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Аннотация

В статье приведена характеристика проявлений системного риска в банковском секторе, в том числе его влияние на деятельность системно значимых банков. Автор определяет перечень системно значимых банков Украины несколькими методами. Внесены предложения по уменьшению системных рисков и разработке мер по регулированию деятельности системно значимых банков.

Ключевые слова: системный риск; системно значимые банки; моральный риск; стабильность финансовой системы; банковский надзор и регулирование

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Анотація

В статті наведено характеристику проявів системного ризику в банківському секторі, в тому числі його вплив на діяльність системно значимих банків. Автор визначає перелік системно значимих банків України кількома методами. Внесені пропозиції щодо зменшення системних ризиків та розробки заходів з регулювання діяльності системно значимих банків.

Ключові слова: системний ризик; системно значимі банки; моральний ризик; стабільність фінансової системи; банківський нагляд і регулювання

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Summary

This article discusses different aspects of the notion of systemic risk in the banking sector, including its effect on systemically important banks. The author defines the list of systemically important banks in Ukraine for several approaches. The proposals to reduce the systemic risks and the development of measures to regulate the activities of systemically important banks are made, etc.

Key words: systemic risk; systemically important banks; moral hazard; financial system stability; banking regulation and supervision

Systemically Important Banks of Ukraine

Bielova I.

Problem setting and its relationship with important scientific and practical tasks. In recent years for a significant number of central banks of the world a new goal has been set - to ensure the stability of the financial system and to control the systemic risk in financial markets.

During the crisis the vast majority of countries are trying to "save" their greatest, systemically important financial institutions (SIFI). On the amount of money allocated to save system you can have an idea of the problems scale of systemically important institutions. But the post-crisis period shows that SIFI salvation sometimes has a very high, unreasonable price to society and doesn't always reach the desired results (despite significant "infusion" SIFI still bankrupt) and systemic risks remain at unacceptably high levels.

Recent research and publications analysis. The issue of the systemic risk definition has been paying a lot of attention, especially during the recent global crisis. Despite numerous publications on the subject the only definition of this term still does not exist. The most prominent and common sources are represented in Table 1:

Table 1 – The definition of systemic risk

The source	The definition
Group 10 Report about consolidation in the financial sector (2011)	Systemic financial risk is a risk that any event will cause a loss of economic value of assets or trust in them, causing uncertainty in the financial system that will increase to a level at which, quite possibly, it can have a significant adverse impact on the real economy.
George Kaufman and Kenneth Scott (2003)	Systemic risk is the risk or probability of damage in the system as a whole in contradiction to the destruction of its individual parts and components, and is manifested in joint changes (correlation) of the most parts or its elements. In the banking sector it is manifested in the high correlation and concentration of the crisis situation of banks in one country or group of countries around the world. Systemic risk can also occur in other segments of the financial sector - in the securities market (simultaneous drop in a large number of securities in one or more markets in one country or in many countries), etc. Systemic risk can have an internal (national) or international character.
Alfred Lehar (2005)	Systemic risk is the risk of simultaneous or sequential bankruptcy of several financial institutions that leads to the arising of the banking crisis. The historical experience of many countries shows that the impact of this crisis on the economy can be very significant. During the period of the banking crisis the volume of production fell by an average of 15-20% of GDP.
The Commodity	Systemic risk is the risk that the default of the one market participant will

Futures Trading Commission (CFTC). Glossary	have negative consequences for other participants due to the interconnectedness which is the nature of financial markets.
Steven Schwarcz (2008)	The risk that the economic shock, such as the bankruptcy of a financial institution or a financial market collapse would lead to a chain of bankruptcies of financial firms or falling markets or significant damage to the entities financial system that negatively influence the cost of capital and its availability, as well as in most cases can lead to significant volatility in the financial markets.

The opinion which is described in the Group 10 Report (2011) is shared by the International Monetary Fund, the Financial Stability Board, the Bank for International Settlements, and the European Systemic Risk Board. This is evidenced by the working documents of these organizations of 2009 - 2010, which emphasize the significant adverse impact of systemic risk on the economy real sector. The American (Dodd-Frank Act, 2010) and the UK (Financial Policy Committee of the Bank of England, HM Treasury, 2011) sources are focused on significant consequences for the financial sector and the risks to the financial stability of the country.

In any case, we can't underestimate the impact of systemic risk, the important sources of which are (Baker D. and Travis McA. (2009), etc.):

- herding bank behavior;
- institutions tendency/ appetite to adopt excessively high risks (credit, market, liquidity) during the growth phase of the economic cycle;
- availability of interbank financial linkages that are the source of the «contagion effect».

The research objectives.

The main objectives requiring resolution are:

- characteristics of systemic risk and systemically important banks;
- defining the list of systemically important banks;
- development of measures on their activities regulation.

Key research findings. For systemic risk evaluation at present time quite a few approaches have been accumulated but they don't approximate to the main goal - timely and objective assessment of systemic risk level. Stress tests do not allow making it qualitative either, because they use a limited range of stress causes. And the

results of new research conducted by the Bank for International Settlements (BIS) (e.g. «The systemic importance of financial institutions») suggest the existence of a nonlinear dependence between the size of the bank and its contribution to the systemic risk level.

Taking into consideration the existence of the above mentioned nonlinear relation between the bank size and its contribution to the level of systemic risk the problem of determining the list of systemically important banks (SIB) of the country and implementation of specific oversight and regulation for this category becomes particularly urgent.

Systemically important banks are the basis for systemically important financial institutions (except banks the insurance and investment companies, financial markets, infrastructure, etc. are included to SIFI). But considering bank centralizing of our financial market the problem of SIB activities can spread to other sectors except banking and become the key problem of the economy. Thus, the possible consequences are as follows:

- the collapse of the financial and credit markets;
- pause of business activity in the overall economy, rising unemployment, reduced incomes, the society destabilization.

All these facts provide the particular importance to the regulation activity of SIBs.

The bankruptcy problem for systemically important banks was faced long ago, there is even a concept that explains the rescue necessity of such large institutions - TBTF (to-big-to-fail). According to this concept the bankruptcy of a major bank could lead to a collapse of the entire financial system. But TBTF saving is expensive to taxpayers and leads to overall economic crisis deepening, loss of income, necessity to pass pension reforms and, at last, to frequency growth of crises. Moreover, the TBTF problem received continuation in the concept of moral hazard risk, as TBTF unfair behavior of adoption unreasonably high level of risk waiting for the state support.

Therefore, many practitioners and scientists see the solution of this problem only in the elimination of extremely large institutions. There are opposing points of

view. Thus, on Paul Krugman opinion, during the Great Depression the collapse of the economy was due to a number of bankruptcies of small financial institutions.

Various documents of international organizations are devoted mainly to methods for determining global systemically important banks (Global Systemically Important Banks, G-SIBs), but there are those that highlight methods for national / domestic institutions (Domestic Systemically Important Banks, D-SIBs): «A framework for dealing with domestic systemically important banks» (BIS, 2012).

To determine the list of global systemically important banks by the Basel Committee on Banking Supervision (2012) is used a scoring approach; in particular, five criteria were taken into account:

- the size of global systemically important banks;
- the interconnectedness of global systemically important banks;
- cross-jurisdictional activity;
- substitutability;
- complexity of operations.

Recommendations for the definition of systemically important domestic banks include all the above factors, except "cross- jurisdictional activities».

Updated list of global systemically important banks is published on an annual basis.

Measures being taken to SIFIs (banks, insurance companies, financial markets infrastructure objects) according to projects of international organizations consist of 4 main directions:

- 1) the increasing of the intensity and effectiveness of the SIFIs control and supervision;
- 2) the effective insolvency arrangement without involving taxpayers' money;
- 3) introduction of additional requirements to SIFIs capital adequacy;
- 4) the stability increasing of systemically important objects of financial market infrastructure.

As a result of cluster analysis techniques by the Basel Committee on Banking Supervision five groups of global systemically important banks were formed to establish the values of additional requirements to the value of their capital. Thus, the

gradual "extension" value of additional requirements to the capital adequacy begins with 1% (the "lower" group), 1.5% (the second group), 2.0% (the third group), 2.5 (the fourth group) to 3.5 % (the "upper" group, until empty) (BIS, 2012).

In 2014 global SIFIs must fulfill the requirements for insolvency regulation planning. The results of their work in this area will be evaluated as a part of the Resolvability Assessment Process, RAP.

Additional requirements for capital adequacy of global SIFIs will be applied from 2014 (introduced gradually to 2019). G-SIFIs will also be obliged to comply with the increased requirements for risk management, data aggregation, risk control and internal control.

Regulators may establish specific requirements and limitations to SIBs (Table 2):

Table 2 - Requirements and limitations that may be applied to SIBs

The author, the source	Requirements and limitations
The Chairman of the Federal Reserve Bank (FRB) Richmond Jeffrey Leker	SIBs should have less debentures and be less dependent on short-term loans; should raise capital if they are engaged in brokerage operations. In case of the collapse of any bank in the U.S. state refusal to participate in his salvation will be the best choice. The best protective measure against SIB collapse is to develop detailed plans for bankruptcy in case of problems.
The Basel Committee recommendations (2012,2013)	The need for systemically important credit institutions to create additional airbag in a reserve.
Some scientists and practices around the world	Bank of Russia representatives (2013): For SIBs will be advised to bind at least 50% top executives bonuses to stock price. Typically, for SIB which has difficulties Bank of Russia starts actions for recovery, rather than liquidation. It is also possible to get state support in the crisis years.
	SIBs in any case are on special account, both in terms of risk control and assessment of current activities - interest rates, capital adequacy, non-performing loans.

Such organizations and institutions as Financial Stability Board, G- 20 group, the Basel Committee on Banking Supervision and the central banks of many countries pay attention to the supervision issue for systemically significant financial institutions.

In Ukraine there isn't yet such structure as a systemic regulator (do not confuse with megaregulator; more detailed information about possible tasks of a systemic regulator you can find in Bielova article (2014)) and there are no documented comprehensive measures for SIBs.

Similar situation is observed in our neighbors: Belarus, Moldova, Kazakhstan, Uzbekistan and others. Only in Russia 08.09.2013 it was decided to create from 10.01.2013 the Supervision Department on systemically important institutions at the central office of Bank of Russia and supervisory activities will start from 01.10.2014. The purpose of the Department is the supervision centralization. The supervision functions transfer will be carried out gradually from regional offices to the newly created department.

Also, the Central Bank of the Russian Federation (Bank of Russia) has developed an approach to determine the list of Russian systemically important banks documented in the document «On determining the list of systemically important credit organizations" (2014).

There are other approaches, for example, employees of the National Bank of Belarus. Novikova V. (2013), Pashkevich A. and Vlasenko M. (2013) propose their approaches for determining the list of systemically important banks in their country, including such factors thresholds of which are given in brackets:

- the assets value (100% of total banking system assets);
- territorial network (200 outlets);
- the value of the deposit portfolio (10%);
- the value of the credit portfolio (10%);
- the importance of the bank (the bank can not be replaced);
- interdependence ($\geq 50\%$ of all banks have opened correspondent accounts in this bank).

It should be noted that it cannot be a single approach for all countries on SIB determining due to national specify, peculiarities of available statistical information and other differences.

Therefore, we used several approaches to determine the SIB:

- 1) on the basis of the approach taken by Bank of Russia (2014);
- 2) used data on the number of separate bank subdivisions according to the NABU site (NABU is Independent Association of the Banks of Ukraine);
- 3) the proportion of the largest banks (five and twenty) in general indicators within the banking system in the country was determined.

After some calculations using data from the National Bank of Ukraine (NBU) website and Bank of Russia approach (2014) we calculated the total indicators of the systemic importance of Ukrainian banks for the period of 1.01.2010-01.01.2014 and the average one for the last 3 years, as recommended in Bank of Russia approach (2014).

The main results of the calculations are shown in Table 3:

Table 3 – Total indicators of the systemic importance for the largest banks in Ukraine for the period of 01.01.2010 - 01.01.2014 (calculated on the basis of NBU site materials)

		Total indicators					Average by the period 01.01.11-01.01.14
		01.01.10	01.01.11	01.01.12	01.01.13	01.01.14	
1	PRIVATBANK	11,34	12,32	13,30	15,31	16,27	14,30
2	OSCHADBANK	6,06	5,87	6,47	7,43	9,38	7,29
3	UKREXIMBANK	5,80	6,13	5,64	6,47	6,13	6,09
4	RAIFFEISEN BANK AVAL	6,20	5,57	4,40	3,88	2,91	4,19
5	PROMINVESTBANK	4,48	4,08	3,50	4,15	3,55	3,82
6	UKRSOTSBANK	4,47	4,07	3,45	3,27	3,05	3,46
7	DELTA BANK	1,04	1,62	2,57	3,22	4,56	2,99
8	UKRSIBBANK	4,85	4,78	2,97	1,96	1,55	2,82
9	VTB BANK	2,94	3,20	3,24	2,90	1,95	2,82
10	FIRST UKR. INTERNATIONAL BANK	1,88	1,77	3,74	2,26	2,59	2,59
11	ALFA-BANK	2,84	2,60	2,69	2,09	1,99	2,34
12	NADRA	2,79	2,24	2,22	2,23	2,58	2,32
13	UKRGAZBANK	1,95	2,21	2,41	2,57	2,04	2,31
14	FINANCE AND CREDIT	2,05	2,21	2,05	2,04	1,99	2,07
15	SBERBANK OF RUSSIA	0,78	1,13	1,48	2,44	2,93	1,99
16	OTP BANK	2,23	1,84	1,50	1,36	1,12	1,45
17	VAB BANK	0,89	0,72	1,21	1,18	1,89	1,25
18	BANK CREDIT DNEPR	1,00	1,03	1,24	1,65	0,70	1,16
19	ERSTE BANK / FIDOBANK *	1,03	1,03	1,04	0,65+0,48	0,72	1,07
20	PIVDENNYI	1,13	1,16	0,99	1,09	0,92	1,04

Note*

As of 01.01.13 "ERSTE BANK" and "FIDOBANK" were existed simultaneously, that's why final indicators are given as the sum

Thus, the list of systemically important banks is as follows: PRIVATBANK, OSCHADBANK, UKREXIMBANK, RAIFFEISEN BANK AVAL, PROMINVESTBANK, UKRSOTSBANK, DELTA BANK, UKRSIBBANK, VTB BANK, FIRST UKR.INTERNATIONAL BANK, ALFA-BANK, NADRA, UKRGAZBANK, FINANCE AND CREDIT, SBERBANK OF RUSSIA, OTP BANK, VAB BANK, BANK CREDIT DNEPR, FIDOBANK, PIVDENNYI.

In all 20 banks for the last three years the total average indicator is > 1 .

The list has already excluded two major banks in which in the first quarter of 2014 was introduced temporary administration - PJSC "BANK FORUM" and JSC "BROKBUSINESSBANK".

There are banks with an increase of total indicator and it shows their systemic importance: PRIVATBANK, OSCHADBANK, DELTA BANK, SBERBANK OF RUSSIA. But there are those for whom this indicator steadily decreases: RAIFFEISEN BANK AVAL, UKRSOTSBANK, UKRSIBBANK, ALFA-BANK, OTP BANK.

Of course, the basis of SIBs form the banks of the first group but there are also banks of the second group (Table 4):

Table 4 – Bank membership to a group of banks according to the NBU classification (compiled on the basis of NBU site materials)

		01.01.10	01.01.11	01.01.12	01.01.13	01.01.14
1	PRIVATBANK	1(1)	1(1)	1(1)	1(1)	1(1)
2	OSCHADBANK	1(2)	1(3)	1(3)	1(3)	1(2)
3	UKREXIMBANK	1(3)	1(2)	1(2)	1(2)	1(3)
4	RAIFFEISEN BANK AVAL	1(4)	1(4)	1(4)	1(4)	1(5)
5	PROMINVESTBANK	1(7)	1(7)	1(6)	1(5)	1(7)
6	UKRSOTSBANK	1(6)	1(6)	1(5)	1(6)	1(6)
7	DELTA BANK	2(7)	2(1)	1(12)	1(8)	1(4)
8	UKRSIBBANK	1(5)	1(5)	1(9)	1(12)	1(14)
9	VTB BANK	1(9)	1(8)	1(7)	1(7)	1(13)
10	FIRST UKR.INTERNATIONAL BANK	1(14)	1(13)	1(8)	1(9)	1(9)
11	ALFA-BANK	1(10)	1(9)	1(10)	1(13)	1(11)
12	NADRA	1(11)	1(11)	1(11)	1(10)	1(10)
13	UKRGAZBANK	2(1)	1(17)	1(16)	1(15)	1(15)
14	FINANCE AND CREDIT	1(12)	1(12)	1(14)	1(14)	1(12)
15	SBERBANK OF RUSSIA	2(12)	2(6)	1(17)	1(11)	1(8)
16	OTP BANK	1(8)	1(10)	1(13)	2(1)	2(3)
17	VAB BANK	2(9)	2(12)	2(7)	2(3)	2(2)
18	BANK CREDIT DNEPR	2(18)	2(15)	2(9)	2(13)	2(20)

19	ERSTE BANK + FIDOBANK	2(6)	2(7)	2(5)	2(14)+3(5)	2(6)
20	PIVDENNYI	2(2)	2(4)	2(4)	2(8)	2(7)

Note*

The first figure is a group of banks; the second in brackets is the bank position in the corresponding group.

The analysis of the number of bank subdivisions in Ukraine over the last year gives reason to certify that the abovementioned 20 banks have a share of 70% of the total number of subdivisions (Table 5). The numbers of subdivisions in other banks (there are almost 150) in addition to the abovementioned 20 banks are much lower ranging from 1 to 50.

Table 5 - Dynamics of the number of bank subdivisions in Ukraine (based on NBU site materials)

		The numbers of subdivisions, units		Change for the year
		01.01.13	01.01.14	
1	PRIVATBANK	3405	3246	-159
2	OSCHADBANK	5825	5530	-295
3	UKREXIMBANK	126	124	-2
4	RAIFFEISEN BANK AVAL	858	830	-28
5	PROMINVESTBANK	99	81	-18
6	UKRSOTSBANK	411	433	22
7	DELTA BANK	130	244	114
8	UKRSIBBANK	664	579	-85
9	VTB BANK	126	129	3
10	FIRST UKR.INTERNATIONAL BANK	160	161	1
11	ALFA-BANK	94	97	3
12	NADRA	545	522	-23
13	UKRGAZBANK	234	238	4
14	FINANCE AND CREDIT	321	330	9
15	SBERBANK OF RUSSIA	161	211	50
16	OTP BANK	147	138	-9
17	VAB BANK	131	134	3
18	BANK CREDIT DNEPR	91	81	-10
19	ERSTE BANK + FIDOBANK	159	135	-24
20	PIVDENNYI	162	162	0
	The total number of 20 first banks	13849	13405	-444
	Total in the system	19860	19452	-408
	Share of the first 20 banks	0,70	0,69	X

The data on the number of banking subdivisions only confirm the validity of the abovementioned list of 20 banks.

Finally, we define the share of the largest banks in the synthesis rate of the system (Table 6):

Table 6 - Indicators of the largest banks in Ukraine, Kazakhstan, Belarus and Russia as of 01.01.2014 (based on the data: The National Bank of Kazakhstan, National Bank of The Republic of Belarus, National Bank of Ukraine, Bank of Russia)

	Ukraine		Kazakhstan	Belarus	Russia	
	5 banks	20 banks	5 banks (total 38)	5 banks (total 31)	5 banks	20 banks
The share by assets, %	41,6	73,2	54,5	79	52,7	71,6
The share by capital, %	43,2	71,9	54,1	76	49,7	68,3
The share by the loans sum and other assets with credit risk, %	39,7	74,2	61,5	81	55,7	74,6
The share by the number of branches in the country, %	55	69	14	23
Herfindahl-Hirschman Index (by assets)	552		853	2148	1021	
Herfindahl-Hirschman Index (by capital)	499		902	2144	1123	

In general, the share of the largest banks in Ukraine corresponds to similar indicators in Russia and Kazakhstan. And for Belarus the larger concentration is typical among those countries indicated in Table 6.

Thus, the abovementioned list of 20 banks is the enumeration of Ukrainian SIBs and this list is obtained using the three approaches and can be used for the purposes of banking supervision and regulation.

Conclusions and recommendations for further research.

Firstly, a set of three following approaches for determination the list of SIBs allows updating it annually according to dynamic changes in the banking sector.

Secondly, the creation of systemic regulator which deals with the issue of measures, restrictions and requirements for SIBs and other aspects of systemic risks requires the solution of the matter.

Thirdly, the increased demands on the SIBs should be installed regarding the quality and capital adequacy, the quality of risk management (credit, etc.) and also requires the practice implementation of periodic stress tests with gradual expansion / renewal the list of stress factors according to changes that will take place.

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