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The influence of non-performing loans on the banks' equity capital

The banking system plays a crucial role in the national economy being the basis for the domestic banking market development. Its stability and sustainability depends on the efficiency to recognize and counteract threats and crises which accompany banking activities and can become the cause for bankruptcy just in time. At this stage of development the domestic banking system suffers mostly from the high level of non-performing loans (NPL).

Today, domestic banks are functioning in the context of the unstable political and socio-economic situation in the country, the national currency devaluation, the high level of the black economy, the large stratification between personal income levels, the imperfect legal base, resulting into the people's distrust to the banking sector. Obviously, this situation creates a variety of threats for banking institutions, associated with significant financial losses and even bankruptcy, in particular in the lending market. Thus, 93 banks were removed from the market during the period from 2014 to 2017. As a consequence there is an objective need to pay particular attention to provide response to banks' bankruptcy under such conditions. In particular, there is a need to study the effects of the equity capital on the level of non-performing loans and profitability of domestic banks.

According to the protective function of the bank's equity capital, it functions as a certain guarantor of the stability and sustainability of banking operations. Thus, in the case when the loan amortization condition is unsatisfactory or poor, as a rule due to the presence of problem loans, the bank can use the part of its equity capital for the repayment of problem loans, thereby ensuring its liquidity and

solvency. Consequently, the lower the value of the non-performing loans ratio to the bank's equity capital without taking into account the current reserves is, the more reliable the bank and the banking system of Ukraine in general are.

The problem of banks' bankruptcy counteraction mechanism improvement determines the objective need to study the influence of equity capital on the non-performing loans, requires analysis and modeling of this process in modern banking practice, as well as finding effective ways to estimate the level of its adequacy to distressed assets. In this view, the strengthening of the Ukrainian banking system capitalization level as a necessary condition for bankruptcy counteraction and financial stability and sustainability provision is of great relevance.

A significant contribution to the study of this problem has been made by notorious Ukrainian scientists: H. M. Azarenkova, M. D. Alekseienco, O. I. Baranovskiy, T. M. Bolhar, T. A. Vasylieva, O. D. Vovchak, O. V. Dziubliuk, I. B. Ivasiv, V. V. Kovalenko, A. Ya. Kuznietsova, V. I. Mishchenko, A. M. Moroz, S. V. Naumenkova, L. O. Prymostka, O. O. Chub and others.

Taking into account the scientific research of the mentioned above scholars, it should be noted that not all the aspects of this problem have been sufficiently investigated. Thus, there is lack of scientific studies concerning the impact of banks' equity capital on the volume of non-performing loans in the system of bankruptcy counteraction, analyses and modeling of this process for trends forecasting in the banking system, that determine the scientific novelty of the relevant paper.

The main tasks of the research are as follows:

- to analyze the Ukrainian banking system capitalization state during the period from 2007 till 2016;
- to estimate the equity capital of domestic banks according to the system of their capitalization level indicators;
- to analyze the level of non-performing loans in the Ukrainian banking system during the period from 2007 till 2015;
- to assess the effect of the current reserves by banks' active operations on their financial results;
- to construct a trend model of the impact of the non-performing loans on the banks' equity capital.

In the context of unfavorable macroeconomic climate in the country, the domestic banks' risk management weaknesses have led to the decrease of their loan portfolios quality. This is confirmed by the rapid growth of the Ukrainian banks' reserves by active operations from 141.3 billion UAH in 2012 to 517.0 billion UAH as of January 1, 2018 (growth rate has made 365.9%), and the portion of non-performing loans (Fig. 1).

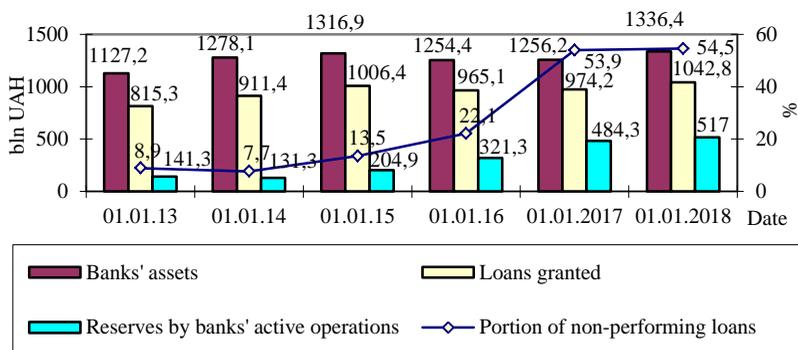


Fig. 1. – Dynamics of quality indicators of loan portfolios of Ukrainian banks from 2011 to 2016 (composed according to [1])

It should be noted that Ukrainian banking system has started 2016 with a number of unresolved problems arisen in 2014 – 2015 such as: hryvnia devaluation, the economy decline, insufficient level of banks' corporate governance, etc. These factors have led to the credit risks realization and the banks' loan portfolios degradation and negatively affected their capitalization level and financial performance results. As of January 1, 2017, the loss-making activity of domestic banks reached 159.4 billion UAH (135.3 billion UAH of which are the losses of PJSC Commercial Bank “PrivatBank”), and the profitability of assets made up the negative value -12.6% (Table 1).

Table 1 – Main financial indicators of Ukrainian banks from 2011 to 2017 (composed according to sources [1; 2])

Indicators	2011	2012	2013	2014	2015	2016	2017
Revenue, bln UAH	142,7	150,5	168,9	210,2	199,2	190,7	178,2

Costs, bln UAH	150,5	145,6	167,5	263,2	265,8	350,1	202,6
Profit, bln UAH	-7,7	4,9	1,4	-52,9	-66,6	-159,4	-24,4
ROE, %	-5,27	3,03	0,81	-30,46	-51,91	-116,7	-15,96
ROA, %	-0,76	0,45	0,12	-4,07	-5,46	-12,60	-1,94

According to the Table 1 it can be seen that during the period from 2014 to 2016 there were the steady tendency in the banking system of Ukraine to decrease the level of assets profitability and to increase the volume of current reserves. This is the evidence of not only the quality problems of the banks' loan portfolios but also of the situation deterioration and the destabilization in the domestic banking system.

Growth of reserves for possible losses refunding through active banking operations strengthens the load on domestic banks and adverse affects on their liquidity and solvency. Obviously, this slowdowns the banks credit process of banks and undermines the level of depositors' and lenders' trust.

The creation of large reserves for loan depreciation and the banks' loan portfolios quality deterioration are two of the reasons for the decrease in the equity capital growth and decline in the efficiency of its use, as evidenced by the negative dynamics of the return on capital of domestic banks during the period from 2014 till 2016. There is a steady tendency in the banking system of Ukraine to increase the share and volume of reserves to refund the possible losses through active banking operations. Thus, its share in total assets of the domestic banking system has increased from 14.99% in 2011 to 27.88% in 2016.

The loss-making activity of the Ukrainian banking system is determined by significant costs needed to create the reserves for active operations, caused by increase of non-performing loans amount in the condition of deep economic recession and massive devaluation, as well as loans' write-off in the occupied territories. The formation and usage of such reserves by Ukrainian banks is controlled by the Regulation on the determination of the credit risk dimension for active banking operations by Ukrainian banks, approved by the Resolution No. 351 of the Board of the National Bank of Ukraine on June 30, 2016. According to this Regulation, banks assess the risk concerning loan execution in the terms exceeding the terms denoted in the contract, or in volumes smaller

the volumes stipulated in the contract, or loan non-execution at all active banking operations and financial liabilities.

The analysis of the reserves growth influence for refunding of possible losses on active banking operations has shown that there is a negative relationship between the increase in creation of the reserves for refunding of possible losses on active banking operations and the financial results of banks' operation. The main cause of the Ukrainian banking sector unprofitability is the unreasonably high amount of distressed assets in the overall structure of banking assets.

As it can be seen from Fig. 1, the especially strong growth of the negative tendency to increase the proportion of non-performing loans in Ukrainian banks has started from 2014. The primary reason for such a situation was caused by growth of the foreign currencies rates to the national currency of Ukraine after February 6, 2014. During the 10 months of 2014, there were increase in dollar to hryvnia from 8.20 to 12.80 (buying rate) and from 8.25 to 13.00 (selling rate) and the increase in euro to hryvnia from 11.19 to 16.35 (buying rate) and from 11.46 to 17.05 (selling rate) [3]. Significant volumes of loans issued by banks were denominated in foreign currency – as of October 1, 2014, the share of foreign currency loans in the loan portfolio made up 40.94%. At the same time, about 1/5 of foreign currency loans were granted to the population (including a significant share of foreign currency loans provided in 2008 – 2009 for the real estate purchase and construction) [2]. As a result, there has been observed the increase of the debt load on individual borrowers, which are extremely vulnerable to currency risks. This, in turn, has resulted into the growth of the overdue indebtedness level.

Thus, it can be concluded that the key credit risks of the Ukrainian banking system are referred to the loans granted to individuals in foreign currencies. Significant growth of the non-performing loans during the analyzed period has caused serious losses in the long run and has actualized the need to find effective methods for minimizing the banking system's credit risks.

It should be noted that in result of unlawful actions of managers and banks' owners the credit risk level concerning transactions associated with bank related persons has increased in the domestic banking system. In order to strengthen responsibility of the mentioned above persons, the Verkhovna Rada of Ukraine adopted

the Law of Ukraine “On Amendments to Certain Legislative Acts of Ukraine concerning Responsibility of Bank-Related Persons” on March 2, 2015. The main attention in this document is paid to the concept of “bank-related persons”, which is defined by legislation as list of persons having the signs of relation to bank (Article 52 of the Law of Ukraine “On Banks and Banking”). According to the Law, the list of bank-related persons is considerably expanded. For example, now bank-related persons are not only those who have shares in the bank, but also persons with the help of which they can provide indirect control over shares.

Analysis of the credit security of banks in Ukraine has shown that its level has decreased in 2014, as the growth rate of loans granted by banks has decreased in general, while the share of non-performing loans has increased to 13.45% (Table 2).

Table 2 – Safety indicators of Ukrainian banks’ credit activity from 2012 to 2016 [1; 4]

Indicators	Year				
	2012	2013	2014	2015	2016
Banks’ assets, bln UAH	1127,2	1278,1	1316,9	1254,4	1256,3
Growth rate, %	106,9	113,3	103,0	95,3	100,2
Loans granted, bln UAH	815,3	911,3	1006,3	965,1	1005,9
Ratio to GDP, %	57,9	62,7	74,8	48,7	42,2
Growth rate, %	98,8	111,8	110,4	95,9	104,2
Share in assets, %	72,3	71,3	76,3	79,7	80,1
where:					
Loans granted to business entities, bln UAH	609,2	698,8	802,6	785,9	847,1
Growth rate, %	104,6	114,7	114,8	97,9	107,8
Share in assets, %	54,1	54,7	61,0	62,7	67,4
Loans granted to individuals, bln UAH	161,8	167,7	179,0	152,4	157,4
Growth rate, %	92,6	103,7	106,7	85,1	103,3
Share in assets, %	14,4	13,1	13,6	12,2	12,5
Share of NPL, %	8,9	7,7	13,5	22,1	53,9
Reserves on active operations, bln UAH	141,3	131,4	204,8	321,2	484,3

The increase in the share of overdue payment from 13.5% to 22.1% has been observed during 2014 – 2015, that is a very negative indicator for the security of Ukrainian banks’ lending activities. However, at the end of 2016, the share of non-performing loans was continuing to grow and reached the level of 53.9%.

It is obvious that certain volumes of non-performing loans may worsen the financial condition of banks due to the loss of their profitable assets. In addition, banks are forced to enlarge the costs for creating reserves for doubtful and unrecoverable loans. As a consequence, low asset quality undermines profitability, lending activity, liquidity and increases insolvency and bankruptcy risks. However, the poor quality of assets does not always lead to a loss of banks' financial stability, and that is why it is impossible to equate the quality of assets with the banks' reliability.

Firstly, as the analysis has shown, most domestic banks had actively operated on the lending market before the financial crisis of 2008 and the accumulated since then volume of non-performing loans decreases the quality of their assets. However, banks with foreign capital having large volumes of non-performing loans, as compared to others, remain more reliable and have not left the banking system of Ukraine. This can be explained by the high level of support from parent structures, that allows to create sufficient reserves for credit risks and provide optimal liquidity. In addition, in contrast to many domestic banks, foreign banks have an external incentive for the highest possible accuracy of financial reporting.

Secondly, the new leaders of the retail credit market have a significant part of non-performing loans in the form of high-margin unsecured lending and maintain a focused policy of buying up problem loan portfolios of other banks. A high-discounted portfolio of non-performing loans can be turned into a source of income through concluding peace agreements, debt restructuring, or other effective collection methods.

Thirdly, official indicators of the loan portfolios problem presence depend on the transparency of financial reporting. Some banks tend to hide the real amount of bad assets in order to understate the amount of required reserves. Moreover, each bank has its own methodology for classifying assets, which impede analysts to compare correctly the assets quality of different banks. Therefore, the transparency of the banking reporting has a significant influence on the quantitative coefficients of the non-performing assets quality.

Thus, the analysis of the current state of Ukrainian banks' lending activity makes it possible to highlight the next negative aspects that

determine the need to strengthen control over credit risks and find ways to minimize them:

- deterioration of the quality of banking institutions' loan portfolios, which is represented in the growth of the non-performing loans' share;

- significant volumes of loans issued by banks are denominated in foreign currency, that due to the national currency devaluation results into the increase in the debt burden on borrowers and the increase in credit risk level;

- the credit risk increase in the banking sector of Ukraine for transactions concerning bank related persons.

The results of the relevant investigation have shown that the level of credit risk in the banking sector is extremely high and undermines the stability of the banking system functioning on a whole. In such circumstances, there is an objective need to minimize and control credit risks not only at micro, but also at the macro level, since the credit risk realization is systemic and cannot be ensured within a separate bank. Consequently, the demand to improve the quality control of credit risks and minimize them cannot be met without the participation of public authorities.

Taking into account the results of the analysis, a trend model of the influence of non-performing loans on the banks' equity capital from 2000 to 2016 has been constructed (Fig. 2).

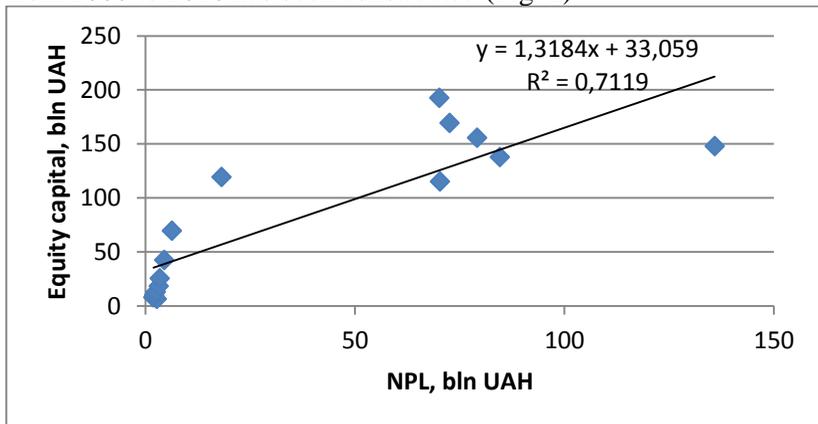


Fig. 2 – Trend model of the influence of non-performing loans on the banks' equity capital from 2000 to 2016 [5]

As it can be seen from Fig. 2, when the volume non-performing loans increases in 1 billion UAH, the bank's equity capital should be increased by 1.3184 billion UAH to cover risks for active operations of domestic banks. The constructed model is adequate, as the determination coefficient shows that 71.2% of the variation in equity capital is explained by the change in the non-performing loans.

The results of the study of the influence of non-performing loans on the banks' equity capital in the system of bankruptcy counteraction have allowed to come to the following conclusions.

1. The analysis of the domestic banks' capitalization state has shown that during the period from 2007 to 2013 a positive tendency towards the increase in the authorized and equity capital has been observed in the banking system of Ukraine. However, the sharp decline in the volume of equity capital and its growth rates has been observed in 2014 – 2015, while the increase in authorized capital has had a positive dynamics. On the one hand, the authorized capital has increase, and from the other the equity capital has declined, that means, that most its part has been used to cover negative profits and losses from risk activities. It is evidence of low level of domestic banking system capitalization, as well as a small share of equity capital in GDP, the inconsistency of capital growth rates with asset growth rates, inadequate levels of return on capital and assets, and a growing level of non-performing bank loans, which makes it difficult and sometimes impossible to counteract their bankruptcy.

2. The system of indicators of the domestic banks capitalization level testifies to an ambiguous estimate of their equity capital sufficiency. As the coefficients ratio of regulatory capital agrees with the risk-weighted assets normative value (minimum 10%), that is the evidence of the banking system's ability to timely and fully meet its obligations, there is a negative trend growth in equity capital value and the profitability of capital and assets, that testifies their inefficient usage. The most negative tendency of changes in the system of indicators of the banks' capitalization level has been observed in the period from 2014 to 2017, that is the evidence of significant decrease in bank' ability to counteract a possible bankruptcy.

3. The presence of the significant amount of overdue payments in Ukrainian banks undermines both the quality of their loan portfolios and the amount of their own capital. This, in turn, leads to a reduction of the criterion (H2) – the sufficiency of regulatory capital, reduces the efficiency of banking operations, investors' confidence in the banking system and significantly complicates the lending of the country's economy. As a result, banks suffer (traditionally the main income they receive from lending) as well as the economy of the country which does not receive sufficient funding in the period of crisis.

4. It has been found that there is a negative relationship between the increase in the amount of reserves for active operations and the financial performance of banks. Thus, the increase in losses for active operations leads to a decrease in the banks' financial performance, which in turn declines the profitability of assets and equity.

5. The constructed trend model of the influence of the non-performing loans on the banks' own capital has shown their dependence. So, when the non-performing loans volume increases in 1 billion UAH, the banks' equity capital should be increased by 1.3184 billion UAH to cover risks of active operations of domestic banks. The constructed model is adequate, since the determination coefficient shows that 71.2% of the variation in equity is explained by the change in the non-performing loans.

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