrated banking systems are that larger banks may be better able to implement sophisticated risk management systems, which

increase their ability to measure and manage risk and also a smaller number of larger banks may be easier for regulatory authorities to effectively monitor and may involve less risk of contagion [2].

Beck, Demirgüç-Kunt and Levine (2006) focus on the relationship between concentration and crises. They estimate how the likelihood of a financial crisis depends upon various banking system, regulatory and country characteristics for a sample of 69 countries over the period from 1980 to 1997. They find no evidence that increased concentration leads to greater banking sector fragility [6].

In addition, Fernandez, Marquez, Freixas and Rochet argue that a banking system with larger banks could facilitate access to information, mitigate adverse selection problems and reduce moral hazard [4; 7].

The literature on the relationship between bank concentration and financial stability also supports the possibility of a negative correlation showing that a concentrated market could have a destabilizing effect on financial stability by making reference to the «too big to fail» hypothesis. Indeed, when concentration is particularly strong, some banks have so much weight and market power that their failure would result in the collapse of the entire financial system [8].

For example, Mishkin argues that the presence of large financial institutions is dangerous for the soundness of the financial system because failures of large financial institutions expose the financial system to systemic risk. Especially, large bank failures have negative externalities and can therefore hasten the failure of other banks. Furthermore, Mishkin argues that financial consolidation increases the pressure for governments to adopt a too-big-to-fail policy. The adoption of this policy increases moral hazard because it reduces the incentives for depositors and other debt-holders to monitor the bank. This increases the scope for the bank to engage in excessive risk taking [9].

Boyd and De Nicoló argue that increased banking sector concentration may lead to lower interest rates on deposits and higher interest rates on loans, but that the latter effect would induce borrowers to adopt more risky projects [10].

Scientists in their studies [11; 12] analyze the structural features of the banking system through concentration indexes, which reflect trends in the structure of the banking system, depending on changes in the number of banks on the financial services market. Various factors are influence on these processes; one of the main is entry of new banks into the market due to mergers and acquisitions of banks. Since the comparison Herfindahl – Hirschman index with share of assets of banks with foreign capital in total assets of the banking system in European countries (*Fig. 1*), gives reason to believe that the presence of foreign capital contributes to the concentration of the banking sector. In that context we consider appropriate to study of the effect of concentration of the banking system of Ukraine, which expressed Herfindahl – Hirschman index, and foreign capital on its level of financial stability.

The *HHI* is defined as the sum of the squared market shares of all banks; mathematically (*formula 1*):

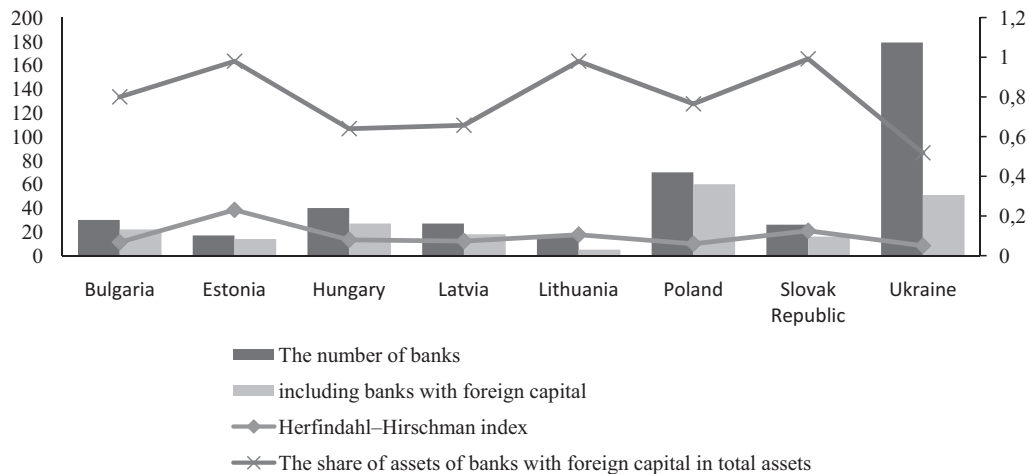


Figure 1. Comparison Herfindahl-Hirschman index with share of assets of banks with foreign capital in total assets of the banking system in European countries

Source. Compiled on the basis of processing [13]

$$HHI = \sum_{i=1}^n s_i^2, \quad (1)$$

where, HHI – Herfindahl – Hirschman index;
 s_i – share the i -bank on the market;
 n – the number of banks in the market.

The economic content of the index is as follows: growth of HHI shows a growing concentration of banks in certain markets; low index indicates a uniform distribution

of market shares among banks operating on it. It should be noted that the merger of small banks does not lead to a significant growth of the index, but the merger of two large banks may lead to a sharp rise in the index.

Comparing Ukraine and developed countries on HHI leads to the conclusion that the domestic banking sector is far behind the level capitalization and concentration of foreign banks (fig. 2).

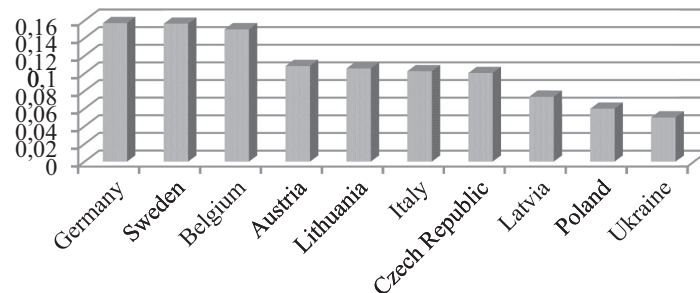


Figure 2. Value of the Herfindahl-Hirschman index in Europe

Source. Compiled on the basis of processing [13].

One of the most widely used indicators of financial stability is the Z-score. Specifically, this indicator is constructed as follows (formula 2):

$$Z_t = \frac{\overline{ROA_t} + \frac{OC_t}{TA_t}}{\sqrt{\sigma^2(ROA_t)}}, \quad (2)$$

where, $\overline{ROA}$ – moving average value of return on assets for 2 years;
 ROA_t – return on assets in the period t ;
 OC_t – total equity in the banking sector in the period t ;
 TA_t – total assets in the banking sector in the period t ;
 $\sigma^2(ROA_t)$ – dispersion ROA ;
 t – period of time, for which figures are taken.

The essence of this indicator is as follows: if the probability that the losses of the banking sector due to internal or external shocks will not exceed its equity is the

maximum, then the banking sector can be considered financially stable.

Regression analysis of the effect of concentration of the banking system of Ukraine, which expressed Herfindahl – Hirschman index, and foreign capital on its level of financial stability of the banking system can be presented in two models: a first, when Z-score exceed the 10.0 (formula 3) and a second when Z-score is lower than 10.0 (formula 4).

$$y = -7,5511 + 824,2678x_1 - 4,2933x_2, \quad (3)$$

$$R^2 = 0,65; F = 5,5;$$

$$y = -2,2333 - 114,335x_1 + 43,022x_2, \quad (4)$$

$$R^2 = 0,90; F = 8,62,$$

where, y – Z-score – index of financial stability of the banking sector,

x_1 – Herfindahl – Hirschman index;

x_2 – the share of foreign capital in the domestic banking sector.



Thus, considering the above regression analyzes, we can conclude that in the case when financial stability of the banking sector is low, the increase of foreign capital has a positive impact on increased financial stability of the sector, describing the sign «+» next to the variable x_2 . The level of capital concentration has a significant impact on the financial stability of the banking sector provided that value of financial stability index exceeds 10. But if financial stability of the banking sector is low, the increase of capital concentration would affect the stability of the financial sector, which characterizes the sign «-» next to the variable x_1 .

Conclusions. According to our research conducted with concentration of the banking system and its finan-

cial stability, need to ensure the optimal level for the domestic banking system, since the effective structure of the banking sector is essential for real economic activity and effect not only on production level and a more efficient allocation of capital, but also promotes economic growth. In addition, results of analysis of the impact of Herfindahl – Hirschman index and the share of foreign capital on the financial stability of the banking sector indicates that when financial stability is low, it is appropriate to attract foreign capital to the extent necessary to carry out the relevant transformation in the banking sector, which will increase its concentration and competitiveness.

References

1. Memorandum of economic development: Strategic Choices to Accelerate and Sustain Growth, available at: http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2012/06/07/000333038_20120607232047/Rendered/PDF/558950UKRAINIA00UA0CEM0UKR0complete.pdf.
2. Davis K. (2007), «Banking Concentration, Financial Stability and Public Policy», available at: <http://www.rba.gov.au/publications/confs/2007/pdf/davis.pdf>.
3. Allen F., Gale D. (2004) «Competition and financial stability». *Journal of Money, Credit, and Banking*, vol. 36, p. 453–480.
4. Ali M. S. B., Timoumi Intissar T. and Zeitun R. (2015) «Banking Concentration and Financial Stability: Evidence from Developed and Developing Countries», available at: http://www.economics-ejournal.org/economics/discussionpapers/2015-22/at_download/file.
5. Vives X. (2010), «Competition and stability in banking». CEPR, Policy Insight, No 50.
6. Beck T., Dermiguc-Kunt A., & Levine R. (2007) «Bank Concentration and Fragility Impact and Mechanics». National Bureau of Economic Research, Volume Title: The Risks of Financial Institutions.
7. Freixas, X. & Rochet, J-CH. (2008) «Microeconomics of Banking». 2^o ed., MIT Press.
8. Doll M. (2010) «Bank concentration, competition and financial stability», available at: <http://arno.uvt.nl/show.cgi?fid=113128>.
9. Mishkin F. (1998) «Financial consolidation Dangers and Opportunities». NBER, Working Paper 6655.
10. Boyd J. H., De Nicolo G., & Jalal A. M. (2006) «Bank Risk-Taking and Competition Revisited: New Theory and New Evidence». IMF Working Paper, 06/29.
11. Vasylenko Z. M. Domanetsky I. V. (2013), «The capitalization banks in Ukraine: current state and problems increasing», *Finance and credit activities: problems of theory and practice: scientific research journal*, vol. 1 (14), p. 3–10.
12. Dovgan J. M. (2013) «Relationship of capital concentration in the banking system of Ukraine and its financial stability», *Science and economics: scientific-theoretical journal of Khmelnytsky Economic University*, vol. 1 (29), p. 7–16.
13. Cândida Ferreira (2013) «Bank market concentration and bank efficiency in the European Union: a panel Granger causality approach» *International Economics and Economic Policy*, vol. 10:3, p. 365–391, available at: <http://pascal.iseg.utl.pt/~depeco/wp/wp032012.pdf>.