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Influence of the non-performing loans on the profitability of banks

In the conditions of negative influence of the economic crisis consequences caused by military actions in the East of Ukraine and the annexation of the Autonomous Republic of Crimea on the domestic banks activities, the tendency to deterioration of their loan portfolios quality under the strong focus of the scientists. Increase of the non-performing loans (NPL) portion in the structure of the banks' loan portfolios leads to the loss-making financial results and the decrease in the capitalization level of banking institutions.

Significant volumes of non-performing loans lead to liquidity and solvency problems, reputation deteriorating, and customer confidence loss, which undermine the financial performance of banks. Therefore, the problem of assessing the non-performing loans' impact on the profitability of banks and banking system in a whole is relevant for banking business.

The analysis of the quantitative composition of the Ukrainian banking system has shown the changes in the dynamics of the banking institutions' number during the period from 2014 to 2017. During this period 93 banks were withdrawn from the market. In terms of the banks number, the banking system of Ukraine decreased in almost twice. The main body of the banks was classified by the National Bank of Ukraine (NBU) as insolvent, and some as having opaque assets and making queer transactions. In 2014 alone, the number of troubled banks reached 33 units (17 of them were liquidated) [1].

During the period from 2014 to 2016, banks' lending activity was low due to a decline in the funding base, creditworthiness degradation and the high uncertainty level concerning further

economic development, which makes banks consider the financial condition of potential borrowers more carefully or suspend lending for some time. It should be noted that an increase in the volume of the clients' loan portfolio of domestic banks during 2014 – 2015 period was caused by significant devaluation of the national currency, which led to the growth of credit debt in the hryvnia equivalent.

The problem of banks' bankruptcy counteracting mechanism improving determines the objective need to study the impact of non-performing loans on the profitability of banks, to analyze and model this process in modern banking business. In this view, decrease in the non-performing loans level and increase in the banks' capitalization as an essential prerequisite for their financial stability, reliability and ability to counteract bankruptcy are of great relevance.

A great contribution to the study of this problem was made by well-known Ukrainian scientists O.I. Baranovskiy, T.M. Bolgar, O.D. Vovchak, O. V. Dzyublyuk, V.V. Kovalenko, A.Ya. KuznEtsova, V.I. MIschenko, A.M. Moroz, S. V. Naumenkova and others.

Taking into account existing scientific research, it should be admitted that not all the aspects of the problem have been sufficiently investigated, it refers, in particular, to the impact of non-performing loans on the banks' profitability in the system of bankruptcy counteracting and modeling of this process to forecast the trends in the banking system development system. The mentioned above determine the scientific novelty of the relevant study.

Main tasks of the research:

- to analyze the state of Ukrainian banks performance on the lending market during the 2007 – 2017 period;
- to estimate the profitability index of the Ukrainian banking system during the period from 2008 till 2017;
- to analyze the level of non-performing loans in the banking system of Ukraine during 2007 – 2017 period;
- to estimate the influence of the banks' current reserves by active operations on their profitability;
- to build a trend model of the non-performing loans' impact on the banks' profitability.

Traditionally, domestic banks are engaged in lending activities, so the share of loans in the assets of the Ukrainian banking system is quite significant (60% – 80%). For a long time, Ukrainian banks have carried out an aggressive policy in the lending market, since the proportion of loans in bank assets exceeds 50% of working assets (Table 1). It should be noted that the aggressive policy of the bank in the market is characterized by maximization of income from lending operations, accompanying with a large credit risk.

Table 1 - Dynamics of qualitative indicators of Ukrainian banks' loan portfolios during 2007 – 2017 period [1; 2]

Period	Indicators					
	Assets, bln UAH	Loans granted, bln UAH	Loans growth rate, %	Proportion of loans in assets, %	Proportion of NPL, %	Reserves by active, bln UAH
2007	599,4	485,4	-	81,0	1,3	20,2
2008	926,1	792,2	163,2	85,5	2,3	48,4
2009	880,3	747,4	94,3	84,9	9,4	122,4
2010	942,1	755,0	101,0	80,1	11,2	148,8
2011	1054,3	825,3	109,3	78,3	9,6	157,9
2012	1127,2	815,3	98,8	73,3	8,9	141,3
2013	1278,1	911,4	111,8	71,3	7,7	131,3
2014	1316,9	1006,4	110,4	76,4	13,5	204,9
2015	1254,4	965,1	95,9	76,8	22,1	321,3
2016	1256,3	1005,9	104,2	80,1	53,9	484,3
2017	1336,4	1042,8	103,7	78,0	54,5	517,0

The long-term aggressive policy of domestic banks in the lending market resulted into increase in non-performing loans. According to the Table 1, it can be noted that the growth of non-performing loans drastically changed in the period of 2009 – 2010 during the financial crisis and from 2014 to 2017.

In 2009 the volume of non-performing loans grew twice and reached 18.2 billion UAH, and in 2010 it reached 70.2 billion UAH with a growth rate of 385.5%. The rapid increase in the share of non-performing loans in the banks' loan portfolios in 2014 – 2015 was caused by high economic and political instability, including the national currency devaluation, which greatly affected the bank borrowers' paying capacity. From the beginning of the year, the volume of non-performing loans increased by almost 200% against the year before and equaled 135.9 billion UAH during the year, the

problem indebtedness increased to 213.3 billion UAH as of 01.01.2016 [3].

A significant increase in the problem indebtedness proportion in the banks' loan portfolio leads to significant allocations to reserves in order to compensate the losses on credit operations. The higher the amount of allocations to reserves for credit risks accompanying with increase in costs for problem loans administration is, the less effective the bank capital usage its, that leads, in its turn, to the decrease in the profitability of banks' capital and assets (Figure 2).

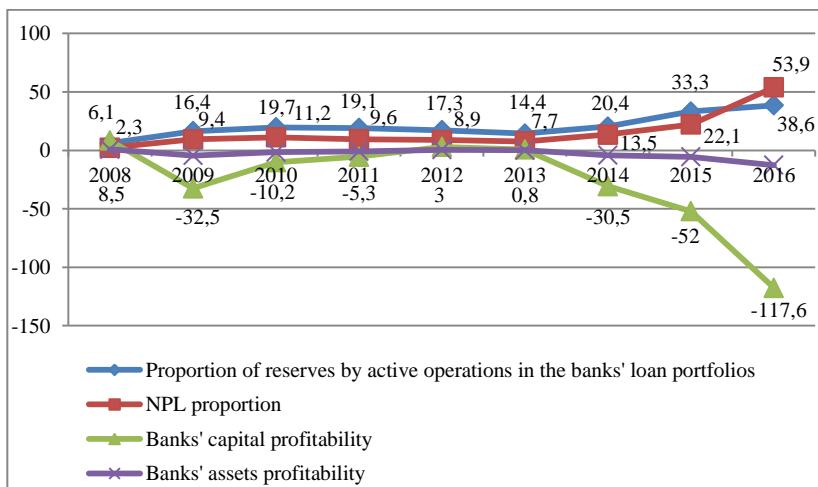


Figure 2 - Dynamics of the proportion of reserves by active operations, the non-performing loans proportion in loan portfolio, banks' capital and assets profitability for the period from 2008 till 2016.

Analysis of the data represented in the Figure 2 has shown the trend indicating the growth of debt arrears and increase in reserves. Hence, reserves growth dynamics almost coincides with the dynamics of debt arrears growth. At the same time, when the proportion of non-performing loans increases, the banks' capital and assets profitability decreases. The strongest fluctuations have been observed during the period from 2009 to 2010, and then – during 2014 – 2016 period. It should be noted that there is the evidence of

the following trend: when the proportion of non-performing loans increases, the profitability of banks' capital significantly reduces.

Let's analyze key indicators of the Ukrainian banking system. Thus, during the period from 2012 to 2013, the positive dynamics of most key indicators characterizing the role of the banking system in the Ukrainian economy has been observed. However, during 2014 – 2016 period there is the evidence of the key indicators' decrease tendency (Table 2).

Table 2 - Dynamics of the key indicators of the Ukrainian banking system (calculated according to the data represented in [1, 2])

Indicators	As of the end of the year, % to GDP				
	2012	2013	2014	2015	2016
Total assets	80,0	96,8	84,1	63,4	52,7
Loans granted	57,9	62,7	64,2	48,8	42,2
Capital base	12,0	13,2	9,5	5,2	5,2
Deposits	42,8	48,2	43,3	35,7	33,9

При цьому на початок 2015 року частка валютних активів у сукупних активах становила 43,7%, тоді як на початок 2014 року – 36,8%. Крім того, у 2014 році відбулось зменшення обсягу високоліквідних активів на 3,8% (6,1 млрдгрн) до 155,6 млрдгрн на початок 2015 року. Їх частка сукупних активах банків України становила лише 10,2%[1].

Thus, the ratio of the Ukrainian banking system's assets to GDP increased from 80% to 96.8%, loans granted – from 57.9% to 62.7% in 2012 – 2013. However, this growth is explained primarily by the hryvnia devaluation. At the same time at the beginning of 2015, the share of currency assets in total assets totaled 43.7%, while at the beginning of 2014 it reached 36.8%. In addition, in 2014 the volume of highly liquid assets decreased by 3.8% (6.1 billion) to 155.6 billion UAH at the beginning of 2015. Its share in total assets of Ukrainian banks amounted to only 10.2% [1].

In 2014 the total unadjusted for reserves banks' assets increased by 112 billion UAH, which is 8% to 1.5 trillion hryvnias, but excluding currency fluctuations (at the rate of USD – 7,993 UAH)

this indicator decreased by 223 billion UAH (by 16%); the volume of lending increased by 95 billion UAH, or by 10%, but excluding currency fluctuations it decreased by 139 billion UAH (by 15%).

In 2014 the banks' liabilities grew up to 83 billion UAH, which is 1.2 trillion hryvnias of the 8% of the growth rate, and without currency fluctuations the banks' liabilities decreased by 230 billion hryvnias, that is by 21%. Allocations to reserves increased by a factor of 3.7 compared to 2013, and its share in total costs increased from 16.7% to 39.3%. The level of capital adequacy declined from 18.26% to 15.60%.

The banking system incurred significant risks, including credit risk during the 2014 – 2016 period due to the difficult political and economic situation. As a result of external hard-predictable shocks, borrowers' paying capacity deteriorated and volume of non-performing loans increased. Banks lost collateralized property and other loan securities, that affected the quality of the loan portfolio and required to implement a set of stabilizing measures.

Problem indebtedness on credit operations has had a distinct increasing tendency since the financial crisis has begun. This process has intensified peculiarly since 2014 in the context of the hybrid war in the ATO zone in the East of Ukraine. So, the level of non-performing loans grew to a share of 13.5% in the total loan portfolio of domestic banks and exceeded the safe level of 10% in 2014. During 2015 – 2016 it grew to 22.1% and 53.9% respectively, that threatens the financial security of the Ukrainian banking system and individual banks.

Due to the large share of non-performing loans, banks have to form huge provisions for granted loans, blocking from 20% to 100% of accounts. Thus, the volume of banks' emergency funds increased from 131.3 billion to 204.9 billion UAH (20.4% of the granted loans volume) in 2014 alone. And the reserves for banks' active operations increased even more during 2015 – 2016. There were formed 321.3 billion UAH of reserves, and accordingly in 2015 and 484.4 billion UAH of reserves in 2016. The large volumes of current reserves for active operations greatly undermine the financial security of domestic banks and the banking system, since a large part of banks' capital base is spent on non-performing loans' repayment.

The dynamics of banks' profits and costs has the influence on the level of the Ukrainian banking system financial security (Table 3). Thus, during the analyzed period the banking business was profitable only in 2012 – 2013, while it was characterized by operating at a loss in the 2014 – 2015 period. Moreover, due to the crisis manifestations of the banking system performance the total volume of banks' losses was the largest one in 2014, comprising almost 53 billion UAH and reaching about a third of its registered capital. At the same time the Ukrainian banking system incomes covered only 80% of its losses. Such a situation was stipulated by a significant excess of the banks' expenses growth rate (by 32.7%) over their revenues growth rate caused largely by a negative revaluation of securities and an increase in provisions for possible losses. The financial results of the Ukrainian banking system was negatively affected by loss-making activity of banks classified as insolvent, comprising 19.9 billion UAH.

Table 3 – Dynamics of Profits, Expenses and Financial Results of Ukrainian Banks during the period from 2012 to 2016 (according to the data in [1; 2])

Indicator	As of the end of the year				
	2012	2013	2014	2015	2016
Profits, bln UAH	150,5	168,9	210,2	199,2	190,7
Growth rate, %	105,4	112,3	124,5	94,8	95,7
Expenses, bln UAH	145,6	167,5	263,2	265,8	350,1
Growth rate, %	96,7	115,1	157,2	101,0	131,7
Performance results, bln UAH	+4,9	+1,4	-52,9	-66,6	-159,4
Coverage ratio of expenses by gained profits	1,03	1,01	0,80	0,75	0,55
Return on total assets, %	0,45	0,12	-4,07	-5,46	-12,6
Return on equity, %	3,03	0,81	-30,46	-51,91	-116,74

The share of profitable banks in the total number of banks decreased from 88.9% to 67.1%, while the number of loss-making banks increased from 20 to 52, or from 11.1% to 32.9% of the total number of operating banks in 2013 – 2014.

The tendency of domestic banks to reduce revenues remained unchanged during 2015 – 2016. Thus, the revenues of the banking system of Ukraine decreased to 199.2 billion UAH in 2015 and to 190.7 billion UAH in 2016. At the same time, the banking system's costs had a tendency to grow during 2015 – 2016, and reached a

record increase of \$ 350.1 billion in 2016. This resulted into the record loss-making financial result of the Ukrainian banking system totaled 159.4 billion UAH in 2016. This was caused by loss-making activity of PJSC Commercial Bank “PrivatBank” due to the lending of bank-related individuals in the amount of 148 billion USD, which was classified as non-performing loans, and the bank was nationalized.

Obviously, in such a situation the profitability of banks’ assets and capital was observed only in 2012 – 2013. The return on total assets and equity was negative during the 2014 – 2016 period. The return on total assets reached -12.6%, and the return on equity – -116.74% at the end of 2016, that is the evidence of unsatisfactory level of the Ukrainian banking system’s financial security.

According to the results of the analysis, the trend model of the impact of non-performing loans on banks’ profitability during 2007 – 2016 has been constructed (Figure 2).

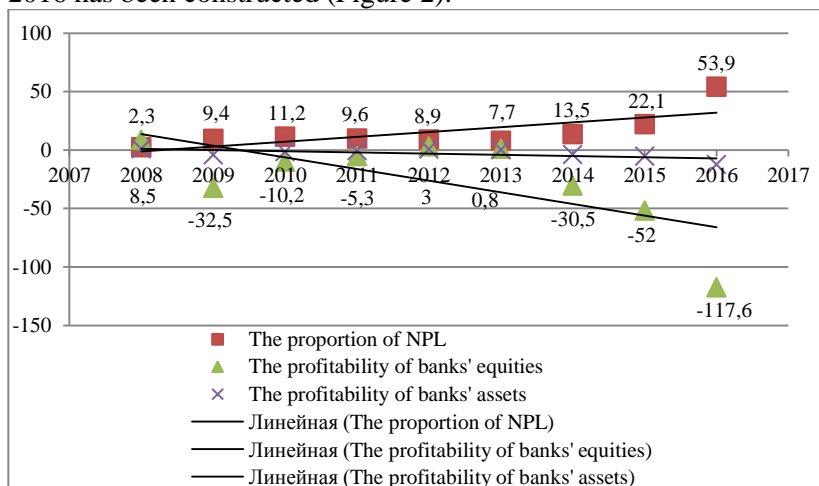


Figure 2 – Trends of the non-performing loans’ impact on the banks’ profitability during 2008 – 2016

As it can be seen from the Figure 2 when proportion of non-performing loans increases, there is a distinct tendency of the banks’ capital and assets profitability decrease.

It is obvious that the level of non-performing loans and the profitability of banks are closely related. It has been found that the level of non-performing loans is increased, and the profitability of Ukrainian banks is decreased due to the next factors:

- the instability of the national economy as a whole;
- the lack of governance mechanisms to protect the financial sovereignty;
- the possibilities for banks to meet formally the major part of the NBU requirements, evading them in reality;
- the lack of long-term development strategy and orientation of most domestic banks to get the maximum profit in the short run;
- the small size of domestic banks on a global scale. Stress testing of the 35 largest Ukrainian banks carried out in 2014 has shown the need for their capital increase of 56 billion UAH;
- the instability of the funding base sources in the context of the significant decrease in external sources;
- the existence of credit shortness and high price drawing credit, as well as the instability of customers' deposits and their mass outflow from banking institutions;
- the significant reduction in the resource potential of domestic banks due to the withdrawal of bank deposits. Thus, according to the NBU, for the year 2014, only UAH 126 billion was withdrawn from individuals from deposit accounts;
- the weak differentiation of banks' assets (loans are prevailing);
- the lack of the long-term lending experience;
- the presence of large loans granted to bank-related individuals;
- the high concentration of credit risks and the widespread deterioration of the banks' loan portfolios' quality;
- the high dependence of banks on the NBU refunding;
- the lack of stringent standards for risk assessment by domestic banks;
- the unsettled issues concerning limitations of the bank-related individuals lending, controlled by the persons who control a bank;
- the competition between credit reporting agencies;
- the lack of the banks' financial security policy and strategies providing the financial security of the Ukrainian banking system;
- the global financial crises.

So, the steady increase in the share of non-performing loans is the evidence of the poor loan portfolio quality and the significant decrease in the banks' profitability. Firstly, the NPL rate has been continuing to grow even after the implementation of advanced supervisory technology for many banks. Secondly, identification of related loans based on the basis of the prior determination of ultimate owners and beneficiaries has confirmed the assumption that insider relationships can work in both directions. If required, the loans can be serviced properly or turn into the assets extraction channel. Thirdly, the concentration of NPL has been evidence of politically-charged lending and supervision, which have been amplified recently by ambiguous legal decisions in favor of postponing debt repayment to national banks.

The global financial crisis and the balance-sheets correction in the Euro area have shown that the speed of the economic revival and the overall financial system recovery depend on the speed of lending market clearing. Moreover, the speed is defined both by the depth of the crisis (the scale of the pre-accumulated imbalances in the assets market and in the process of lending), the nature of crisis response measures (the programs of bad assets buyout, bad loans write-off with subsequent capital increase, banks' nationalization, additional incentives for restructuring) as well as institutional characteristics of the economy (corporate governance quality, protection of creditors' and investors' rights of, tendency to non-judicial forms of financial restructuring).

Clearing of the creditors' and borrowers' balance sheets is an important prerequisite for the lending restoration. At the same time, there is no link always observed between the NPL level and the post-crisis loans dynamics. Structural peculiarities of the economy and the emergence of new sectors with good growth prospects, as well as legal problems, or tax barriers before the bad loans write-off enable to combine lending recovery with rather high proportion non-performing loans. This means that the lending recovery speed with the presence of bad debts will depend on how much the factors of lending slowdown and credit increase compensate each other.

To solve the problem of NPL it is necessary: to ensure the protection of creditors' rights by adopting corresponding legislative acts; to solve tax problems while dealing with problem assets; to

create the legal environment for the secondary loans' market in Ukraine; to create favorable conditions for the restructuring of troubled assets (both for creditors and for debtors).

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