Kyiv National University of Trade and Economics

Banking department

FINAL QUALIFYING PAPER

on the topic:

Bank capitalization in Ukraine: current state and development prospects

Student of the 2nd year, group 5am,

specialty 072 «Finance, banking and insurance»

specialization

«Financial intermediation»

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Kyiv, 2019

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INTRODUCTION

Today the problem of interrelation of bank's capital with the sources of its formation, the question of capital structure, its optimal value in the process of change over time remains insufficiently studied and relevant. This is explained by the fact that very often the main purpose is to meet the current owners needs, the rapid return on investment rather than strategic objectives and expanded reproduction of capital, prompting banks to significant risks. In addition, owners and managers are more focused on the study of certain types of sources of formation of liabilities of the bank than the totality of sources of its activities and the need for purposeful formation of capital structure. Considering capital, one must proceed from the dialectical unity of the bank's own, attracted and borrowed sources of capital formation.

The relevance of the chosen topic. The role of the banking system of Ukraine's economy largely depends on its financial sustainability. The most important indicator that characterizes the financial stability of individual banks and the banking system is the banking capital, which is the basis of the activity of any banking institution, plays an important role both in the beginning of its operation and in the process of its further activity. Therefore, it is important to provide a reliable method of formation, management and use of bank capital and compliance with its size required for the development of the banking system.

Level of topic development. Generally, this problem reached some level of developed in the works of foreign authors such as: Mishkin [15], P. Rose [11], J. Shinky [14], H. Fraisse [24], A. Köster [9]. And Ukrainian scientists: M. Alekseenko [8], T. Savchenko [41], V. Koziuk [29]. The urgency of these problems and the insufficient level of study of capitalization issues in the current conditions led to the choice of topic, outlined the object and subject of research, its purpose and main tasks.

The purpose of the work is to study the theoretical foundations of banks' equity, its essence and role in ensuring the capitalization of the banking system of Ukraine, to discover the current theory and practice on problematic issues of bank capitalization, to develop practical recommendations for finding priority ways to

increase the volume of capitalization and to improve ways and methods of maintaining the level of sustainability equity to ensure the stable and dynamic functioning of the banking system in a market environment.

The main tasks, which had to be resolved in the process of research accomplishment, were:

• to investigate the economic nature of bank capital, its types and methods of valuation;

• determine the adequacy of bank capital by international standards; to consider regulatory provision for regulation of bank capital in Ukraine;

• assess the current state of capitalization and the level of bank capital adequacy;

• analyze the level of concentration of bank capital;

• identify the main problems and ways to increase the capitalization of Ukrainian banks.

The object of research are economic relations arising in the process of forming banks on equity.

The subject of research is the current state of capitalization of the banking system of Ukraine.

Methodology. In the process, the following research methods were used: abstract-logical - for the analysis of scientific literature for systematic assessment; statistical and economic - to assess the level of capitalization of the banking system of Ukraine and European countries; systematic approach - to substantiate the conclusions and to offer proposals to increase the level of capitalization of the domestic banking system.

The scientific novelty of the research consists in theoretical foundations for assessing and ensuring the adequacy of bank capital have been further developed; adapted methods of equity assessment to the conditions of functioning of the domestic banking system; recommendations for raising the level of capitalization of the banking system are substantiated.

The practical value of the obtained results of the diploma research is to deepen the scientific substantiation of the peculiarities of capitalization of the banking system of Ukraine in modern conditions.

Publications. Some results of the study were reflected in the scientific article: Yarotska A.D. The current state of capitalization of the banking system of Ukraine// // Management of financial institutions: changing stereotypes: Coll. Sciences. Art. stud. full-time study / resp. ed. N.P. Shulga. - K.: Kyiv. nat. Univ of tr. and econom., 2019. - Part 2 - 296 p. (P.242 - 247). During the process of the research implementation, main theses were also presented during participation in all-Ukrainian Student Scientific Conference "Financial Credit: Problems of Theory and History" (Kyiv, 20th of March) on the topic: "The essence of the bank's capitalization".

Research structure. The work consists of 3 chapters, introduction, conclusions and references. Total number of pages is 52. Total number of tables is 10, figures − 6, references – 57, appendices – 2.

PART I.

THE ESSENCE OF THE BANK'S CAPITALIZATION AND ITS ROLE IN ENSURING THE STABLE FUNCTIONING OF THE BANKING SYSTEM

Banks play a special role, since they are leading financial intermediaries which ensure the transfer of financial resources between individual regions, sectors and economic entities in order to meet their needs and demands. This process requires commercial banks to increase volumes, optimize the structure and improve the organization of the resource base. Sufficient volume and balanced resource base of banks is an important prerequisite for their profitability, sufficient liquidity and the market participants confidence.

Strengthening the resource base contributes to increasing the bank’s ability to meet the current and investment needs of economic entities for additional financial resources. At the same time, currently the problems of the formation and use of bank resources have become noticeable. Necessity to speed up production and limited stock markets have resulted in too high demand for bank loans, which in turn requires rapid build-up of bank resources. The formation of long-term resources, the demand for which is growing most dynamically among enterprises and the population, is especially acute [33].

The proper understanding of the essence of bank capital depends to a large extent on the relationship between banks and their customers, as well as the regulation of banking and supervision. The lack of a unified view of the definition of the essence of bank capital is due, primarily, to ambiguity in the definition of the concept of "capital", one of the varieties of which is bank capital.

The term "capital" means wealth in the form of money resources, real estate, securities used for self-growth.

After analyzing the history of economic thought, we can say that for the first time the attempt to determine the capital was made by Aristotle, who introduced the concept of "chreastics", which comes from the Greek word "hrema" and means

"property", "possession". Under the rhetoric, the thinker understood the art of gaining wealth, or activity aimed at the accumulation of wealth, profit making.

The very term "capital" began to acquire its modern content around 1770, that is, when the world saw the work of an outstanding French scientist of the XVIII century. A. Turgot, who noted: "A person who receives more income each year than she needs to spend can delay this surplus and accumulate it; this accumulation of values is called capital."

The classics of political economy, A. Smith and D. Ricardo, equate capital with accumulated labor, various stocks (means and objects of labor, clothing, food, money, etc.), regardless of social conditions and relations. By linking capital to the results of previous work, the processes of production and circulation, savings, and deduction from current consumption, they determine that capital has a leading role among the main factors of production, along with labor and natural resources. A. Smith argued that the accumulation of capital creates preconditions for increasing labor productivity as a result of its further redistribution. On this basis, A. Smith divided the capital into primary and reversible. D. Ricardo, developing further the teachings of A. Smith, emphasized: "Capital is the part of the stock of production used for profit." The scholar characterized capital as a leading factor in the development of productive forces of society, part of the wealth of the country, which is used in production and consists of food, clothing, tools, raw materials, machinery, all that is necessary in order to drive labor [6].

Marxist school of political economy treats capital not as a thing, but as certain social, inherent in a particular economic formation in the development of mankind, industrial relations, represented in speeches and give them a specific social character. K. Marx noted that it consists of instruments of labor, raw materials, livelihoods, material products, a certain amount of goods, and exchange values. In his opinion, capital is not a thing, but a social relation to a certain socio-historical formation that is embodied in a thing and gives it a specific social character. K. Marx divided the capital into permanent and alternating [4].

Modern scholars treat capital primarily as an economic category, that is, one that is realized in the field of economic activity and economic relations, while emphasizing the fact that capital is one of the forms of wealth used not so much to meet current needs as for future needs.

In economic literature, there is no single understanding of the notion of ‘bank capital’, since its composition and conditions of formation are largely dependent on the development of the financial market and legislation, which determines the conditions of the banks’ activities in different countries. Differences in the interpretation of this concept arise both among foreign and domestic scientists. Below, Table 1 shows some actual definitions of ‘bank capital’.

The most accurate definition is one provided by Alekseyenko [9], because it not only reveals the sources of the capital, but also its economic importance to the bank.

The main indicator of the level of capital adequacy of both a bank and the entire banking system is the level of capitalization. It should be noted, that the scientists of different economy sectors interpret the concept of ‘capitalization’ in different ways.

Rosenberg considers capitalization as the sum of all money invested by the bank by its owners. Another foreign scientist Pearce defines capitalization as the total volume and structure of the bank's share capital [45].

In Ukrainian legislation, there is no definition of capitalization at all. However, the National Bank defines this notion, referring to the Dictionary of Economic Terms, edited by Efimenko, in which the concept of capitalization is very broadly defined [20]. Capitalization - 1) increase of the bank's capital; 2) the aggregate value of securities flowing in the stock market of the country, defined as a percentage of GDP - the level of capitalization of the stock market; 3) the aggregate maximum value of shares and bonds that may be issued by the company; 4) an increase in the bank's value due to the growth of its market value; 5) adding the accrued interest to the principal amount of the deposit and further accrual of income for a larger amount - a deposit with capitalization of income; 6) the share of securities of a certain type in the total amount of issue of securities or capital of a company - the rate of capitalization; 7) additional issue of shares in order to increase capital or directing

part of income (profit, dividends) to increase the bank's capital; 8) capitalization of profits - a method for determining the market value of a bank on the basis of capitalization at a certain norm (percentage) of income received over a certain period of time [47].

Table 1.1

Comparison of definitions of the concept of "bank capital"*

Rose	The funds deposited by the owners of the bank, namely: share capital, reserves and retained earnings [12].
Rosenberg	In addition to equity, bank capital also includes long-term debt [18].
Mishkin	The difference between the amount of assets and liabilities, which forms the net assets. These funds are mobilized through the sale of new shares or retained earnings. An important component is also reserving in case of default loans [19].
Sinkey	The main function of bank capital is the ability to offset losses incurred as a result of banking risks [15].
Zavgorodniy	Set of cash capital (own and borrowed) operated by the bank, which brings profit [24].
Alexeyenko	Funds and money-denominated part of the property belonging to its owners, which ensure the economic independence and financial stability of the bank and which are used for banking operations and provision of services for the purpose of obtaining profit. At the same time, the term ‘bank resources’ refers to funds that are actually in the possession of banks [9].
Law of Ukraine ‘On Banks and Banking’	Own funds, residual value of assets of the bank after deducting all its obligations [39].

* compiled by the author according to the data [9, 12, 15, 18, 19, 24, 39]

The most successful definition of the concept of ‘capitalization’ is proposed by Kovalenko and Cherkashchina, which is interpreted, as a set of actions aimed at a real increase in the bank's capital by reinvesting the profit, attracting cash and cash equivalents from the outside, as well as consolidation and concentration [29].

In the financial dictionary, edited by A. Blagodatin, A. Lozovsky and B. Reisber, the following interpretation of the capitalization of the bank is given: 1) the method of distribution, the use of profit, according to which all or part of the profit is directed towards the development of the bank, and not paid to the owners; 2) a way to increase the authorized capital of the bank by redistributing equity capital of the banking institution.[1]

It is possible to determine the capitalization of the bank from several positions: 1) an increase in the bank's capital; 2) the aggregate maximum value of shares and bonds that may be issued by the bank; 3) an increase in the value of the bank due to the growth of its market value; 4) additional issue of shares in order to increase capital or directing part of the income (profit, dividends) to increase the bank's capital [5].

It should be noted that the common feature of most of these capitalization definitions is that they determine the value of banking institution capital, first, in terms of the cost of its creation (recovery), and the second, in terms of its ability to create added value.

On this basis, it is possible to generalize the definition of capitalization in the following way: the valuation of the capital of the banking institution in terms of the cost of its creation (recovery) or its ability to create added value.

For a better understanding of the essence of capitalization of banks, it should be distinguished its main types. Financial capitalization relates to the presentation of monetary capital in securities and the financial evaluation of their value. It should be noted that quite often in economic literature, financial capitalization is identified with market capitalization, which is to understand the market value of the bank, which is determined on the basis of the market valuation as a product of the market value of shares and their total, which ultimately forms the bank's share capital.

Consequently, market capitalization can be considered an accurate expression of the market valuation of the Bank's equity.

The growth of such components of the bank's own capital and the implementation of relevant active operations under certain circumstances lead to an artificial increase in equity, and thus to an unjustifiably overestimated level of capitalization of the bank - the formation of fictitious capitalization. Theoretically, fictitious capitalization can be formed as a result of exceeding the financial evaluation of capital in the securities market over the real value of the formed capital. Fictitious capital can be of two types: fictitious overvalued capital in essence - a fictitious price that does not really exist in the economy, and fictitiously underestimated capital is an unrealized value in market turnover, which is why it becomes fictitious [5].

The problem of real and fictitious capitalization was violated by many scholars in their research. In particular, according to Professor A. Gritsenko, it is necessary to clearly distinguish between the concept of real and fictitious capitalization of banks. The first, respectively, "consists in the transformation of real value into capital, and capitalization is fictitious with the presentation of the value of securities and must differ from the real theoretical" [1].

It should be noted that the research of the real and hidden capital of banks was carried out by Russian scientist V. A. Tsarkov. Thus, in his work "On the quality of corporate governance and the price of" booty "of the bank's capital, he investigates the impact of the withdrawal of bank capital on the level of its profitability and conducts an assessment of bank losses, but does not determine the specific causes that distort the real value of the bank's equity capital [43].

In Ukraine, the level of capitalization is determined by the amount of equity, since its market valuation is inappropriate due to the underdevelopment of the stock market, and as a consequence of the low activity of banking institutions.

On this basis, it is expedient to consider the size of capitalization of the banking sector from the standpoint of equity. O. Vasyurenko and K. Volokhata interpret the bank's own capital as a set of own funds (shareholders) made by owners (capital participants) that grow as a result of effective banking activity in the process of

capitalization of profits, as well as at the expense of additional revenues from participants [6].

In the opinion of such authors as: A. Gerasimovich, M. Alekseenko, and I. Parasiy-Vergunenko, the bank's own capital represents the cash and the money-denominated part of the property owned by its owners, provide economic independence and financial stability of the bank, are used for banking operations and provision of services for the purpose of obtaining profit.

The above definition of the essence of equity does not contradict each other, but rather complement and can actually be used in banking activities, depending on the goals.

After analyzing these concepts, it can be noted that the bank's own capital is the money paid by the shareholders (the founders of the bank), as well as the funds created in the course of the bank's activities to ensure its economic independence and financial stability throughout its period of activity. According to the Law of Ukraine "On Banks and Banking" there are such functions of equity capital.

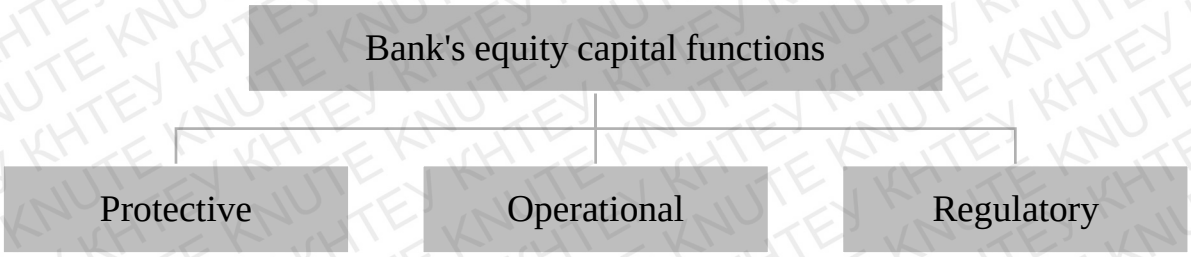

Figure 1.1. Functions of bank’s equity capital

* compiled by the author according to the data [39]

The size of equity is determined by each bank independently and depends on many factors, the main among which are:

- The level of minimum requirements of the NBU to the authorized capital. Increasing demand increases the need for equity capital;
- Specificity of the Bank's clients. With a significant number of small depositors of own funds will be required less than in the presence of large depositors;
- The nature of active operations. The presence of a significant amount of risky operations requires a relatively larger amount of equity.

The Ukrainian methodology for determining the capital of a bank and calculating its sufficiency follows from the recommendations of the Basel Committee. According to them, the bank's capital is divided into the main (capital of level I) and additional (capital of level II). [37]

The capital of a bank consists of the sum of the basic and additional capital, minus distributions, taking into account fixed assets. The composition of the main and additional capital, as well as the distortions, is determined by the NBU. In calculations, the amount of additional capital should not exceed the size of fixed capital, as defined by international standards. The deduction (reduction) of the value of fixed assets is carried out only when it exceeds the sum of the basic and additional capital, minus distortions.

The basic principles of realization of the mechanism of bank's own capital formation are complexity, functionality, efficiency, adaptability and transparency.

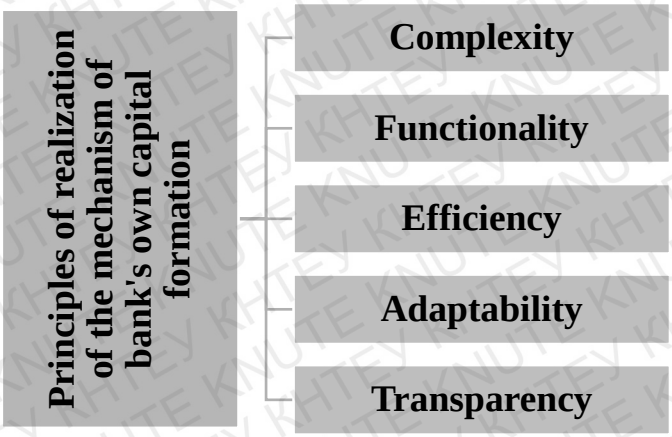

Figure 1.2. Principles of bank's own capital formation

* compiled by the author according to the data [39]

Complexity is that all measures related to the process of formation of own capital must be carried out in conjunction with other areas of the bank's activities. Functionality suggests that all components of this mechanism have clearly defined tasks and are aimed at achieving a single goal - the formation of sufficient equity capital of the bank. Adaptability is the ability of the mechanism to change and improve under the influence of external and internal factors. The principle of effectiveness implies that this mechanism will ensure the maximum realization of the potential opportunities of a particular bank to ensure sufficient amount of equity.

The mechanism of formation of the bank's own capital functions on the principle of transparency and openness, that is, provides the shareholders, investors, and clients with full information regarding the bank's own capital to the shareholders.

PART II.
INVESTIGATION OF THE CAPITALIZATION DEGREE OF BANKS IN UKRAINE AND FOREIGN COUNTRIES

2.1. Comparative analysis of the capitalization level of banks in Ukraine at different stages of development

In recent decades, international banking capital standards have been regulated primarily by agreements between the main countries that are part of the Basel Committee on Banking Supervision. The Basel III Accord on a 'Global regulatory framework for more resilient banks and banking systems' issued in late 2010 was the cornerstone of the international regulatory response to the global financial crisis. The accord was designed to set capital requirements for banks worldwide. Capital requirements have traditionally been regarded as the main instruments to ensure the stability of the banking sector. In 1988, the Basel Committee on Banking Supervision (BCBS) issued the Basel I Accord on 'International convergence of capital measurement and capital standards', which was updated by the Basel II Accord in 2004. Over time, these 'soft' international rules have been incorporated into (legally binding) national legislation in more than 100 countries [11].

At present, the NBU implements new capital requirements in accordance with the Basle norms and EU legislation. However, this process cannot be of a one-time nature, legislative changes take place gradually and taking into account national peculiarities of the banking sector.

The minimum size of the bank's own capital, its composition and the procedure for formation is established by the Law of Ukraine On Banks and Banking, and by the NBU Decrees [37].

A certain step towards the implementation of Basel III international standards in Ukrainian practice was to increase the minimum size of the authorized capital of the bank to UAH 500 million, which will help to increase the level of capitalization of

banks and, accordingly, reduce risks to depositors and, consequently, increase confidence in banks their clients [27].

In addition to the minimum size of regulatory capital, the regulatory capital adequacy ratio (H2), which should be not less than 10% and the capital adequacy ratio (H3), not less than 7% are also determined. At the same time, the size of the indicator H3 in the total on the banking system of the NBU does not publish since 2015 [27].

We analyze the effect of changes in the size of capital ratios on the number of banks and the volume of regulatory capital increase. Table 2.1 shows the tendency to change the size of regulatory capital and the number of banks that corresponds to a certain level. The example of data about regulatory capital by each Ukrainian bank as of 01.01.2019 provided by NBU is shown in appendix A.

Table 2.1

Distribution of banks for regulatory capital in 2015-2019 as of 01.01*

The size of the regulatory capital	**2015**	**2016**	**2017**	**2018**	**2019**
number of banks having a banking license, including:	163	120	100	84	78
Regulatory capital is less than 120 million UAH.	30	28	1	2	2
Regulatory capital from 120 to 200 million UAH.	46	30	42	1	0
Regulatory capital from 201 to 300 million UAH.	25	18	16	36	30
Regulatory capital from 301 to 500 million UAH.	21	13	11	12	12
Regulatory capital from 501 million UAH. and more	41	31	30	33	34

* compiled by the author according to the data [37]

Based on these data, we can conclude that with an increase in capital ratios, the number of banks decreased by more than two times. The increase of the minimum volume of the authorized capital of the bank is not a sufficiently effective measure of regulation and improvement of the stability of the Ukrainian banking system, since much more important is the regulation of the direction of investing, that is, the quality of the assets of the bank. Moreover, the total liquidation of banks due to the lack of regulatory capital is unacceptable. The capital accumulation schedule, which

was earlier established, was too exaggerated, which meant that the banks had no real opportunity to increase their capital in such a rigid term. Though with great delay, after a significant reduction in the number of banking institutions, as shown in Table 1, the timing of bringing the capital to compliance with requirements was mitigated and acquired the following.

If the bank received a banking license by July 11, 2014, then it should gradually increase its capital until it reaches UAH 500 million by July 2024. starting from July 11, 2017, the regulatory capital of such banks should be UAH 200 million, the next increase to UAH 300 million is scheduled to begin on July 11, 2020 [39].

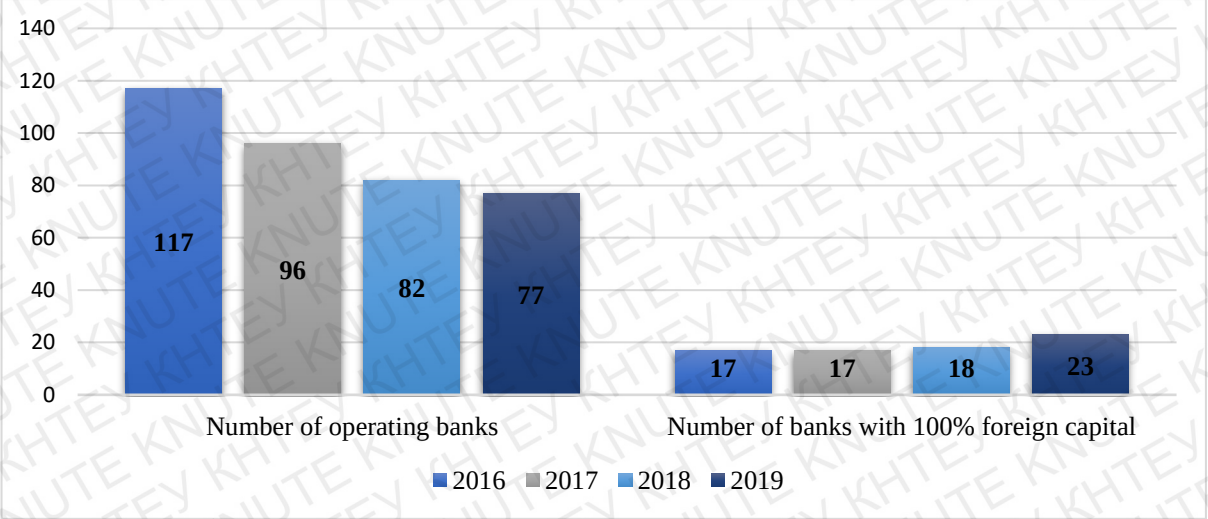

Figure 2.1. Dynamics of the number of operating banks and banks with 100% foreign capital in 2016-2019 as of 01.01*

* compiled by the author according to the data [37]

Thus, we can see the decrease in the number of banks is due to the insolvency of banks with domestic capital, while the number of banks with foreign capital is gradually increasing. It should be noted that the impact of a foreign bank is unambiguous. On the one hand, the pre-global financial crisis evidence suggests that foreign bank participation brought many benefits to developing countries including financial stability. On the other hand, the recent global financial crisis highlights the role of multinational banks in the transmission of shocks across countries. In addition, foreign banks can be a channel through which shocks in one country are transmitted and affect the supply of credit in another country [29].

The influence of foreign capital on the development of the national banking system is multifaceted and rather ambiguous. On the one hand, the emergence of foreign capital in the domestic banking system means additional resources for active operations, lending to the economy and citizens, best practices and management of banks, the introduction of world standards of risk management, new banking technologies, automation of banking processes. The presence of banks with foreign capital in the banking system of Ukraine meets the interests of the development of the domestic financial system, promotes the attraction of foreign investment and the expansion of the resource base of socio-economic development [33]. But, on the other hand, there is a danger of a rapid increase in the share of foreign bank capital associated with the possible loss of sovereignty in the field of monetary policy, the possible increase in instability, unexpected fluctuations in banks' liquidity, speculative changes in demand and supply in the money and credit market, possible outflow of financial resources [7]. Under the influence of foreign bank capital in Ukraine, one can expect the creation of a qualitatively new financial and economic environment, the emergence of new opportunities, but also new problems [3].

But in spite of certain shortcomings, it is impossible not to mention the importance of evaluating the process of attracting foreign capital in the context of the problem of capitalization of the banking system of Ukraine. This is evidenced by the experience of a number of Central and Eastern European countries, for whom the active expansion of foreign capital into the banking sector began in the mid-1990s. Among the major players in the markets of Eastern and Central Europe are world-wide regional European banks, namely: Belgian «KBC», Austrian «Bank Austria», «Erste» and «Raiffieisen», Italian «UniCredit» and «IntesaSanPoalo», French «Societe Generate», German «Commerzbank» and «DresdnerBank». For example, in the Czech Republic, Poland, Hungary, Slovakia and Slovenia, foreign bank owners are, above all, the banks of the EU member states [8].

To analyze the current state of capitalization, we have to look through its indicators over some period of time to understand how exactly it has been changed.

In Table 2.2 is shown the dynamics of main few main capital indicators which is estimated by NBU. This data is graphically represented in Figure 2.2.

Table 2.2

Dynamics of the main indicators of the state of capital of commercial banks in 2017-2019 as of 01.01*

Indicator	Period			Rejection of the reporting period	
	2017	2018	2019	2017	2018
Regulatory capital, H1 (UAH million)	109 653,6	115 817,6	126 116,7	6 164,00	10 299,10
Authorized capital (UAH million)	311 744,82	488 217,6	465 532	176 472,78	-22685,60
Equity (UAH million)	116 434,38	157 363,5	146 431,36	40 929,14	-10932,16
Standard of adequacy of regulatory capital, H2 (not less than 10%)	12,69	16,10	16,18	3,41	0,08
Share of capital in liabilities,%	9,85	12,08	11,44	2,23	-0,64
Return on equity,%	-116,74	-15,84	14,26	100,90	30,10

* compiled by the author according to the data [37]

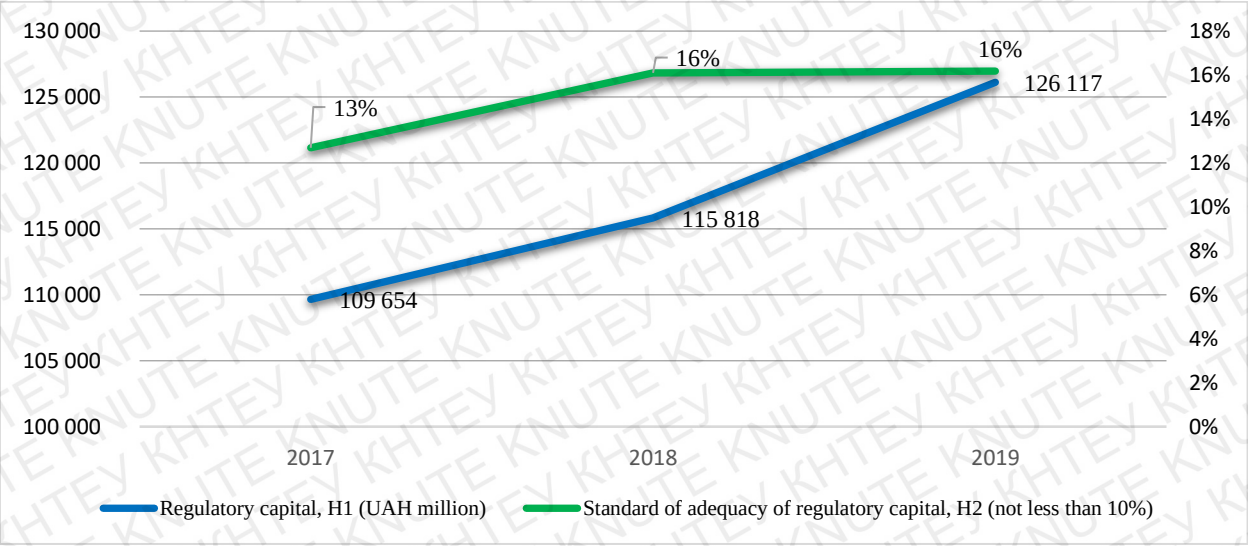

Figure 2.2. Dynamics of capital ratios H1 and H2 for 2017-2019 as of 01.01*

* compiled by the author according to the data [37]

During the analyzed period there is a gradual growth of regulatory capital, while the amount of authorized capital and equity decreased in 2019 compared to 2018. The norm of the H2 in 2017-2019 was more normative and continues to grow. In 2019, for the first time in recent years, the return on capital has a positive impact.

Table 2.3

Capital of the largest commercial banks of Ukraine as of 01.01.2019*

Bank	Amount of regulatory capital, mln.	Percentage to the banking system of Ukraine
"PRIVATBANK"	19 555,7	15,5
"OSCHADBANK"	13 200,5	10,5
Ukreximbank	11 147,2	8,8
"Raiffeisen Bank Aval"	10 480,0	8,3
"UKRSIBBANK"	6 405,1	5,1

* compiled by the author according to the data [37]

From the data above (Table 2.3), one can conclude that the concentration of capital in the largest banks and the reduction of the share of assets of small banks in the aggregate assets of the banking system of Ukraine.

Let's consider the concentration of capital in the banking sector of Ukraine in more detail. One of the main approaches to determining the level of concentration is the concentration index (structural approach) or the index of Herfindahl and Hirschman (HHI). The Herfindahl-Hirschman index is referred to as the full information index, because it takes into account the peculiarities of the distribution of the financial and credit structures. The HHI is used for banking supervision purposes, as well as to analyze the banking market structure.

The analysis of concentration processes in the banking system of Ukraine begins with an assessing the level of monopolization of the banking services market (by assets, equity, liabilities) using HHI. HHI – is an indicator used to assess the level of the economy sectors monopolization. It is calculated as the sum of the squares of the particles of a separate activity indicator by the formula:

$$HHI = \sum_{k=1}^{N} \left(\frac{P_k}{P}\right)^2 \quad (2.1)$$

where I – Herfindahl-Hirschman index value;

P_k – a certain indicator of the activity of a separate bank (for example, equity), which is used to assess the level of the market monopolization;

P – the value of the relevant indicator for the whole banking system;

and N – number of banks in bank system [26].

In order to characterize the level of concentration, according to the criterion of monopolization in banking, indicators such as equity, assets, credit portfolio, amount of borrowed funds, etc., are used. The Herfindahl-Hirschman index can range from 0 to 1. The following grading scale of concentration level is established, depending on the HHI level:

- 0 – minimum concentration;
- from 0 to 0.1 – low level of concentration;
- from 0.10 to 0.18 – average concentration;
- more than 0.18 – high level of concentration.

If there is one bank in the market, that is, a complete monopoly, the HHI will equal 1.In practice, the following concentration factors are more often used: market shares of three (CR3), five (CR5) and ten (CR10) leading banks, as well as Herfindahl-Hirschman index.

Besides the HHI is also used the concentration index (CR). Since the concentration index is an arithmetic sum, it actually ignores the structure of distribution of market shares between the companies that are included in the index calculation. Because of these shortcomings, the concentration index does not apply as the main indicator. The index of concentration of three (CR3) and five (CR5) leading banks or banking institutions is calculated according to the formulas:

$$CR3 = \sum_{i=1}^{3} Y_i \, , CR5 = \sum_{i=1}^{5} Y_i, \tag{2.2}$$

where Y_i – market share of i^{th} bank.

The figure below shows the dynamics of the HHI and CR indicators for the three and five largest capital banks in 2015-2019. The figure based on the data of Appendix B.

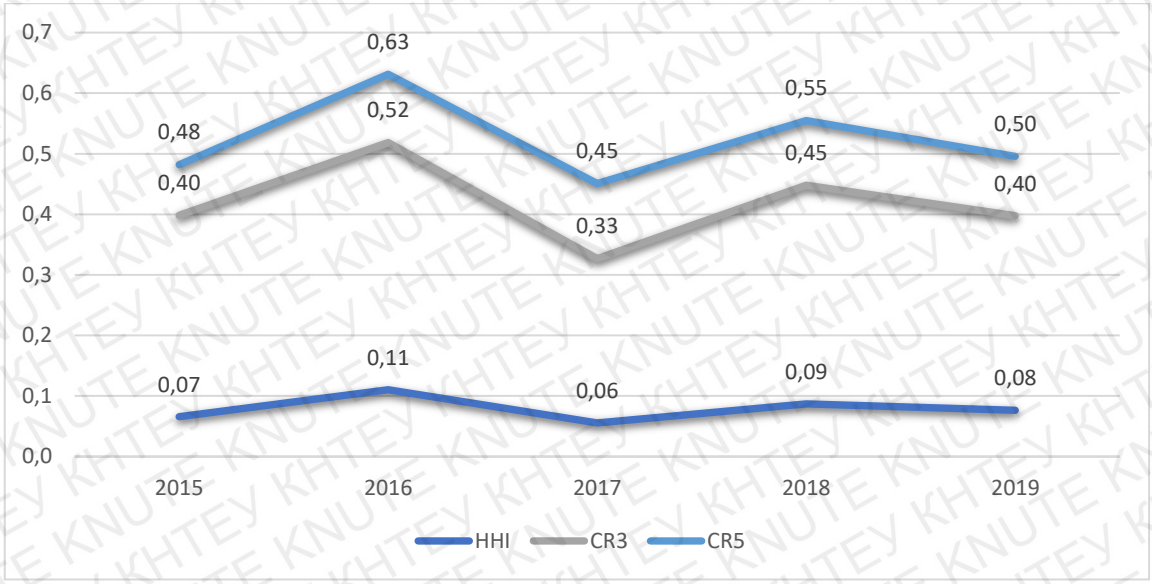

Figure 2.3. Dynamics of equity concentration indicators in the banking sector in 2015-2019 as of 01.01*

* compiled by the author according to the data [37]

From the above data, it can be seen that during the investigated period, the HHI has a value within the low concentration level and reaches an average level, namely a value of 0,11 only in 2016. As for the CR5, it also reached its peak in 2016 (0.63). In general, the value of CR3 f CR5 is rather high, CR5 even exceeding the mark of 0.5. This indicates that more than 50% of the capital is concentrated in 5 largest banks. This situation is negative, since the presence of large volumes of capital in the major players of the market reduces the competitive principles of development and limits the access of smaller banks to the use of resources.

Regarding the significance of the CR5 concentration index, if the share of five largest banks in the banking market is less than 40%, then such a market is characterized by low concentration and free competition; if from 40% to 60%, then – the average concentration and monopolistic type of competition; if from 61% to 80%, then – with high concentration and oligopolistic competition; if more than 80%, the banking services market is characterized by a very high concentration and indicates a monopoly.

Therefore, the Ukrainian banking sector has an average level of concentration and is characterized by a monopoly type of competition, since indicator CR5 is between 40% and 60%.The indicator of capitalization (concentration of equity capital) determines the level of capital in the structure of total liabilities, that is, in the total

amount of sources of the bank. On the other hand, the excessive growth of the indicated coefficient points at the non-business activity (inactivity) of the bank in terms of attracting resources and developing a client base [38].

Another important feature of the financial stability of the bank is the quality of its assets. Asset quality is characterized differently, in particular, determine the profitability of assets, risk level, the share of earning assets, level of diversification, the share of non-performing assets and non-profit. The concept of "quality assets" reflects the degree (amount) of assets pledged risk. The quality of the assets is inversely proportional to the proportion of bad and non-performing loans. As for risk assets, their proportion should not be too high or too low, as this would adversely affect the financial activity and profitability of the bank. Table 2.4 shows the dynamics of loans and liabilities and their ratios to equity over the last 5 years, since the ratio of capital to loans is an important indicator that allows you to assess the sufficiency of equity for active operations.

Table 2.4

Dynamics of equity, loans and liabilities of commercial banks of Ukraine in 2015-2019 as of 01.01*

Indicator	Period				
	2015	2016	2017	2018	2019
Equity (UAH million)	148 063	94 914	116 434	157 364	146 431
Loans (UAH million)	873 611	1 009 768	1 005 923	1 036 745	1 118 860
Liabilities (UAH million)	1 168 655	1 150 672	1 132 515	1 172 723	1 204 743
Equity to credit ratio, %	16,9	9,4	11,6	15,2	13,1
Equity to liabilities ratio, %	12,7	8,2	10,3	13,4	12,2

* compiled by the author according to the data [37]

In Ukraine, the aggregate amount of equity is equal to that of the European medium-sized bank and much lower than that of the largest banks in the developed world. The relatively low amount of equity of commercial banks of Ukraine today remains one of the main problems of efficiency of the banking system of Ukraine. The low level of capitalization of banks means excessive concentration of risks in banking, limiting the range of financial services and increasing the cost of providing them. Loss of capital makes it impossible for a bank to function and can lead to bankruptcy.

Thus, the quality of assets can be assessed in terms of their level of liquidity, riskiness and profitability. It is obvious that the structure and quality of assets affect the levels of liquidity and solvency of the bank. It should be noted that important conditions are not only the quantitative growth of assets, but also their qualitative changes, in particular the decrease in the proportion of non-performing assets.

Non-performing loans, according to the NBU's current classification, cover doubtful and non-performing loans, which are reflected in the balance sheet, and do not include deposits, off-balance sheet guarantees and credit risk-bearing loans. According to IMF recommendations, loans are considered inactive if the principal and interest payments are delayed by three months (90 days) or more.

Table 2.5

Dynamics of non-performing loans of Ukrainian banks during 2015-2019 as of 01.01, mln UAH*

Indicator	Period				
	2015	2016	2017	2018	2019
Tonal amount of loans	1 006 358	1 009 768	1 005 923	1 042 798	1193 558
Non-performing loans	135 858,3	370 237	407 667	594 999	630 767
Non-performing loans, excluding reserves	77 489,6	131 036,4	111 391,9	112 167,5	114 365
Equity	148 063	94 914	116 434	157 364	146 431
Ratio of non-performing loans, excluding reserves to equity,%	52,3	138,1	95,7	71,3	78,1
The ratio of non-performing loans to total loans,%	13,5	36,7	40,5	57,1	52,8

* compiled by the author according to the data [37]

According to the Table 2.5, it can be concluded that the share of non-performing loans is quite high and makes up more than half of all loans, with the upward trend observed throughout the analyzed period. There are many reasons for the emergence of inactive loans in the banking system of Ukraine.

First, the devaluation of the hryvnia led not only to the nominal recalculation of foreign currency problem loans, but also to the real decline in the financial position of many borrowers. The deterioration of the solvency and the decrease in the actual cash flow of customers occurred both as a result of the devaluation and due to a

decrease in the proceeds from the sale by the enterprises of the goods and services of certain industries, in particular importers.

Second, significant pressure on credit quality continues to be exerted by the traditionally weak creditors' rights protection system. Today, the debt collection process takes 3-5 years, as a result of the forced sale of property, banks receive 25-50% of the market value of the property. Banks also spend money on litigation. There are significant problems with the sale of residential real estate

One of the main factors that adversely affects banks' equity is the presence of bad debt. The increase in its level leads to the need to form significant amounts of reserves, reduce the efficiency of banking activities and may lead to its loss, affecting the sufficiency of banks' own capital.

The presence of a considerable amount of bad credit debt of banks adversely affects both the quality of their loan portfolios and the volume of their equity. This, in turn, leads to a decrease in the standard (H2) - regulatory capital adequacy, reduces the efficiency of banking activities, investor confidence in the banking system and significantly complicates the ability to lend to the country's economy. As a result, banks suffer (traditionally, they receive major income from lending) and the economy of a country that does not receive sufficient funding.

2.2. Analysis the impact of capitalization level of European banks on the development of the European Union banking sector

In 2013, the European Union adopted a legislative package to strengthen the regulation of the banking sector and to implement the Basel III agreement in the EU legal framework. The new package replaces the current Capital Requirements Directives with a Directive and a Regulation and is a major step towards creating a sounder and safer financial system.

The Regulation contains the detailed prudential requirements for credit institutions and investment firms while the new Directive covers areas of the current

Capital Requirements Directive where EU provisions need to be transposed by Member States in a way suitable to their respective environment.

The European Banking Authority (EBA) plays a key role in the implementation of the Basel III framework in the European Union.

While it provided expert technical advice to the EU institutions during the legislative process, the EBA is now mandated to produce a number of Binding Technical Standards (BTS), Guidelines and reports for the implementation of the CRD IV/CRR package.

BTS are legal acts which specify particular aspects of an EU legislative text (Directive or Regulation) and aim at ensuring consistent harmonisation in specific areas. BTS are always finally adopted by the European Commission by means of Regulations or Decisions. According to EU law, Regulations are legally binding and directly applicable in all Member States. This means that, on the date of their entry into force, they become part of the national law of the Member States and their implementation into national law is not only unnecessary but also prohibited.

Guidelines are an important tool for fostering convergence of supervisory practices across the EU. Although they are not legally binding, supervisory authorities and institutions around Europe must make every effort to comply with them. Supervisory authorities, in particular, are obliged to inform the EBA of their compliance or intention to comply with them and to also explain the reasons for an eventual non-compliance.

Finally, the EBA has the mandate to produce a number of reports aimed at evaluating or assessing the impact of several provisions included in the legislative text, such as the implementation of a leverage ratio in Europe or the evaluation of the impact of the new provisions on lending to small and medium enterprises.

The Basel III rule introduced the following measures to strengthen the capital requirement and introduced more capital buffers:

Capital Conservation Buffer is designed to absorb losses during periods of financial and economic stress. Financial institutions will be required to hold a capital conservation buffer of 2.5% to withstand future periods of stress, bringing the total

common equity requirement to 7% (4.5% common equity requirement and the 2.5% capital conservation buffer). The capital conservation buffer must be met exclusively with common equity. Financial institutions that do not maintain the capital conservation buffer faces restrictions on payouts of dividends, share buybacks, and bonuses.

Countercyclical Capital Buffer is a countercyclical buffer within a range of 0% and 2.5% of common equity or other fully loss absorbing capital is implemented according to national circumstances. This buffer serves as an extension to the capital conservation buffer.

Higher Common Equity Tier 1 (CET1) constitutes an increase from 2% to 4.5%. The ratio is set at:

- 3.5% from 1 January 2013
- 4% from 1 January 2014
- 4.5% from 1 January 2015

Minimum Total Capital Ratio remains at 8%. The addition of the capital conservation buffer increases the total amount of capital a financial institution must hold to 10.5% of risk-weighted assets, of which 8.5% must be tier 1 capital. Tier 2 capital instruments are harmonized and tier 3 capital is abolished [11].

In order to assess the extent to which the bank's capital ratios in Ukraine are consistent with those of European countries, compare the capital ratios of the Ukrainian banking system to the corresponding indicators of Poland and Latvia, as well as the average of the EU countries. In my opinion, it is expedient to compare Capital Ratio because this indicator is relative, and therefore it is possible to avoid inaccuracies in the comparison of the related national currency rates and the number of banking institutions that carry out risk activities that arise when comparing absolute figures. These indicators and their graphical interpretation given in the table 2.6 and figure.

Table 2.6

Dynamics of Capital Ratio in some European countries in 2014-2018*

Country	2014	2015	2016	2017	2018
EU	12,5	12,3	13,4	14,7	15,6
Ukraine	16	12	13	16	16
Poland	14	15,2	16,1	17,2	17,1
Latvia	18,3	19,3	18,2	19,0	19,7

* compiled by the author according to the data [23, 35, 36, 37]

For a more accurate comparison, the selected Eastern European countries: Poland, our closest European neighbor and Latvia, which, like Ukraine, belongs to post-Soviet countries and is a good example of building a financial market. As we see, the capital adequacy ratio of Ukraine is the lowest among the countries under consideration, however, since 2017 it exceeds the average European one. At the same time, among all countries, including the EU average, there is a tendency to increase this indicator.

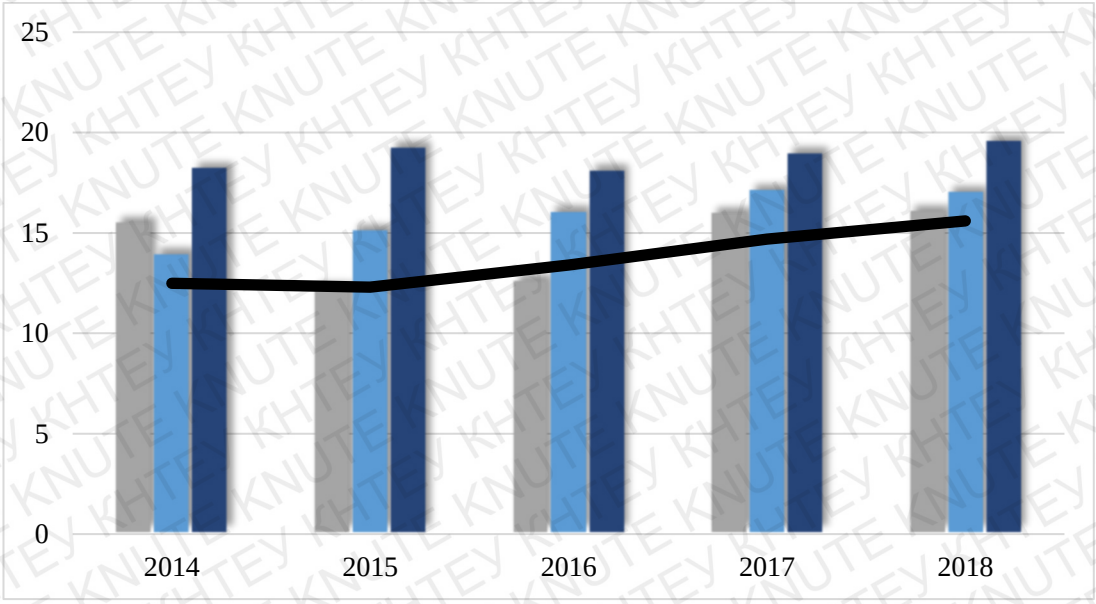

Figure 2.4. Dynamics of Capital Ratio in some European countries in 2014-2018*

* compiled by the author according to the data [23, 35, 36, 37]

Consider in more detail the example of each of these countries and their process of implementation of Basel III standards in terms of capital requirements.

Latvian commercial banks according to Basel III include the following findings:

- weak banks will be driven out of the financial market,
- there will be a shift of demand from short term to long term financing,
- the risk of bankruptcy of banks will decrease,

- toughening of requirements to the capital and liquidity will lead to the reduction of crediting and recession of bank activity.

The capital adequacy ratio has a breakdown in groups of Latvian banks for the period from 2001 to 2014. In pre-crises period 2001 to 2008 banks established on the Eastern capital worked with good capital strength. At the same period banks established on the Latvian and European capital worked with small capital strength. Since within crisis period all commercial banks restricted their risky transactions, also tightening their crediting policies, while carried out the absorption of losses increasing equity capital.

Key factors, influencing on capital of Latvian commercial banks are provisions for outstanding debts and amount of banks assets, both factors are statistically significant. 2008 became the start of problems in commercial banks associated with outstanding credits. Crisis times in Latvia (2008-2010), when share capital exceeded own capital, losses of the system were higher than other components of capital. Now in post crisis period capital adequacy of Latvian commercial banks fully correspond with Basel III requirements [35].

Thus, implementation of Basel III recommendations shall have a positive effect on the financial stability of the banking system in the long-term period, because commercial banks will choose more balanced growth strategies.

In Poland banks continued to raise their own funds. The increase in Common Equity Tier 1 capital resulted from the retention of profits of the current period and earned in previous years, from an increase in the valuation of financial assets available for sale and from issues of shares and membership capital. Additionally, part of membership capital is classified as regulatory capital only as grandfathered instruments. These instruments are subject to gradual amortization and they will vanish from regulatory capital by 2022, unless banks amended their statutes appropriately. A relatively big increase in Tier 2 capital at commercial banks was a new development. This development was related to the shift in the funding strategy. Additionally, subordinated liabilities classified as Tier 2 capital were replaced by subordinated liabilities with a longer maturity. Domestic financial institutions,

mainly investment funds, prevailed among buyers of new issues of subordinated debt [36].

In 2016, the capital base in Poland increased significantly - at the end of 2016, the banking sector's equity amounted to PLN 175.4 billion, up from PLN 16.3 billion, or 10.2% more than in 2015. The increase in own funds was mainly due to the retention of more than half of the profits received in 2015, new issues of shares and the elimination from SK Bank's reports, which showed relatively high negative equity at the end of 2015.

At the end of 2016, all commercial banks had a minimum initial capital of EUR 5 million. On the other hand, in the case of cooperative banks, the four banks did not meet the minimum requirements of EUR 1 million [8].

A substantial increase in total capital requirements and a relatively smaller increase in capital brought the upward trend of capital ratios to a halt. The regulatory pillar 1 capital adequacy standards were more than met by the majority of banks. Two cooperative banks with a total share in the banking sector’s assets of less than 0.05% were an exception.

PART III.
PROSPECTS FOR DEVELOPMENT AND SOLUTION OF EXISTING CAPITALIZATION PROBLEMS OF UKRAINIAN BANKING SECTOR

3.1. Directions of increasing capitalization level of banks in modern conditions

Based on the analysis conducted, it can be argued that the situation prevailing in the banking sector of our country is not sufficiently positive and favorable for the existence of its competitiveness. Among the problems are the following:

- loss-making activity of banks in recent years;
- the complexities of the general economic nature, caused by a shortage of money resources in the financial market during the crisis period;
- low level of capitalization of commercial banks. According to this indicator, domestic banks are so lagging behind foreign ones that even under favorable conditions it will be difficult for them to compete not only in the world market, but also within the country, if the latter decide to seriously consolidate themselves in our market.
- the problem of reliability and security of issued loans. The share of problem loans in all banks is quite high, because the resources of depositors who were not provided with own capital were attracted, with the subsequent entry into the market of loan capital without the creation of reserves for covering credit risks.
- lack of financial resources in the banking sector holds back the country's economic growth.

The solution to the existing problems of bank capitalization should occur at both macro and micro levels. At the macro level, this is state supervision and capital adequacy standards, at the micro level, each bank should develop and implement measures to improve capital and bring it into line with NBU requirements.

One of the most important stages of forming a bank's equity is developing a strategy. It defines a system of criteria for the assessment of equity, factors of

influence, priorities in capital management, management tools. The equity management strategy should be interrelated and not contradict the overall development strategy of the bank. The bank's strategy determines both its size and the scope of its activities, which ultimately has a significant impact on the management of the bank's equity.

Three types of bank equity management strategy are identified in the scientific literature (Table 3.1): return maximization strategy, liquidity strategy and equilibrium strategy.

Table 3.1

Bank equity management strategies*

The name of the strategy	Characteristic	Advantages	Disadvantages
Return maximization strategy	It is aimed at maximizing the return on capital, maximizing profit while maintaining liquidity. The main task is to reduce the rate of immobilization, to provide capital to the minimum possible to cover the risk levels. Profitability indicators play a significant role in evaluating a bank's performance. Particular attention is paid to the directions of use of profit	High return on capital, Profit margins and dividends	High qualification requirements of all banking professionals, especially managers, managers of capital, High risk of liquidity loss
Liquidity strategy	It is aimed at maintaining liquidity at a given rate of return. The primary objective is that the bank's equity should be sufficient to cover all risks. They pay little attention to the economic return on capital. It is mandatory to comply with central bank regulations. Capital is growing rapidly, but not always effectively	Stability of the bank in the short-term crisis period	Excess liquidity, Low profits, Low dividends,
Equilibrium strategy	Focuses on balancing liquidity and profit. Two goals are set - efficiency and return on capital, and maintaining sufficient sustainability. The Bank pursues a risk-balanced policy, the profits are growing at a low rate, the dividends are small and often sent for capitalization	Controlled risks, Stability of the bank in the short-term crisis period	Time-consuming process of capital management, which is possible only with the use of modern methods of automation of the management process

*Source: [28]

The need to develop and implement a bank's equity management strategy is primarily explained by the fact that the sufficiency of equity as a whole depends on whether a banking institution can effectively continue its operations in the financial market, which emphasizes the strategic aspect of the bank's core capital formation objective.

The development of a bank's equity management strategy in the current economic conditions of operation should be based on a system-integrated approach, which will allow to take into account existing stimulating and disincentive effects and factors from the internal (micro) and external (macro and meso) environment of the bank.

Macroenvironmental factors (national and world level factors affecting the Bank's activity) include four major groups: economic (inflation, GDP, external debt, level of securities market development, seasonality of business activity); political and legal (legislative and legal framework, political situation); social (the degree of culture and education of society, the development of needs at different levels); technological (degree of general technological development of the country, availability of a developed banking infrastructure).

The mesoscale factors (factors that operate only within the banking sector) include: the state of the banking system; the level of banking competition; development of the interbank market; features of banking regulatory framework; peculiarities of the current system of supervision of credit institutions by the state; the system of taxation of this type of business activity and the presence of a deposit insurance system.

The factors of microenvironment (internal factors of the bank) include: the strategy of development of the bank; corporate governance system; internal control system; financial condition of the bank.

The major problem in determining the required amount of equity for a bank is choosing the appropriate ratio of capital and liabilities: the greater the share of capital, the greater the financial independence of the bank, but the greater the amount of borrowed and borrowed funds, the greater the return on equity.

Thus, it is a choice between reliability (the higher the greater the amount of capital) and profitability (the greater the lower the amount of capital). Expanding banking activities constantly requires an increase in equity. Therefore, there is an urgent need to find reliable sources of increasing bank capital. In banking practice, there are various ways to increase equity, the main of which are:

1) internal sources (capitalization of profits);
2) external sources (increase of the authorized capital through the issue of shares, attraction of funds on the rights of subordinated debt, attraction of foreign investments);
3) reorganization (merger, acquisition, merger).

In general, one can say that in order to solve the problem of raising the level of capitalization and reliability of institutions of the banking system of Ukraine, it would be advisable for banks:

4) improve the quality of capital and ensure adequate coverage of the risks taken by banks;
5) accelerate the process of completing the transition of the Ukrainian banking system to Basel II and begin preparations for the implementation of the Basel III standards;
6) stimulate the attraction of its own bank profit for investment in capital by exempting from the taxation part of the profit of lending institutions aimed at increasing their capitalization, stimulating investors to exempt from taxes on profits, which is aimed at the capitalization of banks;
7) to stimulate the inflow of capital to banks through the active attraction of shareholders' funds, including portfolio investors;
8) in order to avoid possible destructive influence of international financial flows on the banking system of Ukraine, it is necessary to establish the economic limit of the optimal influence of foreign capital on domestic banks at the level of 40-45% of the capital of all banks;

9) increase the capital adequacy ratio through consolidation of the Ukrainian banking system (consortium lending, creation of banking unions, mergers, reorganization).

At the same time, changes in capital requirements are only part of a large-scale change in banking regulation. The transformation of banking supervision in the direction of a risk-oriented approach will strengthen the policy of banks capitalization. At the same time, overcoming political resistance to banking reforms will largely depend on how financial institutions will be able to go beyond the usual practices of related lending. Creating an adequate business climate and overall strengthening of the quality of institutions will create synergy with changes in banking regulation. Without this, reforms can affect the complication of the adaptation process to the new regulatory environment, in which banks will agree to increase the burden of transaction costs, while maintaining the usual practice of lending and risk assessment (in conjunction with an increase in the proportion of unloaded assets), instead of moving towards more diversified portfolios, which should be formed on the basis of market niches expansion.

3.2. Prospects of applying European experience in order to improve the state of banks capitalization in Ukraine

In advanced economies, the marginal benefits of increases in capital are high initially, but decline rapidly once banks' risk-weighted capital ratios reach the 15-23 percent level (depending on the underlying assumptions). The reason is that capital levels within this range would have been sufficient to absorb losses in most banking crises in advanced economies. Protecting against the most extreme crises would have required substantially more capital, while such crises have been very rare in advanced economies. The discontinuity is less pronounced and occurs at a higher capital level for emerging and developing economies, where banking crises have more often been associated with large bank losses. This asymmetry is

not surprising given the structural differences between the two country groups. It highlights the complementarity of capital and institutional improvements (in regulation, supervision, resolution) in order to reduce expected bank losses in a possible banking crisis. Further, reminiscent of the debate about sovereign debt sustainability, it stresses the correlation between the magnitude and frequency of macroeconomic shocks and the size of the buffers necessary to confront them [30].

Table 3.2

Basel I, Basel II, and Basel III Capital Requirements*

	Basel I	Basel II	Basel III
Quantity of Capital			
Minimum Total Capital	8.0	8.0	8.0
Capital Conservation Buffer	n/a	n/a	2.5
Minimum Total Capital Plus Conservation Buffer	n/a	n/a	10.5
Countercyclical Buffer	n/a	n/a	0–2.5
Global Systemically Important Banks (G-SIB) Surcharge	n/a	n/a	1–2.5
Minimum Total Capital Plus Conservation Buffer, Countercyclical Buffer, and G-SIB Charge	8.0	8.0	11.5–15.5
Leverage Ratio	n/a	n/a	3.0
Quality of Capital			
Minimum Common Equity Capital	n/a	n/a	4.5
Minimum Tier 1 Capital	4.0	4.0	6.0
Hybrid Capital Instruments with Incentive to Redeem	Eligible	Eligible	Not eligible

*Source: [11]

Higher bank capital requirements have several benefits from a financial stability perspective, but might also impose certain costs on banks and society.

The starting point when discussing the benefits and costs of capital regulations is often the so-called Modigliani-Miller theorem, according to which capital requirements are both costless and redundant. However, a number of conditions must be true for this to be the case. There should, for example, be no tax deductibility of interest rate costs, no bankruptcy costs, and no asymmetric information between borrowers and lenders. One can argue about the relative importance of each of these frictions, but it is unlikely that the Modigliani-Miller theorem would hold exactly. Requiring a certain capital-to-asset ratio can therefore play an important role in giving banks incentives to behave in a socially optimal fashion [39].

In an idealized Modigliani-Miller world without tax deductibility of interest rate costs, bankruptcy costs, or agency problems, bank leverage does not affect social welfare (or bank profits). In this world, capital requirements are at the same time costless and irrelevant. In practice, however, several frictions imply that the MM paradigm does not apply (at least to banks), and that capital may affect the way banks behave and their profitability. In particular, asymmetric information entails significant agency problems, and externalities magnify the social cost of bank failure. Then, capital can play an important role in aligning banks' incentives with social welfare [17].

Benefits

First, capital serves as a buffer that absorbs losses and reduces the probability of bank failure. This protects bank creditors and, in systems with explicit or implicit public guarantees, taxpayers. Second, capital has a preventative role by improving incentives for better risk management. When asymmetric information prevents creditors from pricing bank risk taking at the margin, banks operating under the protection of limited liability will tend to take excessive risks. Capital can limit these excesses by increasing shareholders' "skin in the game": the amount of equity at risk in the event of bank failure. This includes the role of bank capital in helping minimize market discipline distortions associated with deposit insurance and implicit government "too-big-to-fail" guarantees.

Market forces push banks to maintain some positive level of capital. For example, higher capital helps banks attract funds, maintain long-term customer relationships and carry risks essential to lending. However, it is widely accepted that these forces are not sufficient to ensure that the market equilibrium bank capital levels deliver a welfare-maximizing allocation. Put differently, due to frictions, the private return to capital is lower than the social return. Thus, banks will tend to hold less capital than what is socially optimal. This provides a rationale for regulation aimed at increasing bank capital relative to the laissez-faire equilibrium (this typically comes in the form of risk-weighted minimum capital requirements and more recently of caps on leverage ratios).

Costs

In analyzing the costs of bank capital it is important to distinguish between the transition impact and steady-state impact of higher capital requirements. The costs associated with the transition to heightened capital requirements are not relevant at the steady state. These are costs stemming from raising new external equity or reducing the growth of assets. Equity issuance is subject to nonnegligible underwriting fees, usually of 5–7 percent. Also, there are signaling costs: issuing equity may require substantial discounts when incumbent investors and managers have information about the firm that new equity investors do not have. Therefore, one would expect that any rapid increase in mandatory capital ratios would take place at least partially through an adjustment of bank assets, with potentially large negative effects on credit and macroeconomic performance.

In principle, these transition costs could be mitigated by giving banks time to adjust their balance sheets gradually. This might enable banks to increase capital using retained earnings or external capital issuance timed to beneficial market conditions. In practice, however, this may prove difficult to the extent that market pressures might force banks to adjust rapidly to the new capital standards.

The steady-state costs of higher capital requirements are those that occur after a permanent change in the funding mix of banks is completed. Some of the costs associated with a heavier reliance on equity are similar for banks and nonfinancial firms. For example, in many jurisdictions, debt has a more favorable tax treatment than equity. Aside from tax issues, equity can be more costly if, due to various frictions, a decrease in leverage does not lower the required return on equity.

In addition, some of the costs associated with more equity are specific to the banking system. The most notable cost stems from the fact that deposits and other debt liabilities often benefit from subsidized safety net protections, including deposit insurance and too-big-to-fail subsidies that benefit bank debt more than bank equity. Junior debt-holders and uninsured depositors suffered minimal losses during the recent crisis, especially when compared with shareholders. As a result, banks' overall costs of funding may increase with greater equity finance. While it is

important to recognize that this increase is primarily a private cost to banks, it might have welfare implications if it affects the cost and availability of bank credit (and, with distortionary taxation, expected bail-outs).

Other notable costs stem from the fact that, whereas for a nonfinancial firm leverage is a funding decision, for a bank its debt is also an output. The literature suggests that some economic agents, so-called cash investors, value bank debt for its high (often immediate, for deposits) liquidity and safety. When banks replace debt with equity, this destroys some economic value intrinsic to bank debt. This reduces the cash investors' surplus, along with bank profits, and can harm bank borrowers through a higher cost of credit.

Finally, a related but separate issue is the role short-term debt can play in disciplining banks. This relates more to the composition of bank debt than bank leverage per se. The argument is that without demandable debt that gives creditors the ability to "run" on weak banks, banks would engage in riskier behavior. However, the crisis raised questions related to the role that short-term debt can play in protecting financial stability: it provided little discipline before the crisis, but contributed to extreme, across-the-board runs once the crisis hit. Moreover, it is. unclear why market discipline cannot be provided by only small amounts of short-term bank debt [17].

Ensuring a sufficient level of bank capital is not possible only by raising prudential standards. The current conditions of banking business development require the use of market mechanisms that allow to increase the capital of banks by their own efforts. Further transformation of Basel III standards, which reinforce the requirements for quality capitalization of banks at the expense of real assets, is advisable. The capital stock will include real quoted common stock and retained earnings and, in no circumstances, dummy assets.

According to Basel III, all banks, regardless of specialization and size of capital, will have to ensure: reduction of inefficient capital and increase of liquidity based on the implementation of the new rules; restructuring of the balance sheets to improve the quality of capital and reduce the need for excess capital to ensure

efficient management of scarce resources; adjusting business models to create flexible operating structures with efficient capital, high liquidity and lower cost of banking products. In the context of the implementation of Basel III, the creation of countercyclical capital buffers intended to cover losses arising during periods of financial and economic turmoil is foreseen. Banks that do not have buffer capital will be restricted in dividend and bonus payments. This approach will increase the resilience of banks to adverse changes in the market. These procedures have already been incorporated into the NBU regulatory documents and will be implemented from 01.01.2020.

An important component of Basel III requirements is the introduction of restrictions on the amount of banking leverage. In Ukraine, the introduction of the requirement to maintain a ratio between first-level capital to non-weighted assets is expected from 01.01.2018. This requirement in the case of Ukraine has a fundamental value, since it minimizes the impact of distortions in risk assessment on capital adequacy ratios. This means that keeping the necessary proportions between equity and assets will limit the ability to shift the structure of liabilities towards external financing through risk-based manipulations that affect the size of risk weighted assets. Also, such requirement reduces the regulator's discretion regarding the assessment of compliance with capital adequacy and leverage standards, making banking supervision vulnerable to political pressures or other institutional distortions.

Despite the fact that the introductions in the framework of the Basel III requirements maintain a 3% ratio between first-tier capital and risk free assets is intended to reduce the banks' inclination to excessive foreclosure and dependence on the market for direct bank loans, in Ukraine this requirement has important institutional significance. Restrictions on the funding structure will be determined on the basis of a database, free of possible risk assessment misuse. If, theoretically, the introduction of the leverage ratio is intended to minimize the risk procycles in banks' behavior due to asymmetric risk assessment during the financial cycle (underestimation in the phase of boom, the revaluation of the contraction phase), in

conditions of institutional weakness, this approach allows to prevent the decrease in the value of financing through equity due to the manipulation of risk assessment and, accordingly, the overstatement of risk weighted assets.

The process of transition to new standards of the minimum size of authorized capital is theoretically considered the most controversial component of the banking system capitalization. The hypothetically larger share of equity financing should be attributed to an increase in the cost of resources offered to borrowers. Similarly, the increased regulatory burden is seen as a factor in the increase in intermediation fees, which may affect the increase of long-term rates for active operations. At the same time, a well-capitalized banking system can function to raise the bar of acceptable risks, thereby affecting the reduction of real effective and median lending rates. A smooth transition to new standards of the minimum allowable volume of capital, as well as the minimum allowable values of regulatory capital, is considered optimal for reasons of losses and benefits balance.

The trajectory of the capitalization, chosen by the NBU, can be considered to be conditional on the criteria for a smooth transition. A factor that mitigates the requirements for bank capitalization is the introduction by the NBU in 2016 permissions to reduce risk at the expense of: arrears repayment on problem loans (including through realization of the mortgagee rights); loans execution for additional (in some cases new) quality assurance. Such an approach has expanded flexibility in the process of capital increase and is faced with the problem of a significant proportion of related loans, such as those provided with doubtful deposits (for reasons of actual market value or liquidity). Despite the fact that the implementation of such an approach may lead to reservations about excessive discretion by the NBU in assessing risks and the final amount of required contributions to capital, it is a reflection of a certain compromise designed to optimize the costs of owners in order to limit their motivation to withdraw money from the bank in case if they decided to leave the banking business and do it in a way of withdrawing assets. However, unlike most of the countries affected by the global financial and European debt crisis, Ukrainian banking system was

fundamentally undercapitalized, the level of capital losses in Ukraine was higher, as was the level of NPL (although taking into account the latest PrivatBank surveys and changing the methodology for determining non-performing loans). This means that the starting positions of the transition to new capital requirements are worse for the domestic economy, and therefore the trajectory of capital build-up should be higher. This will increase financial stability and strengthen owners' responsibility of financial institutions.

Changes in the approaches to banking regulation, theoretically addressed to the problem of procyclicality and strengthening financial stability show a significant potential for overcoming the negative manifestations of banking activity among weak institutions. This is largely due to the fact that weak institutions accelerate typical manifestations of the banking system vulnerability to procyclicality and risk concentration. A typical example is insider lending. In the expansion phase, lending to related parties reflects an attempt to expand control over assets in an expanding, with the result that risks are concentrated rather than diversified. The compression phase of maintaining this funding model reflects a sharp aggravation of the information asymmetry problem and protection of creditors' rights in the stressed economy.

On the other hand, from the institutional environment in most cases will depend on how the owners of the banks will be prone to shifting risk to outsiders, and how 'blind' banking supervision will be. A comparison of how changes in approaches to banking regulation, can be addressed to a representative of vulnerabilities and instances of weak institutions, shows table 3.3.

One of the powerful mechanisms for ensuring the capital adequacy of banks is the processes of mergers and acquisitions of banks. Domestic practice shows that these processes are mostly forced, not on the banks' own initiative. Therefore, there is a need to align banks' mergers and acquisitions processes with the best practices of the European Union, which will allow the banks to consolidate more quickly and reduce their impact on their efficiency.

Table 3.3

Elements of the new approaches to banking regulation in the context of representative vulnerabilities and vulnerabilities in the environment of weak institutions*

Elements	A representative case	The case environment of weak institutions
Basel III	Strengthening the role of funding from the owners and a decrease in the value of high profit in the phase of expansion.	The incentives for owners to relocate risks to outsiders are limited by the explicit increase in their responsibility. Reducing the share of profit in the minimum capital requirements limits the vulnerability of capitalization to manipulation of risk assessments.
Changing the structure of the minimum capital	Limitations procycles in credit behavior using the preservation of part of liquid funds.	Procyclicity is often a manifestation of predatory behavior and unhealthy competition for market share. The introduction of such requirements would limit excessive risk taking, beyond the usual risk appetite.
The introduction of the conservation buffer	Additional capital requirements are designed to implement the principle of proportionality between the scale of the bank and the potential magnitude of the stress. This is indirectly a way to deal with the problems of too big to fail and too big to resolve.	The problem of moral hazard, which results in the phenomenon too big to fail, often has a political manifestation, which may lead to the dominance of negotiations of a large problem bank with the advancement of the political and business interests of the oligarchic group. The fiscal vulnerability of economies with weak institutions limits the scope for a feasible maneuver to resolve the solvency situation of large banks, resulting in a tendency to conclude an oligarchic group instead of a potentially better option for nationalization or forced restructuring. The presence of such buffers would limit manipulation of vulnerability for political and economic domination.
The introduction of the buffer for systemically important banks	Achieved by increasing the responsibility of the owners and imposes restrictions on the structure of financing in order to reduce vulnerability to market borrowings, which often generate a significant vulnerability. It weakens the dependence of the capitalization on the nature of the risk assessment.	In addition to limiting the incentive for owners to shift the risk to outsiders, the introduction of restrictions on the funding structure frees capitalization requirements from the risk of manipulations with the nature of risk assessment. Such an assessment is the most effective way to reduce the risk of asset rarities, especially taking into account the significant role of insider lending. In essence, such an approach would better discipline banks compared to traditional capital requirements, which include risk weighted assets

*Source: [30]

The withdrawal of banks from the market is mainly due to the appointment of the interim administration and their complete elimination. In the current banking environment, where bank rehabilitation is mainly done through the liquidation of insolvent banks, mergers and acquisitions are a more complex but effective

mechanism for restoring depositors and shareholders' confidence in the banking system.

Therefore, public policy in Ukraine should focus on prioritizing the promotion of mergers and acquisitions of banks, namely to provide for:

- ousting inefficient banks from the market through mergers and acquisitions; ensuring a sufficient number of positive effects of mergers and acquisitions at all stages of the economic cycle: both in the downturn and in the growth stages;
- adherence to a consistent antitrust policy in regulating the process of mergers and acquisitions of banks;
- expansion of the client base of newly created banking institutions through the application of reorganization procedures;
- optimization of financial resources in the course of mergers and acquisitions, which can be an advantage compared to the liquidation of the bank;
- intensify the use of mergers and acquisitions of joint ventures and other banking groupings in merger and acquisition agreements.

International experts also emphasize that raising capital requirements is not a "universal solution that will strengthen the banking sector", due to related parties, reserve requirements, weak independence of the regulator, etc. Legal regulation of the capitalization of banking institutions should not relate to the absolute size of the authorized capital until the relative capital adequacy ratios are met.

In addition, in the scientific literature and in relevant decisions of the Basel Committee, the viciousness of the practice of "purifying" the banking system by eliminating from the market "problem" banks, considering the potential of the initial application of the mechanisms of "clearing" the balances of banks from problem assets, has been fully proved. Only when the bank's insolvency prospect is inevitable should be the full range of available strategies, but not limited to: merger & acquisitions; transfer of shares or property (assets and liabilities, including deposits) to the buyer of the private sector (purchase & assumption); transfer of shares or property and deposits to the bridge bank (bridge-bank); conversion of deposits into

shares of a financial institution or redevelopment of deposits into a special subordinated loan for replenishment of capital (bail-in); appointment of an administrator who assumes control and management of the bank in order to restore the solvency of the bank or part of its business; liquidation of a bank with payment of funds to insured depositors or transfer of their accounts, and then the curtailment of the bank's activities and the sale of its assets.

Based on the analysis conducted, it can be argued that the situation prevailing in the banking sector of our country is not sufficiently positive and favorable for the existence of its competitiveness. Among the problems are the following:

- loss-making activity of banks in recent years;
- the complexities of the general economic nature, caused by a shortage of money resources in the financial market during the crisis period;
- low level of capitalization of commercial banks. According to this indicator, domestic banks are so lagging behind foreign ones that even under favorable conditions it will be difficult for them to compete not only in the world market, but also within the country, if the latter decide to seriously consolidate themselves in our market.
- the problem of reliability and security of issued loans. The share of problem loans in all banks is quite high, because the resources of depositors who were not provided with own capital were attracted, with the subsequent entry into the market of loan capital without the creation of reserves for covering credit risks.
- lack of financial resources in the banking sector holds back the country's economic growth.

CONCLUSIONS AND RECCOMENDATIONS

Today, in the conditions of unstable economic development, one of the problems of the domestic banking system is the maintenance of its stability and reliability, which allows banks to fulfill their functions to provide the economy with sufficient financial resources. The experience of countries with market economics shows that the creation of a stable and efficient economy is possible only with the proper functioning of the banking sector.

1) One of the important factors that enable our banking system to have a significant positive impact on the economy, to expand banking services, while not allowing significant risks while maintaining the reliability of the system, is capitalization.

2) Increasing the level of the banking system capitalization must provide a purposeful activity of the National Bank of Ukraine, focused on increasing the efficiency of the banks that will promote adequate risk coverage with a gradual increase of the capital, restore confidence in the banking system and increase the capitalization of the Ukrainian banking system, increase the domestic banks competitiveness in the global financial market and ensure the financial sustainability of the national economy and financial security of the country as a whole.

3) In Ukraine, the level of capitalization is determined by the amount of equity, since its market valuation is inappropriate due to the underdevelopment of the stock market, and as a consequence of the low activity of banking institutions. The importance of determining the dynamics of regulatory capital adequacy is conditioned as by the bank's internal needs associated with improving the risk management efficiency, making decisions on the formation of capital and its use, so by the needs of the regulator in the context of ensuring the reliability of the functioning of the banking system.

4) According to analysis based on these data of NBU, we can conclude that with an increase in capital ratios, the number of banks decreased by more than two times. The increase of the minimum volume of the authorized capital of the bank is not a sufficiently effective measure of regulation and improvement of the stability of the

Ukrainian banking system, since much more important is the regulation of the direction of investing, that is, the quality of the assets of the bank. Thus, we can see the decrease in the number of banks is due to the insolvency of banks with domestic capital, while the number of banks with foreign capital is gradually increasing.

During the analyzed period there is a gradual growth of regulatory capital, while the amount of authorized capital and equity decreased in 2018 compared to 2017. The norm of the H2 in 2016-2018 was more normative and continues to grow. Therefore, the Ukrainian banking sector has an average level of concentration and is characterized by a monopoly type of competition.

In Ukraine, the aggregate amount of equity is equal to that of the European medium-sized bank and much lower than that of the largest banks in the developed world. The relatively low amount of equity of commercial banks of Ukraine today remains one of the main problems of efficiency of the banking system of Ukraine. The low level of capitalization of banks means excessive concentration of risks in banking, limiting the range of financial services and increasing the cost of providing them. Loss of capital makes it impossible for a bank to function and can lead to bankruptcy.

In general, in order to solve the problem of raising the level of capitalization and reliability of institutions of the banking system of Ukraine, it would be advisable for banks:

1) improve the quality of capital and ensure adequate coverage of the risks taken by banks;
2) accelerate the process of completing the transition of the Ukrainian banking system to Basel II and begin preparations for the implementation of the Basel III standards;
3) stimulate the attraction of its own bank profit for investment in capital by exempting from the taxation part of the profit of lending institutions aimed at increasing their capitalization, stimulating investors to exempt from taxes on profits, which is aimed at the capitalization of banks;

4) to stimulate the inflow of capital to banks through the active attraction of shareholders' funds, including portfolio investors;
5) in order to avoid possible destructive influence of international financial flows on the banking system of Ukraine, it is necessary to establish the economic limit of the optimal influence of foreign capital on domestic banks at the level of 40-45% of the capital of all banks;
6) increase the capital adequacy ratio through consolidation of the Ukrainian banking system (consortium lending, creation of banking unions, mergers, reorganization).

At the same time, changes in capital requirements are only part of a large-scale change in banking regulation. The transformation of banking supervision in the direction of a risk-oriented approach will strengthen the policy of banks capitalization. At the same time, overcoming political resistance to banking reforms will largely depend on how financial institutions will be able to go beyond the usual practices of related lending. Creating an adequate business climate and overall strengthening of the quality of institutions will create synergy with changes in banking regulation. Without this, reforms can affect the complication of the adaptation process to the new regulatory environment, in which banks will agree to increase the burden of transaction costs, while maintaining the usual practice of lending and risk assessment (in conjunction with an increase in the proportion of unloaded assets), instead of moving towards more diversified portfolios, which should be formed on the basis of market niches expansion.

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APPENDICES

Appendix A

Distribution of banks for paid-up share capital as of 01.01.2019*

Paid-up share capital	01.01.2019
46 АТ КБ "ПРИВАТБАНК"	19 555 682,7
6 АТ "ОЩАДБАНК"	13 200 548,0
2 АТ "Укрексімбанк"	11 147 236,6
36 АТ "Райффайзен Банк Аваль"	10 480 006,0
136 АТ "УКРСИББАНК"	6 405 059,6
272 АТ "АЛЬФА-БАНК"	5 744 124,1
274 АБ "УКРГАЗБАНК"	5 728 036,0
115 АТ "ПУМБ"	5 282 255,4
299 АТ "СБЕРБАНК"	4 993 562,3
296 АТ "ОТП БАНК"	4 963 447,9
171 ПАТ "КРЕДІ АГРІКОЛЬ БАНК"	4 746 765,3
295 АТ "ІНГ Банк Україна"	3 570 994,1
3 ПАТ "Промінвестбанк"	3 353 238,0
298 АТ "ПРОКРЕДИТ БАНК"	3 219 047,9
5 АТ "УКРСОЦБАНК"	2 607 877,8
106 Акціонерний банк"Південний"	2 366 843,3
62 АТ "ТАСКОМБАНК"	2 354 041,2
88 ПАТ "КРЕДОБАНК"	1 806 165,0
297 АТ "СІТІБАНК"	1 726 448,5
153 АТ "ПРАВЕКС БАНК"	1 660 500,5
270 АТ "БАНК КРЕДИТ ДНІПРО"	1 034 658,2
101 АКБ "ІНДУСТРІАЛБАНК"	934 317,9
126 АТ "МЕГАБАНК", Харків	903 537,2
305 ПАТ "БАНК ВОСТОК"	819 206,8
242 ПАТ "УНІВЕРСАЛ БАНК"	753 385,9
96 АТ "А - БАНК"	660 925,6
105 ПАТ "МТБ БАНК"	632 442,7
142 АТ "Ідея Банк"	606 024,7
251 АТ "ПІРЕУС БАНК МКБ"	591 640,9
113 АТ "Полтава-банк"	559 431,2
455 АТ "СЕБ КОРПОРАТИВНИЙ БАНК"	536 312,3
123 АТ "БАНК "ГРАНТ"	534 979,8
191 АТ АКБ "АРКАДА"	505 053,7
320 БАНК ІНВЕСТ. ТА ЗАОЩАДЖЕНЬ	504 197,0
394 АТ "БАНК 3/4"	499 967,2
288 АБ "КЛІРИНГОВИЙ ДІМ"	486 335,4
389 АТ "МІБ"	461 310,2
133 АТ "АСВІО БАНК"	447 595,1
331 АТ "КРЕДИТВЕСТ БАНК"	398 519,8
29 АТ "БАНК АЛЬЯНС"	369 021,0

Extension of the Appendix A

387 АТ "АП БАНК"	361 487,1
91 ПАТ АКБ "Львів"	361 021,5
129 АТ "БТА Банк"	351 667,3
553 АТ "БАНК АВАНГАРД"	336 351,0
290 "ПЕРШИЙ ІНВЕСТИЦІЙНИЙ БАНК"	330 343,0
329 АТ "КРЕДИТ ЄВРОПА БАНК"	324 371,0
326 АТ "АКБ "КОНКОРД"	289 714,2
381 АТ "МОТОР-БАНК"	288 225,9
407 АТ "Дойче Банк ДБУ"	283 943,7
386 ПАТ "КБ "ГЛОБУС"	282 082,2
286 АТ "АБ "РАДАБАНК"	278 569,8
205 АТ "МетаБанк"	256 983,4
325 АТ "БАНК ФОРВАРД"	250 160,3
694 АТ "КРИСТАЛБАНК"	248 417,4
593 ПАТ "РОЗРАХУНКОВИЙ ЦЕНТР"	248 008,8
243 АТ "КБ "ЗЕМЕЛЬНИЙ КАПІТАЛ"	237 924,3
392 ПуАТ "КБ "АКОРДБАНК"	237 486,1
311 АТ "БАНК ТРАСТ-КАПІТАЛ"	236 519,2
313 Укр.банк реконстр.та розв.	228 955,2
143 АТ "КОМІНВЕСТБАНК"	226 759,3
72 ПрАТ "БАНК ФАМІЛЬНИЙ"	226 221,7
395 АТ "ЄПБ"	225 587,3
231 АТ "ЮНЕКС БАНК" м. Київ	223 467,2
146 ПАТ"БАНК "УКРАЇН.КАПІТАЛ"	222 393,2
43 АТ "АЛЬТБАНК"	221 664,0
512 АТ "АЛЬПАРІ БАНК"	221 234,2
460 АТ "БАНК СІЧ"	215 422,8
206 АТ "Місто Банк"	212 868,3
634 ПАТ "БАНК "ПОРТАЛ"	211 001,9
240 АТ "КІБ"	210 021,1
774 АТ "РВС БАНК"	206 858,8
241 АТ "АЙБОКС БАНК"	204 655,4
49 Полікомбанк	204 057,3
95 ПАТ "ОКСІ БАНК"	203 360,5
377 АТ "УКРБУДІНВЕСТБАНК"	201 707,8
128 АТ "СКАЙ БАНК"	200 607,6
402 ПАТ "ВЕРНУМ БАНК"	82 231,5
317 ПАТ КБ"ФІНАНСОВА ІНІЦІАТИВА нпб	-10 186 354,2
Total	126 116 739,5

**Source: [37]*

Appendix B

Dynamics of equity concentration indicators in the banking sector in 2015-2019*

Indicator	2015	2016	2017	2018	2019
HHI	0,066	0,110	0,056	0,087	0,076
CR3	0,398	0,518	0,327	0,448	0,398
CR5	0,482	0,631	0,451	0,555	0,496

**Source: [37]*