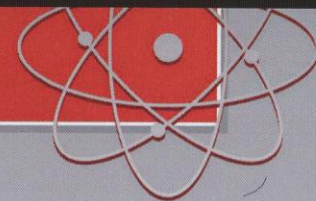


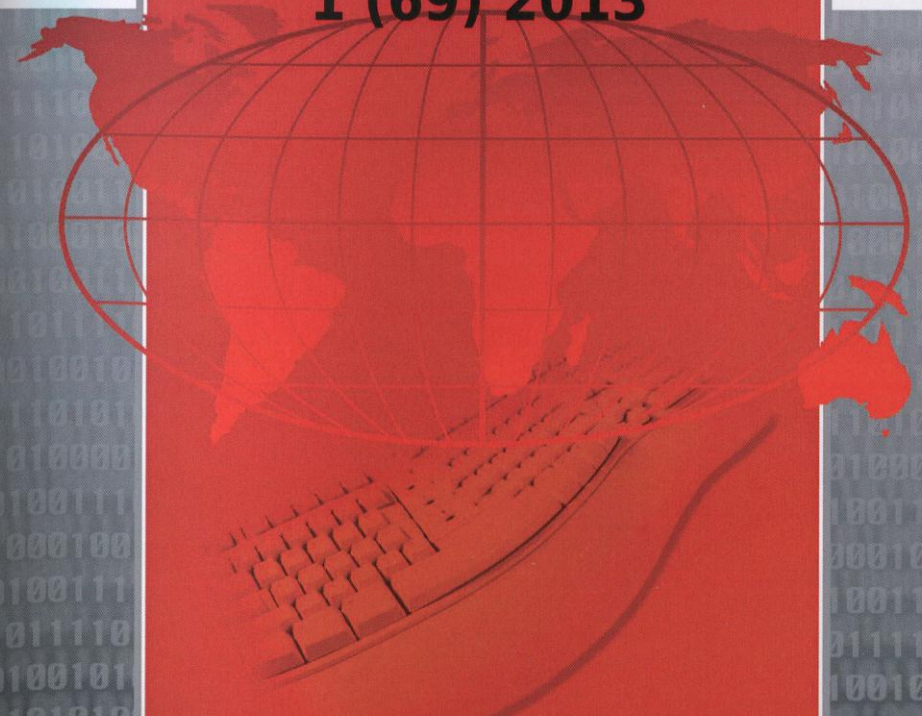
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### IMPROVEMENT OF METHODOLOGICAL APPROACH TO NON-PERFORMING ASSET MANAGEMENT IN BANKING SYSTEM OF UKRAINE

**Summary.** Methodological bases of banks' non-performing assets (NPA) are worked out by developing criteria for NPA transferring some of them to bad- and bridge-bank. Organizational and economic mechanism of simultaneous functioning of these banks is substantiated, that reduces the frequency of refinancing and recapitalization of banks and ensures the usage of public-private partnership's potential while resource base formation.

**Keywords:** bad-bank, bridge-bank, non-performing assets, bad-bank, bridge-bank, stress-testing.

#### Problem statement

The accumulation of significant volumes of banks' troubled assets caused considerable concern during the global financial crisis. The full depth of the problem of bank assets' quality deterioration was recognized by Ukrainian banks in the peak of crisis in the banking sector in 2008-2009, when the share of bad loans reached 50%. During following years as a result of restructuring and writing off the problem debt this figure slightly dropped and reached 40.1% in 2010 and then 32.4% in 2011. During three quarters of 2012 the NPA volume in Ukraine's banking system reduced to 11 billion hryvnias, but the problem still remains and requires measures to solve it not only at the micro-level, but also at the macro-level. Thus, the development of organizational and economic mechanism of banks' balance sheets' release of troubled assets is an extremely important task at the present stage of development of Ukrainian banking system that determines the topicality of this article.

In developed countries the problem of troubled assets growth at the macro level is solved by transferring them to a specially established institution. In case of widespread deterioration of banks' solvency in the global banking practice the creation of organizations aimed at problem assets managing is quite common. Such entities are also named as hospital or bad banks. As the researcher states [1], the main purpose of such institutions' establishment is the buyout of bad loans from banks whose activity

was insolvent with the aim to restore the performance through the sale of such assets by maximal price.

At different times bad-banks has been established in such countries as the USA (Resolution Trust Corporation), Sweden (Securum), Indonesia (Indonesian Banking Restructuring Agency), South Korea (Korea Asset Management Corporation), Taiwan (Fund financial restructuring), Mexico (Bank savings protection Fund) and others.

Another tool for managing problem banks that are characterized by high level of so-called «toxic» assets, is to create a bridge-banks. To this institution inversely quality assets and liabilities of troubled banks are transferred to enable the bank to resume its activities or to give additional time to find a buyer for insolvent bank. Bridge-banks has first emerged in the USA by FDIC initiative, and later has been established in Korea, Taiwan, Japan, Iceland to overcome the crisis' negative impact upon their banking systems.

This practice can be implemented in Ukrainian banking system in order to overcome the problem of bank assets deterioration. However, an important task is to adapt experience of bridge- and bad-banks foundation to the conditions of Ukraine's banking and the development of scientific and methodical approach to non-performing assets management of Ukraine's banks that is the aim of the research.

The experience of Ukraine evidence that the growth of troubled assets' volume, that reaches critical level, initiated projects of NBU and government concerning establishment of the institution on the balance of which banks could have transfer problem assets (Table 1).

**Table 1 – Chronology of sanation bank establishment during the global financial crisis of 2008-2009 and the post-crisis period in Ukraine**

Project date	Project essence
Proposition of sanation bank foundation on the base of bank, October 2009	On the balance of the institution banks would transfer bad loans in exchange for securities. According to NBU project only banks recapitalized with public funds during the financial crisis of 2008-2009 could get the possibility of troubled assets' selling to the balance of bad-bank
IMF recomandations, September 2010	IMF proposed to establish bridge-bank in Ukraine. The main objective of this institution is the accumulation of «quality» assets and liabilities of troubled banks. However, non-performing loans («toxic» assets) would remain on the balance of troubled bank. After such resource allocation within 0,5-1 year period banks should resume their efficiency. Otherwise, the decision to liquidate the bank is making.
Resolution «On Sanation Bank Foundation» № 880-p, September 2011 [2]	Sanation bank creation (in essence it is a hospital bank) based on nationalized JSC «Rodovid bank» is aimed to: 1) return of bank's own assets; 2) work with troubled loans of state and banks capitalized during the crisis

Thus, as a result of discussions in late 2011 on the basis of JSC «Rodovid bank» the sanation bank has been established. This institution is a so-called hospital bank, but only state and nationalized banks have the possibility of distressed assets transfer. Support of all other banks in accordance with the Resolution [2] is not expected. Thus, the decision in a certain degree violates the principles of banking competition, reinforcing the privileged position of state banks.

To our opinion, the problem of development of methodological bases domestic banks' problem assets management in the system of state crisis management instruments becomes an urgent problem.

On the base of the analysis of practical experience and theoretical achievements, accounting Ukrainian economic realities the following model of problem assets management is worked out. Firstly, it is considerable to establish hospital bank aimed to buy non-performing assets from troubled banks. Banks would be able to transfer overdue and doubtful loans to this organization in exchange for securities, thereby improving balance sheet and restoring lending.

The problem is that banks, obtaining such a possibility, may lose the incentive to improve the quality of bank management and risk management. Furthermore, in terms of banking system's stability ensuring the main objective is not saving of banks' amount, but support of their quality. To reach this goal the establishment of bridge-bank is proposed. Quality and insured assets from troubled bank are to be transferred to bridge-bank. Thus, if a bank has insolvency risk, its non-performing loans reach high level and its bankruptcy is threatening other institutions, client servicing would be carried out by bridge-bank.

Let's have a look at the bases of the worked out system of non-performing asset management.

Bad-bank establishment as a tool of troubled loans restructuring was carried out in many countries. The greatest efficiency bad-bank had in Sweden (1991). During the global financial crisis in 2009 in Germany institution specialized on troubled asset management was established that is also based on some principles of Swedish model. Given the effectiveness of the Swedish and German models, it can be recommended to use their basic principles and rules adapted to Ukrainian conditions.

The analysis of the theoretical bases of hospital bank establishment and international experience of crisis management let define the main forms of bad-bank:

- state,
- private,
- mixed.

Analyzing advantages and disadvantages of different forms of bad-bank's ownership, taking into account the realities of economic situation in Ukraine, to our opinion, it is reasonable to establish bad-bank at the expense of public funds in conjunction with investors' financial resources.

Self-regulatory organization in Ukraine's banking system and big banks can perform as such investors. Among these banking organizations are:

- Association of Ukrainian Banks;

- Ukrainian Credit-Bank Union;
- regional banking associations;
- other banking associations of Ukraine.

However, state should own the major stake of bad-bank, it should control the procedures of repurchase and restructuring of troubled bank assets. Thus, hospital bank of mixed ownership with the state dominance may be the most effective for the Ukrainian banking system. It ensures risk distribution of state budget overload by financial obligations between state agencies and banks. Such bad-bank structure admits mortgages restructuring that constitutes the largest share in banks' non-performing loan portfolio; guarantee the procedure of problem assets transfer and further repurchase by banks.

Figure 1 shows conceptual framework of non-performing asset management by transferring assets to the bad or bridge-bank.

1. Reach of critical level of troubled loans.

When volume of non-performing assets in bank reaches its critical level, NBU as crisis regulator of Ukrainian banks should make a decision concerning further actions towards the troubled bank. There are several approaches according to which the critical level of troubled assets in the bank is defined. To our opinion, it is considerable to assume that 20% of troubled assets in total volume of assets is a critical level.

2. Defining the possibility of bank efficiency recovery.

NBU must be sure in expediency of bank salvation: thus, one should distinguish banks that face temporary difficulties (so the possibility of restoring their normal functioning is high), and the banks that implement poor management for long time, and, therefore, their recovery is hardly probable. Stress-testing could be the instrument to manage this task. Testing of bank functioning under the impact of major risks is due to possibility of determination of expediency possibility of bank recovery. As NBU states, stress testing is «the method of quantitative risk assessment, that includes determination of the quantity of inconsistent positions that threatens the bank and determination of the shock value of external factor changing – the exchange rate, interest rate, etc. Combining these values gives an overview of how much loss or income would bank gain if events progress according to assumptions» [3].

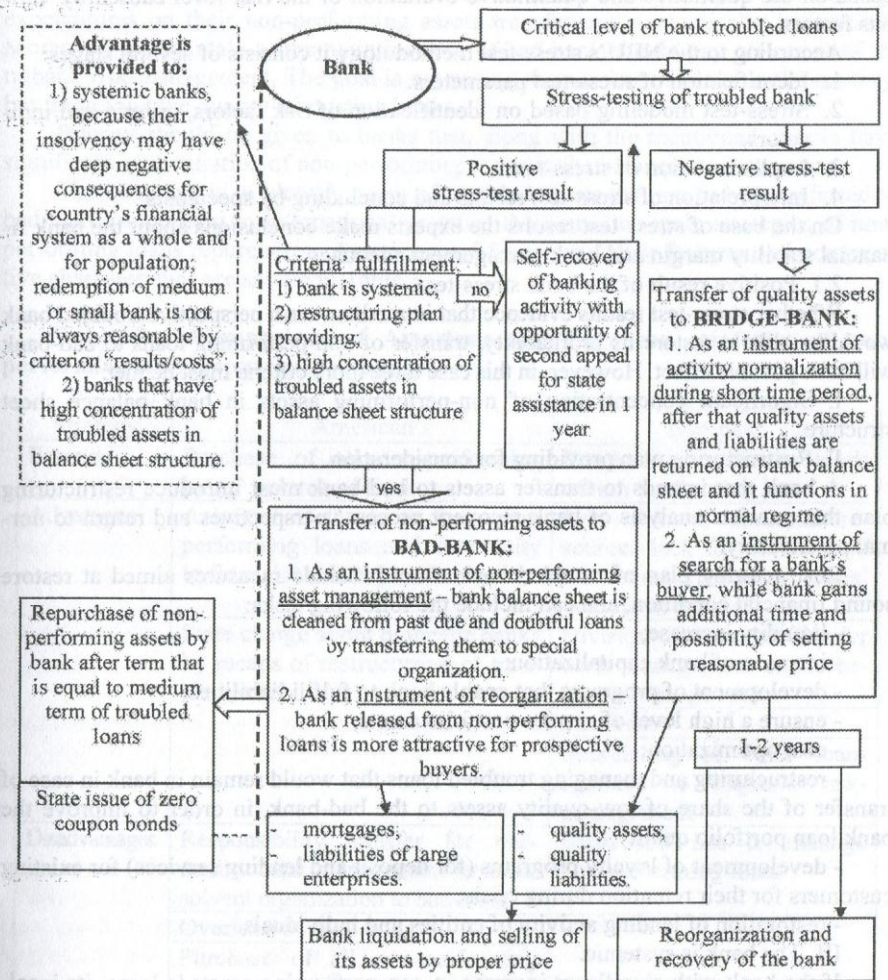


Figure 1 – Conceptual framework of non-performing asset management in Ukrainian banks

Stress testing enables to assess and analyze the bank risks, to identify potential losses on the base of scenario approach not only quantitatively, but qualitatively also. In Ukraine's banking system the methodology of stress-testing is developed, that is

based on the qualitative and quantitative evaluation of the risk level caused by various factors.

According to the NBU's stress-test methodology it consists of several stages:

1. Identification of stress-test parameters.
2. Stress-test modeling based on identification of risk factors, criteria and indicators.
3. Implementation of stress-test.
4. Interpretation of stress-test results and concluding by specialists.

On the base of stress-test results the experts make conclusions about the bank financial stability margin and bank management adequacy.

#### 2.1. Positive result of the bank stress-test.

Whether stress-test results evidence that in medium-term perspective troubled bank would be able to restore its profitability, transfer of non-performing loans to bad-bank will have positive effect. However, in this case three more criteria must be met:

I. Significant concentration of non-performing assets in bank balance sheet structure.

#### II. Restructuring plan providing for consideration.

A bank that intends to transfer assets to bad-bank must introduce restructuring plan that consists analysis of bank recovery process' perspectives and return to normal profitability.

Restructuring plan of troubled bank should include measures aimed at restore sound financial condition, and can include the following tasks:

- liquidity increase;
- increase of bank capitalization;
- development of programs that enable bank to fulfill liabilities;
- ensure a high level of service portfolio assets;
- cost optimization;
- restructuring and managing troubled loans that would remain in bank in case of

transfer of the share of low-quality assets to the bad-bank, in order to improve the bank loan portfolio quality;

- development of loyalty programs (for deposit and lending services) for existing customers for their retention during crisis;

- restoration of lending activity of entities and individuals.

#### III. The bank is systemic.

If the bank with significant increase in non-performing assets is large, its insolvency would have serious negative consequences for the country's financial system of the country and the public. Therefore, the troubled loans' transfer to bad-bank will assist to normalize financial condition of large banks. In this context, must be mentioned «too big to fail» principle. This term refers to banks whose role in country's economic system is so huge that their failure would have significant destructive consequences for the economy. Bankruptcy of such institution is extremely dangerous, so non-performing asset management is required to save them.

If the bank is medium or small size, its salvation is not always feasible. Huge expenditures on their non-performing assets transfer are economically impractical. Moreover, in fact state as the main investor of bad-bank should pay off errors of intrabank risk-management. The goal is not saving the number of banks in the country, but improving the quality of existing banks.

Priority should be given to banks that, along with the mentioned criteria have significant concentration of non-performing assets in the balance sheet structure.

The next task is to identify types of troubled assets that are to be transferred to bad-bank. According to international practice, there are two main strategies of non-performing loans repurchase – American and European. Their features and comparative characteristics are shown in Table 3.

**Table 3 – Comparison of American and European strategies of non-performing loans repurchase of banks**

Strategy	American	European
Essence	Purchase of all non-performing loans' volume of bank	Purchase of particular kinds of non-performing loans
Advantages	Acquittal of the bank from non-performing loans and directivity to financial stability restoration	Less risk of financial resources lack for purchase of all non-performing loans' volume of bank
	State charge about domestic banks by means of restructuring of troubled assets	Division of responsibility for bank management errors between bank and state
		Less costs
		Stimulating of bank management to improve risk-management
Disadvantages	Responsibility transfer for non-quality bank management from insolvent organization to bad-bank	Bank still has to manage non-performing loans
	Overload of state budget	
	Purchase of all non-performing loans lessens the volume of banks that can be solved by bad-bank	

Proposed model of non-performing asset management is based on European strategy of loans' repurchase. Selective loan transfer to bad-bank is conditioned by following reasons:

- a) excessive burden on the state budget;

b) prolongation of bank's recovery;

c) shifting the responsibility for the bank management's failures to the bad-bank.

To our opinion, the following categories of non-performing assets are to be transferred to bad-bank: mortgages; loans to large enterprises. It would enable to take into account social variable and ensure support of economy's real sector.

An important condition for bank assets' transfer to bad-bank is information disclosure concerning all existing and bank potential losses. It allows to detect the scale of the crisis timely and to make the right decision concerning further actions. Moreover, the transparency of financial institutions enhances confidence to the banking system as a whole, which is an important task for systemic crisis regulation.

It should be noted that non-performing assets are transferred to bad-bank in exchange for state zero coupon bonds. Non-performing assets have to be repurchased by bank after term that is equal to medium term of troubled loans

#### 2.2. Criteria mismatch along with the positive result of stress testing.

In this case bank gets the trial period during which it has to normalize non-performing assets' volume in balance sheet. After that, NBU again conducts stress-test of the institution and makes a decision concerning the bank on the base of its results.

#### 2.3. Negative result of bank's stress-test.

If stress-test evidenced that the possibility to normalize bank's profitability is low, the transfer of its assets to the bad-bank does not have economic sense. In this case quality assets and liabilities can be transferred to a bridge-bank established by the state.

In case the bank is on the edge of bankruptcy, its liquidation would negatively impact on the economy. Therefore, in order to provide additional time for bank's recovery or to find buyers of the bank (or its assets and liabilities), it is considered to transfer quality assets and liabilities to bridge-bank.

Thus, the decision to transfer high-quality capital to bridge-bank is accepted under the following conditions:

- the bank had negative results of stress-test;
- in total the banking business is attractive and its assets can be sold at a bargain price, therefore, it gets additional time to find buyers.

Bank with quality assets and liabilities transferred to bridge-bank is granted with 1-2 years period. During this time, the bank has to restore its financial state by reducing the problem loans level and restoring efficiency. If these measures do not succeed, bank uses this term as an additional opportunity to find a buyer for its assets or the entire institution on profitable terms.

Thus, at the end of the period while assets and liabilities are on the bridge-bank balance sheet troubled financial institution has the following options:

- a) reorganization and restoring efficiency operation;
- b) liquidation of the bank and the sale of its assets at more reasonable price than if the bank would give its non-performing assets to a collection agency.

The necessity of both structures parallel functioning is explained in the following way. Obtaining the possibility to transfer non-performing assets to the bad-bank, banks may lose the incentive to improve the quality of risk-management. Moreover,

such a possibility can trigger the development of «shadow» schemes of capital withdrawal from banks and other related fraud. Accordingly, the establishment of bridge-bank threatens banks by withdrawal of the quality assets and liabilities from balance sheet that can complicate the recovery process and accelerate bank's bankruptcy.

Summarizing, one must note that bad-bank establishment is an alternative to re-financing and bank nationalization as instruments of crisis regulation. However, in contrast to mentioned tools hospital-bank establishment on the worked out bases is:

- less costly;
- more accessible to banks;
- based on a system of rational selection criteria;
- reduces the burden on the state budget and, consequently, the taxpayers.

Bridge-bank represents an alternative to reorganization procedures and bank liquidation. Comparing to mentioned methods of crisis regulation bridge-bank establishment has the following advantages:

- reducing negative social effects that may be caused by bank liquidation;
- extension of period of searching of bank's buyers.

One of major problems is to identify the price of non-performing assets' purchase. Their value can not be overstated or understated. At the same time, the fair market value defining is hard task as the assets are troubled, and proper pricing is temporarily impossible. Estimation of bank non-performing loans should be carried out by experts using specific methodology.

### Conclusions

Thus, worked out mechanism of bank non-performing asset management combines the benefits of bad-and bridge-banks and would facilitate recovery of bank crises and stabilization of the banking system in whole. Summarizing, the following benefits of this methodological approach should be highlighted:

- encouraging of banks to improve risk-management (especially of credit risk) and crisis-management;
- restoration of lending processes of economic agents in the banking sector without additional financial resources from the central bank;
- rehabilitation of the banking system of «toxic» assets, as well as of banks that implement insufficient management;
- increasing the credibility of state as the founder of bad- and bridge-banks and the banking system after their stabilization;
- assets transfer to the bad-bank would reduce the frequency of crisis instruments' implementation, in particular: refinancing, recapitalization, because such balance sheet restructuring allows to release reserves under troubled assets;
- bridge-bank establishment in its essence is a «softened version» of reorganization and liquidation of the bank, as it allows to get extra time to find a buyer of assets (in the case of liquidation) or the bank (in the case of reorganization);
- intensification of integration processes in banking system of Ukraine;

- valuation of troubled bank's liabilities is a long process, because if the bank deals with it itself, it is more likely that non-performing assets would be sold by unfavorable price winning the time. Bad- and bridge-banks assist to solve this problem, because the bank gets time and opportunity to find a buyer for troubled loans or quality assets and liabilities at better price.

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### CLUSTER TYPE INDUSTRIAL COMPLEX – A MODERN FORM OF A COMPETITIVE ECONOMY

*This article proved the advantage of the formation and functioning of cluster type industrial complexes as modern and competitive model of economic development (the leading countries of the world were taken as an example).*

#### Relevance of the study (background)

In the theory of state administration issues of interaction between authorities and enterprises in the economic crisis and exit have not received proper elaboration, which reduces the efficiency of development and functioning of industrial complexes and infrastructure. This aggravates the crisis and requires significant changes in the economic and industrial policy based on increasing the role of government regulation. A cluster approach may be taken as a tool for elaboration of management strategy. It's rationally to maintain a creation and development of industrial clusters with government, defining the legal regulation of the functioning of the business environment and its investment climate.

At present, the cluster form is as the most important subject of industrial policy pursuing at both the national and regional levels. Incidentally, the management of industrial complexes is a priority in terms of their formation with regard of the cluster infrastructure. This do determines the relevance of the research.

#### State of problem's elaboration

Cluster analysis is a set of mathematical methods, intended for formation of a relatively «distant» one from another groups of «similar» objects according to the information about distance of connections between them. According the meaning this term is similar to such terms as automatic classification, taxonomy, pattern recognition without a teacher.

Analysis of our country and foreign publications shows that cluster analysis is used in a variety of scientific fields: biology, medicine, archeology, history, geography, economics, philology, etc. The greater part of the literature on cluster analysis has appeared in the last four decades, although the first papers which mentioned clustering techniques have appeared long ago. Polish anthropologist