

# “Present-day realities of risk management in the activity of Ukrainian banks”

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## ARTICLE INFO

Olena Kuzmak, Oleh Kuzmak, Anna Tarasova and Yana Buchkovska (2018). Present-day realities of risk management in the activity of Ukrainian banks. *Banks and Bank Systems*, 13(1), 150-161. doi:[10.21511/bbs.13\(1\).2018.14](https://doi.org/10.21511/bbs.13(1).2018.14)

## DOI

[http://dx.doi.org/10.21511/bbs.13\(1\).2018.14](http://dx.doi.org/10.21511/bbs.13(1).2018.14)

## RELEASED ON

Friday, 13 April 2018

## RECEIVED ON

Monday, 26 February 2018

## ACCEPTED ON

Wednesday, 04 April 2018

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## JOURNAL

"Banks and Bank Systems"

## ISSN PRINT

1816-7403

## ISSN ONLINE

1991-7074

## PUBLISHER

LLC “Consulting Publishing Company “Business Perspectives”

## FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

20



NUMBER OF FIGURES

4



NUMBER OF TABLES

4

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"  
Hryhorii Skovoroda lane, 10, Sumy,  
40022, Ukraine

[www.businessperspectives.org](http://www.businessperspectives.org)

**Received on:** 26<sup>th</sup> of February, 2018

**Accepted on:** 4<sup>th</sup> of April, 2018

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# PRESENT-DAY REALITIES OF RISK MANAGEMENT IN THE ACTIVITY OF UKRAINIAN BANKS

## Abstract

Modern development of banking business is connected with significant risks, which, taking into account globalization processes, political, economic problems in Ukraine and worldwide, development of technological and information systems, tend to transform, therefore it is very difficult to identify them and take preventive measures concerning their smoothing. Taking the abovementioned into account, it is reasonable to assess the modern state of risk management in the activity of Ukrainian banks and the influence on banking system development. For this purpose, the authors analyzed the performance of Ukrainian banks in the period 2008–2017 based on official statistic data of the National Bank of Ukraine and measures of economic standard of banking activity; studied the modern state of performing risk management in Ukrainian banks. The authors offer the process of effective organization of risk management system in national banks, which is a prerequisite for safe management of the bank. During the study, the authors found the significant decrease in the share of credits in total assets of Ukrainian banks and low quality of assets of Ukrainian banks during 2008–2017. This is caused by the significant amount of loan arrears, during the study period, the amount of loan arrears in 2016 increased by 36 times in comparison with 2008. The authors point to the need for improvement of assessment of banks' riskiness, as a result of which they offer to use the methods of descriptive statistics for assessing risks and identifying them at all levels of banking activity.

## Keywords

banks, banking system of Ukraine, risk, risk management

## JEL Classification

G21, G28

## INTRODUCTION

In recent years, there is a clear tendency towards increase in economic and political instability at national, regional and global levels. Under increasing instability, banking systems, which accumulate political, macroeconomic and institutional risks, find themselves in the most unfavorable conditions. Herewith the emergence of instability directly in the banking sector of the economy leads to negative consequences of economic development as a whole, and in some cases provokes the socio-political crisis. National banks are being seriously tested by time in the conditions of constant economic transformations. Rapid change of the operating conditions, influence of external environment, need for internal transformations cause constant improvement of the banking system.

Ukrainian banking system is a main segment of the financial market and the only source of external financing for a range of important sectors of the economy. Crisis situations in the banking sector became particularly acute in the years 2008–2010 and became the lessons for preventing the crises in future or at least their smoothing. Crisis situation at the level of a separate bank can occur unexpectedly or develop gradually.

Today the problem of the risk essence and its management is one of the most relevant not only in the Ukrainian banking system, but also in the activity of the world banks. In modern times, the Ukrainian banking system operates under instability of national and world market environment, so during the economic globalization, the task of effective risk management in national banks is extremely relevant and it cannot be performed without implementing new forms, methods and instruments for managing the bank risks in the activity of banking institutions.

From the scientific point of view, the risk management system should be based on scientifically rigorous methodology subjectively adapted to the banking activity realities, advanced technologies and world experience in risk management. In the conditions of globalization and integration of banking business, the increased competition and growth of threats for credit security, the task is to increase the own banks' financial sustainability, optimize the relationship between the competing characteristics – risk and profitability.

Today the effective bank risk management should be considered one of the primary tasks of the banking institutions when implementing their development strategy.

## 1. LITERATURE REVIEW

In their works, many famous scientists pay a significant attention to theoretical and methodological aspects of the development of risk management systems in the banks, in particular, the issue of defining economic essence, functions and tasks.

For example, in their work, Crouhy et al. (2012) consider the methods of risk assessment, modern instruments of risk management, use of modern technologies, change of risk management principles and their regulation.

Andersen and Schroder (2010) are of the opinion that in modern times, there takes place the increased need for effective risk management, here-with the authors state that absent or improper risk management can have damaging consequences for the enterprises and the whole economy.

Hopkin (2010) states that the acute need for risk management is stimulated not only by global financial crisis, but also other global events like terrorism, natural disasters, etc. Herewith the author states that the enterprises should take into account all the risks, which affect their activity directly or indirectly.

So, Kornev (2006) defined risk management as a process which implies systematic monitoring and risk management inherent to bank activity. In our opinion, risk management also involves risk monitoring.

Kireitsev (2001) understands risk management as risk management system, which implies use of methods and instruments directed at identifying risks, calculating the probability of their emergence, assessing and smoothing.

Starostina and Kravchenko (2004) define risk management as management of the whole organization or its separate subdivisions taking into account risk factors based on the special procedure of their definition and assessment, exchange of information about risk and control for the results of using these methods.

In the ISO document “Working Draft for ISO Guide. Risk Management Terminology” (2009), risk management is defined as follows: “concerted activity regarding management of the organization and its control taking the risk into account”.

Prymostka (2004) defined bank management as a science about safe and effective system for managing all the processes and relationships, which characterize the bank's activity. The increase in profitability and decrease of risk are the two main directions of bank management.

So, considering that the responsibility for system functioning, reaction to risky situation and making the corresponding decisions is the competence of management, it can be stated that bank risk management in its broad sense is a part of bank management, thus, general bank management.

In turn, Sifumba et al. (2017) state that risk management is one of the most important issues being key for business success, but can negatively affect the profitability if not realized properly.

Shyrynska (1998) defines the aim of risk management when organizing a certain process of effective management of these risks with the help of establishing strict limits separately for every type of risks, which must be obligatorily observed. It means that as we see, the author understands the aim of risk management as smoothing the risks the banking institution will take. But if to think in detail about the consequences of the bank's position concerning smoothing or avoiding risks, this will first of all lead to losing some share in the market, as all the bank operations can be considered risky, it means while achieving this aim, it will be necessary to refuse from performing the riskiest operations or refuse service, in particular lending to risky clients. This in turn will stimulate the adoption of aggressive marketing policy. Thus, the risk itself is not a negative phenomenon, but the incorrect estimate and risk management.

Drogalas et al. (2017) state that the main task of business management is to constantly monitor the risks and implement the practices of their management. Besides, the authors state that the enterprises should use internal audit as a key instrument of effective risk management.

At the same time, taking into account the achievements of fundamental and applied researches, insufficient attention is paid to separate theoretical and methodological, and applied aspects of defining main stipulations for organizing the risk management system in banks, implementation of international risk management standards. There is still a debate concerning the issue of specifying the methods and instruments of risk management; improvement of scientific approaches to bank risk assessment, which are not subject to quantitative assessment; formation of new business models of banks to support the allowable risk in their activity.

## 2. METHODS

The research method is based on systemic and dialectical approaches to scientific understanding of bank risk management as an important segment

of the banking institutions activity. A range of modern research methods was used to achieve the aim of the paper. In particular, when studying the process of bank risk management, the methods of scientific abstraction, analysis and synthesis were used. In the process of studying the modern realities of bank risk management, patterns and contradictions of its development, empirical methods were used, namely statistic observations, comparison, statistic methods of collecting and processing the information, and systemic and structural analysis.

The informational background of the study are the official statistic data of the National Bank of Ukraine and annual reports from banking institutions, results of researches of Ukrainian and foreign scientists.

## 3. RESULTS

Risk management has long been recognized abroad as the effective instrument of modern management. Herewith, nowadays, risk management should be defined as one of the main directions of modern bank management that would study the problems of managing the banks taking into account different risks, the task of which would be to create an effective risk management system based on some concepts, laws, principles and methods.

Risk management is quite dynamic, as the increase of its effectiveness directly depends on how rapid is the reaction to any changes in economic and financial situation. That's why it is necessary to understand the effective risk management, so it is necessary to be able to use the techniques and methods for assessing, identifying and effectively managing bank risks. Risk management involves strategy and tactics of management.

At the moment, the top managers of the banking institutions still do not understand aims and functions of risk management, which leads to incompatible things from the point of view of corporate governance such as risk management by internal audit service or, vice versa, performing the control functions by the risk management subdivision. That's why lately enterprise risk management attracted



**Figure 1.** Process of bank risk management

unprecedented interest and worldwide attention. The growing interest in ERM is explained by a range of challenges in business, beginning from global financial crisis, corporate frauds and scandals, and banks' collapse (Soliman & Adam, 2017).

Diagnostics of the existing national practice of risk management in banks still points to formal nature of risk management system because of absence of integration between structural subdivisions and lack of differentiation of their duties and powers in supporting the process of bank risk management. There also emerge difficulties in clear formulation of aims and tasks of risk management, choice of appropriate instruments for optimizing the level of risks.

In the pre-crisis period, Ukrainian banking institutions have already organized some elements of bank risk management, but as time went by, it became clear that it is not enough. This can be explained by the absence of a unified methodological basis of bank risk management, bank control, financial planning, interest rate and limit policies.

Defining the place of risk management in the model of business processes in the bank is the main strategic moment, which defines the bank's strategy. Kuzmak (2011) assumed that

the strategy of any bank should provide for qualitative changes in management standards at the technological level, and meeting new targets, the main prerequisite of which is the effectively functioning integrated risk management. That's why strategic aims should be established not as part of "paper risk management", but for bank risk management process compliant with all international standards. It is necessary to effectively manage the risks instead of avoiding them, but at the same time, it is necessary to take into account that they all are connected to each other. Therefore one of the main tasks every bank faces is to learn to assess risks, show them properly in management information, work with them systematically. The issue is also relevant among the foreign scientists. So, Constantinescu and Nistorescu (2008), and Duță (2016) identified five successive stages: identification, analysis, assessment, monitoring and control. Prymostka (2007) defined stages of bank risk management such as identification, quantification, minimization, monitoring.

Starostina et al. (2004) and Kondratiuk (2004) defined stages of risk management such as risk definition, risk assessment, choice of risk management methods, use of the chosen methods, assessment of the results and making management decisions.



One can see that according to these authors, the number of stages of bank risk management has increased, in particular, there emerged the stage such as choice of risk management method, which, in our opinion, is quite appropriate, but we cannot agree that the stage of risk monitoring is not included, as it is a quite important moment for every bank. The same is for control.

In our opinion, to clearly understand the essence of bank risk management, seven stages of bank risk management should be defined for banking institutions (see Figure 1).

At the first stage, the responsible bank employees should define the essence and classification of risks that can emerge during the bank's activity, and strategic and tactical aims of the bank concerning managing the banking institution taking the risks into account.

At the second stage, bank managers obtain the information for identifying the risks. The identification should be understood as acknowledgement and understanding the existing risks and the risks, which can emerge in future. In its essence, definition of risks is a continuous process and is performed at the level of bank's structural subdivisions.

After the risk is defined, it should be identified, it means it should be assigned to one of previously defined classification groups. The difficulty of performing this stage of bank risk management depends on the source of emergence and size of the risk. The identification of risk is necessary, but not sufficient procedure.

The third stage involves risk assessment, it means quantitative measurement (quantification) of defined risks, during which characteristics are defined such as probability and brunt of possible consequences. Herewith, the system of limits from risks, which can be quantitatively assessed, is also developed. Such assessment should also define the allowable limits for every type of risk.

The fourth stage involves choice and use of methods and techniques for affecting the risks for minimizing or avoiding possible unfavorable consequences. If the taken risks are allowable, bank manage-

ment can only perform control, thus, pass to sixth stage of bank risk management. Also in some cases banks can use methods for avoiding risks. At the fifth stage, it is necessary to monitor risks, which means independent system of risk assessment and control, which is performed through internal and external audit and analytics. Monitoring is aimed at timely observation of risk levels. At the sixth stage, one of the effective elements of management is control for subdivisions' activity, which will provide for effectiveness of risk management system, accuracy and validity of information. The control involves establishing the limits and informing the executants about them with the help of stipulations, standards, procedures. At the seventh stage, bank managers should make conclusions and offers for future. That's why the necessary conditions for effective management are training of qualified managers of banking institutions, presence of knowledge and skills concerning using the risk management methods. Summing up the abovementioned, let us note that effective organization of risk management system is a prerequisite of bank safe management, which in turn contributes to strengthening the Ukrainian banking system as a whole and speeding up its integration in international banking society.

To assess the level of Ukrainian banks' financial sustainability, let's analyze the main financial indicators of Ukrainian banking institutions (see Table 1).

Beginning from 2014 in Ukraine there is observed destabilization of both the banking system and financial sustainability of the state as a whole, the reasons for which are political, financial, economic and banking crises. The amount of banks in 2017 was 88, it means beginning from 2014, 70 banks were liquidated, which is the biggest number during all history of independent Ukraine. Decreased share of operating banks is a consequence of general economic destabilization, which to some extent forces it, as losses of clients of bankrupt banks (UAH 111 billion as of mid-2016) worsen their financial state and business expectations. There also takes place a decrease in number of bank's operating departments (National Bank of Ukraine, 2016).

The banking institutions' assets were growing till 2014 and have fallen by 3.5% in 2017 and amount-

**Table 1.** Financial indicators of Ukrainian banks' activity for the period 2008–2017

Source: Compiled by the authors on the basis of statistic information of the National Bank of Ukraine (excluding insolvent banks).

Name of indicator	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of banks having obtained the license from NBU	184	182	176	176	176	180	158	109	90	88
Bank assets, UAH billion	599	920	880	942	1,054	1,127	1,278	1,220	1,227	1,233
Loans given, UAH billion	485	792	747	755	825	815	911	697	538	512
Share of loans in total assets, %	80.97	86.09	84.89	80.15	78.27	72.32	71.28	57.13	43.85	41.52
Loan arrears, UAH billion	6,3	18,2	70,2	84,6	79,2	72,6	70,2	135,9	213,3	226,3
Own equity, UAH billion	119	115	138	155	169	192	148	94	115	140
Obligations, UAH billion	806	765	804	899	958	1,085	1,168	1,126	1,112	1,093
Return on assets (ROA), %	−4.38	−1.45	−0.76	0.45	0.12	−1.27	−0.04	−0.06	−0.16	−0.01
Return on equity (ROE), %	−32.52	−10.19	−5.27	3.03	0.81	−8.29	−0.35	−0.77	−1.68	−0.01

ed to UAH 1,233 billion. Credit portfolio had a tendency towards increase till 2014 and when crisis happened, began to decrease quickly and in 2017, decreased by UAH 399 billion.

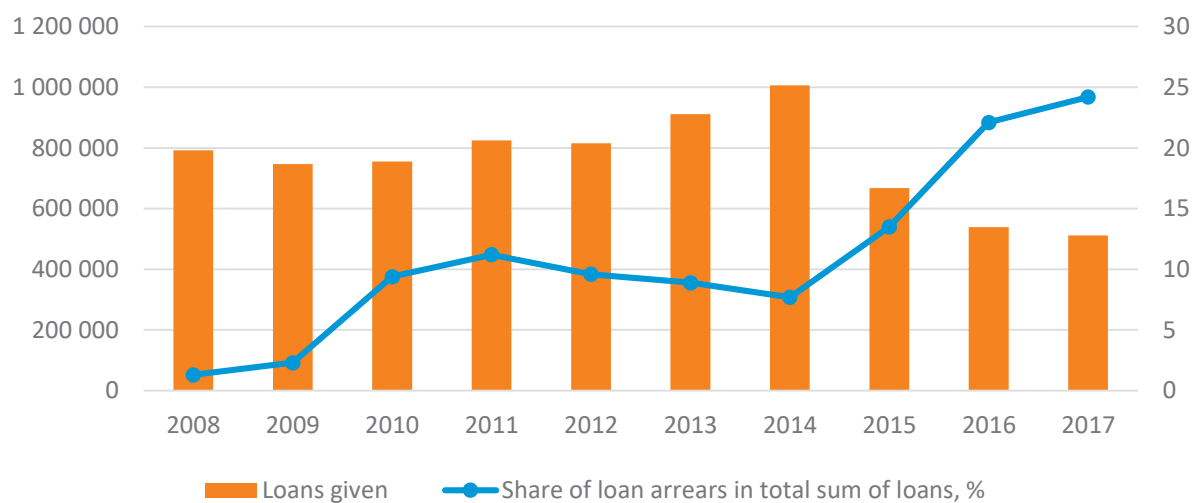
There is observed a significant decrease of the share of loans in total assets of Ukrainian banks, which is 39.45%. One can observe low quality of assets of Ukrainian banks during 2008–2017, caused by the significant amount of loan arrears. The situation became a lot worse due to significant decrease of GDP of Ukraine in 2014 and devaluation of Ukrainian national currency in the period of crisis by more than 300%, which became the reason for the significant increase of the debt service burden for borrowers who obtained loan in foreign currency. The growth of bank's obliga-

tions continued till 2014 and reached UAH 1,168 billion, which is 45% more than in 2008, and till 2017, there is observed an insignificant decrease of banks' obligations by 6.4%.

In 2015, total amount of own equity decreased by 36% in comparison with 2014, which is explained by banks' unprofitability as of year-end 2014. The decrease in profitability of the banking business can be explained by losses in banking activity during 2013–2017. Optimal value of the indicator "return on assets" can be from 1 to 1.5%. Instead, provided the losses of banking system, the value of this indicator will be negative.

In 2014, the significant crisis relapse was provoked by political and economic events in the country's

Source: Compiled by the authors on the basis of statistic information of the National Bank of Ukraine.

**Figure 2.** Dynamics of loans given by Ukrainian banks and share of loan arrears for the period 2008–2017

**Table 2.** Dynamics of values of economic indicators based on the system, 2010–2017

Source: Compiled by the authors on the basis of statistic information of the National Bank of Ukraine (excluding insolvent banks).

No.	Indicator		Years							
			2010	2011	2012	2013	2014	2015	2016	2017
1	<b>H4</b>	Indicator of instant liquidity (not less than 20%)	64.08	55.30	55.9	51.8	43.26	78.73	60.79	55.55
2	<b>H5</b>	Indicator of day-to-day liquidity (not less than 40%)	76.34	73.13	71.8	80.75	72.45	79.98	102.14	108.08
3	<b>H6</b>	Indicator of short-term liquidity (not less than 20%, beginning from 2010 not less than 60%)	86.81	90.60	93.7	82.65	77.76	92.87	92.09	98.37
4	<b>H7</b>	Indicator of maximum size of credit risk for one counteragent (not more than 25%)	22.2	21.8	22.1	20.64	20.84	22.78	21.48	20.29
5	<b>H8</b>	Indicator of big credit risks (not more than eightfold amount of regulatory capital)	158.3	160.7	172.1	164.58	230.3	364.14	308.27	203.5

life. The decrease in value of return on assets and return of equity of Ukrainian banks shows the general worsening of banking system financial situation, which in turn leads to significant increase in bank risks. The level of loan arrears in 2016 sharply increased by 36 times in comparison to 2008, especially, the significant increase took place in 2015–2016, which can be explained by political and financial crisis, outflow of deposits due to sharp increase of population's distrust to the banking system, as a result of the significant number of liquidated banks. Accordingly, the reserves for active operations and for recovery of possible losses during lending operations also had a tendency towards significant increase.

From Figure 2, one can observe the significant increase of the share of loan arrears in the total sum of loans from 1.3% in 2008 to 24.2% in 2017, it means there was an increase by 22.9% during the mentioned period and in 2017 it reached the highest level.

From 2011, there is observed certain decrease of the share of loan arrears in the total sum of loans by 3.5% till 2014. But in 2014, under the influence of difficult political and economic situation, hryvnia's devaluation, the share of loan arrears increases thrice. Herewith, from 2014, there is observed a decrease of the amount of loans given, which is the basis for returns of banking institutions, which also contributes to unprofitability of banking activity. The negative factors of low quality of credit portfolio of Ukrainian banks are: unregulated armed conflict in the East of the country, which makes impossible the service and return of

loans taken by borrowers, which are at the territory beyond the Government's control, constant low level of business activity and negative market expectations of economic entities, slow pace of restoring the occupational level, which limit the demand for loans and decrease creditworthiness and payment discipline of borrowers.

So, economic globalization, increased number of banking services and implementation of new banking products contribute to emergence of new risks in banking institutions' activity. Therefore there is a need for reconsidering the methods of assessment and analysis of financial sustainability and risks of banking institutions. In practice, Ukrainian banking institutions use different methods for assessing their risks. But today there is no a unified methodology for assessing the financial sustainability and risks of banks, as all banks are different depending on aim, size and number of bank products, number of clients, and depending on bank's strategy. The only method used by all national banks is the ratio analysis of economic indicators of NBU.

The Central Bank establishes the indicators for credit risk, which are the element of economic indicators for regulation of banking activity (National Bank of Ukraine, 2017). The state of how the national banks meet the indicators established by NBU is shown in Table 2.

From the data presented in Table 2, one can see that national banks fully meet the economic indicators, but taking into account the number of liquidated banks, it can be stated that the level of bank



**Table 3.** Variances of returns/losses of Ukrainian banks (based on groups according to NBU classification) during the years 2009–2013

Source: Calculated by the authors based on NBU data with the help of software Statistica 10.0. (excluding insolvent banks).

Return	Number of banks in a group	Average	Min	Max	VAR (variance)	SD Standard deviation	Coef. VAR (coefficient of variance) %	Skewness (assymetry)	Kurtosis
R09gr1	18	–965,623	–4,216,004	792,026	1.94	1,392,674	–14.42	–1.4576	1.6007
R10gr1	18	–399,498	–4,208,753	993,103	1.47	1,212,546	–30.35	–2.2375	5.3359
R09gr2	19	–385,234	–4,038,222	187,800	8.82	939,073	–24.37	–3.6322	14.2667
R10gr2	19	–113,669	–1,486,972	234,591	1.31	361,740	–31.82	–3.3375	12.6819
R09gr3	21	–173,182	–3,247,857	428,880	5.12	715,731	–41.32	–4.3377	19.5311
R10gr3	21	–20,718	–230,287	239,999	1.00	100,191	–48.36	–0.0983	2.4180
R09gr4	118	–4,660	–205,841	43,234	7.23	26,895	–57.71	–4.4880	28.2284
R10gr4	118	–1,806	–206,817	66,153	4.84	22,001	–121.79	–6.8675	65.8636
R11gr1	17	–181,759	–3,717,329	1,425,816	1.85	1,362,087	–74.93	–2.2060	4.3576
R12gr1	15	206,075	–2,575,269	1,873,392	8.71	933,426	45.29	–1.6381	6.0963
R11gr2	19	–204,543	–1,399,093	409,216	1.77	420,290	–20.54	–1.4091	2.3976
R12gr2	20	–17,312	–976,146	368,745	5.86	242,140	–139.87	–3.3781	14.6987
R11gr3	22	–3,750	–649,574	194,311	2.46	156,868	–418.30	–3.4254	15.0678
R12gr3	23	34,585	–66,115	483,374	1.02	101,137	29.24	4.2844	19.7720
R11gr4	117	–5,545	–406,742	38,232	1.88	43,407	–78.27	–7.3749	64.5224
R12gr4	122	–17,246	–1,995,145	105,816	3.45	185,789	–107.72	–10.2054	108.6187
R13gr1	15	176,603	–2,630,664	1,732,045	8.18	904,373	51.20	–1.9875	7.4498
R13gr2	20	–79,734	–1,915,613	230,024	1.95	442,177	–55.45	–4.1432	17.9575
R13gr3	24	3,806	–366,433	373,616	1.31	114,364	300.45	–0.0578	9.0112
R13gr4	119	4,930	–84,509	129,658	3.11	17,627	35.75	2.5276	26.9472

risk is high and the quality of their management is low. Thus, not always meeting the economic indicators by national banks allows to make a conclusion about the level of financial sustainability of certain commercial bank.

But, in the modern risk theory, there is no absolute answer to the question about how to define and assess bank's riskiness. It was demonstrated during the last financial crisis, which showed that the standard approaches recommended by the Basel Committee on Banking Supervision do not reflect the real size of total risk of banks and all the elements of this risk. That's why it is necessary to improve the assessment of banks' riskiness not only at the micro level (at the level of bank), but also at the macro level, i.e. the level of regulator.

All the methods of risk management are based on elements of theory of probabilities and mathematical statistics, which formed the effective instruments for measuring and assessing the risks. Unfortunately, in practice, efficient elementary methods of descriptive statistics, which are effective for assessing risks and their identification at all

levels of banking activity, are not used quite in full. In Tables 3 and 4, there are presented the calculations of variances of returns/losses based on data from NBU for groups of banks during 2009–2013 (during this period, NBU divided banks into four groups) and 2015–2017 (during this period, NBU defines banks with public share – group 1, banks of foreign bank groups – group 2, and banks with private capital – group 3). All these indicators together can be used for assessing the riskiness of bank groups' activity, namely assessment of probability of getting the returns of certain level (similarly with VAR approach). The coefficient of variation shows the level of risk for unit of average return/loss in the certain group of banks. So, it can be stated that in 2009 in the first group of banks, one hryvnia of loss generated nearly 15% of risk.

Moreover, one can see that in 2013, there took place an increase of risk in all groups of banks, the same is for 2017, which can be explained by financial and political crisis, which escalated dramatically till the end of 2013, and armed conflict in the East of Ukraine. Of interest is the fact that from the calculations, one can state that the

**Table 4.** Variances of returns/losses of Ukrainian banks (based on groups according to NBU classification) during the years 2015–2017

Source: Calculated by the authors based on NBU data with the help of software Statistica 10.0. (excluding insolvent banks).

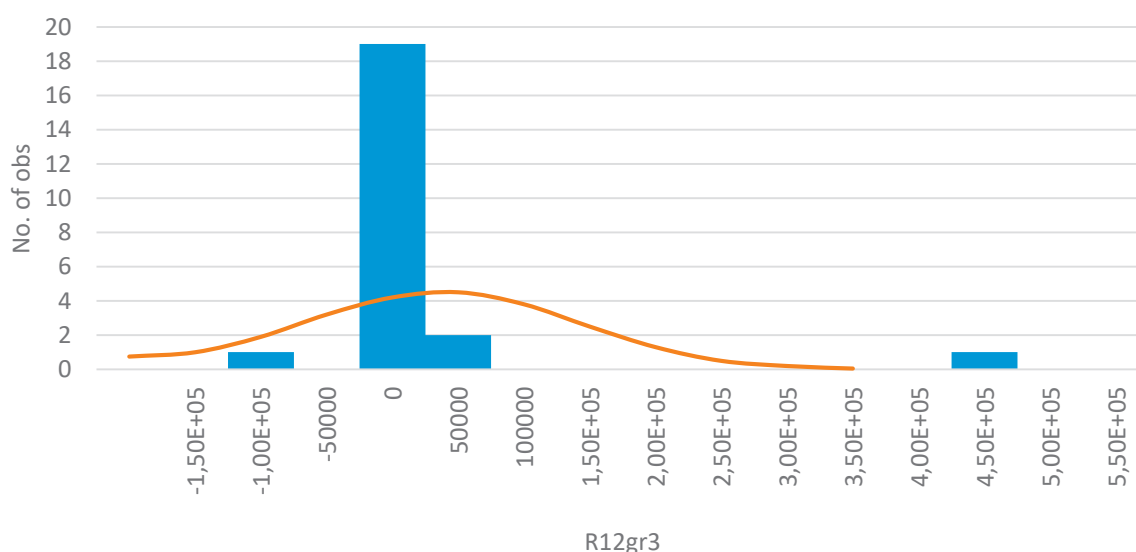
Return	Number of banks in a group	Average	Min	Max	VAR (variance)	Standard deviation	Coef. VAR (coefficient of variance) %	Skewness (asymmetry)	Kurtosis
R15gr1	6	-4,361,077	-14,132,383	259,672	4.72	6,874,693	-15.8	-0.99898	-1.68418
R15gr2	25	-1,690,378	-20,272,049	1,630,450	1.81	4,265,994	-25.2	-3.74823	15.98386
R15gr3	78	-44,428	-1,752,470	282,627	7.09	266,391	-59.9	-5.29780	30.17356
R16gr1	6	-27,446,057	-164,471,701	464,085	4.50	67,130,378	-24.5	-2.44920	5.99887
R16gr2	25	-1,180,991	-14,747,451	3,820,644	1.30	3,618,992	-30.6	-2.50382	7.89027
R16gr3	59	-654	-318,730	367,011	7.06	84,044	-128.5	0.04056	9.55844
R17gr1	6	-300,892	-2,908,013	736,194	1.71	1,307,910	-43.5	-2.18289	5.11900
R17gr2	25	-42,766	-4,720,336	2,737,849	1.35	1163,313	-272.0	-2.34370	12.38290
R17gr3	57	19,245	-325,056	592,968	9.63	98,172	51.0	2.93720	23.31061

decrease of losses of the first group of banks during 2009–2011 led to increase of the level of risk for 1 hryvnia of loss from 15% to 75%. Similar situation can be seen also in 2015–2017, the significant decrease of losses in the second group of banks, i.e. in banks with foreign capital, led to significant increase of risk for 1 hryvnia of loss from 25% to 272%. Getting 1 hryvnia of return of the first group of banks during 2012 generated 45% of risk, and the third group of banks during 2017 – 51%, i.e. one sees that the risks of these groups, not considering their profitability, are significant. But the biggest risk is observed in the third group of banks in 2011 and 2013, in which 1 hryv-

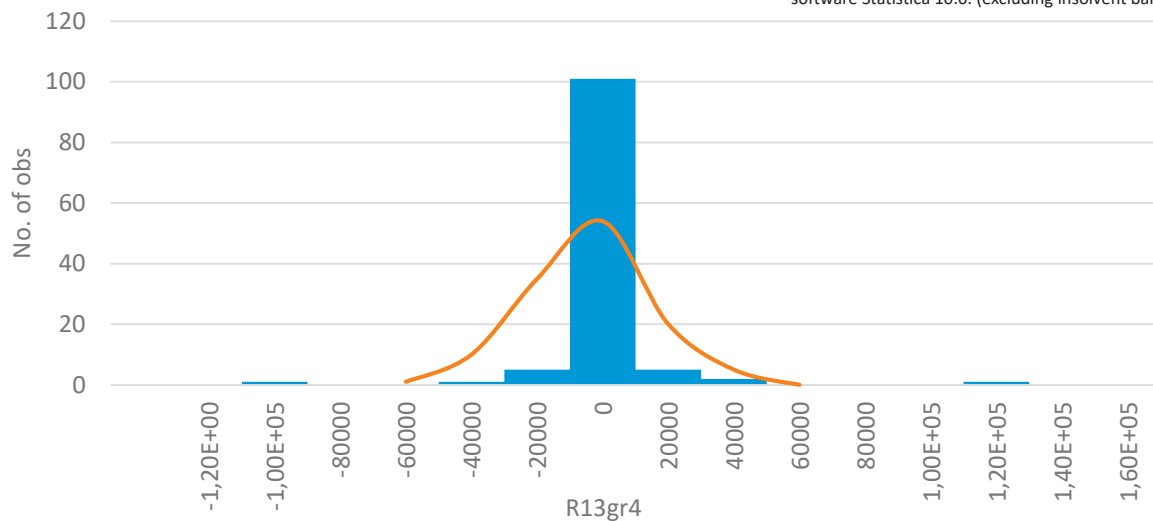
nia of return generated, respectively, 418% and 300% of risk, i.e. from these calculations, it can be stated that the level of risk management in Ukrainian banks is absent or quite low.

In the context of assessing and measuring risks, the coefficient of asymmetry has the following value in the case when it is positive, high returns are more probable (right “end” of the line of reaching the normal distribution in histograms); and, correspondingly, when it is negative, losses are more probable. Thus, from the calculated data, it can be stated that the returns are characteristic only for the third group of banks in 2012 and fourth group of banks in 2013 (see Figures 3 and 4).

Source: Calculated by the authors based on NBU data with the help of software Statistica 10.0. (excluding insolvent banks).

**Figure 3.** Histogram of distribution of returns/losses of banks of group 3 in 2012

Source: Calculated by the authors based on NBU data with the help of software Statistica 10.0. (excluding insolvent banks).



**Figure 4.** Histogram of distribution of returns/losses of banks of group 4 in 2013

In the rest of groups of banks during the years 2009–2017, losses are probable, which indicates that risks are high and risk management is quite weak or absent. Moreover, one can see that in the first group of banks in 2012 and 2013, possible losses have slightly decreased compared to the second group, the coefficient of asymmetry of which show, vice versa, the probability of increase of losses in these years, so if in 2001 the coefficient of asymmetry was  $-1.4$ , in 2013, its value was  $-4.1$ . Acute fluctuations of this coefficient are observed in the third group of banks from  $-4.3$  in 2009 to  $+4.28$  in 2012 and  $+2.9$  in 2017, i.e. this group of banks passed from the probability of losses even to probability of getting returns.

In the context of our study, the indicator of kurtosis (see Tables 3 and 4) is offered to be used as follows: the larger the indicator of kurtosis, the less risky is the group of banks. The indicator of kurtosis can be used as supplementary in the situations when the indicator of asymmetry in the groups of banks is the same. Thus, from the performed study, it can be observed that the largest indicator of kurtosis in the fourth group of banks, which during the years 2009–2012 increased almost by four times and was 108.6, has the largest value in all groups of banks during the years under study. Besides, this indicator has acutely decreased during the years 2015–2017, which indicates that the riskiness of all groups of banks increases. This decrease can be explained by the same crisis. According to calculation data, first group of banks

is considered the riskiest, as in this group, the indicators of kurtosis are the smallest.

Standard deviation indicates the range of return volatility in the group of banks. Thus, the smaller the standard deviation, the lower is the level of riskiness of income-generating activity in the group of banks. So, according to the calculated data of standard deviation of all the group of banks during the years of study, the lowest level of riskiness of income-generating activity is characteristic for the third group of banks, as during 2015–2017, standard deviation was the smallest. And the level of riskiness of income-generating activity is the highest in the first group of banks, in which during the years of study, the calculated standard deviation is the largest.

Thus, the offered array of these indicators can be used for assessing the riskiness of activity of groups of banks, namely for assessing the probability of getting returns of a certain level. During the years of study, in the majority of groups of banks, losses are probable, which indicates that risks are high and risk management is quite weak or absent. So, the important problem of risk management functioning in the Ukrainian banks activity is low quality of bank risk management. The essence of the offered approach lies in comparing the values of the abovementioned descriptive characteristics on the dynamics in groups of banks (according to NBU classification), which gives a possibility to assess the riskiness of banks' activity and obtain

quantitative characteristics of the risks in the activity of every group of banks.

Such an approach can be used for monitoring the riskiness of banks' activity at the macro level by the regulators for making corresponding decisions, and, in particular, representatives or banking supervision who "should define how some existing or potential problems, which the bank or bank system face, affect the nature and level of risks in this bank. According to the assessment results, the supervisors make plans and define the supervision actions. The supervision based on the assessment of risks is the deepened continuation of supervision function, which is based on risk and is already used by National Bank for some time..." (National Bank of Ukraine, 2004).

But when trying to use risk management in their activity, Ukrainian commercial banks face the need to take into account some circumstances, which make their actions more difficult, in particular:

- 1) in our society, the risk culture is only at the stage of its formation. A clear example is the distrust to banking sector. One can say that risk culture is present only when the management knows which risks the banking institution faces. Besides, all bank employees should openly discuss and understand the risks;
- 2) risk management infrastructure is not developed in Ukraine (i.e. institutes and instruments for managing bank risks);
- 3) size and ratio of different types of bank risks of Ukrainian and foreign banks and motivation for implementing risk management in the activity of domestic banking institutions differ significantly. So, specificity of Ukrainian economy consists in the size of some types of risks and underdevelopment of instruments for protecting from risks. In particular, such specific risks can be unregulated ownership relations, corruption, underdeveloped financial infrastructure, etc.

## CONCLUSION

Bank risk management is the main element of bank management system, and under constant increase in instability of international and domestic financial markets, its value grows significantly. The authors found that one of the main factors of effective functioning of bank risk management is formation of effective risk management process in the activity of Ukrainian banks. There were found problematic tendencies to organizing risk management in the activity of national banks. The authors systematized the problems, which hinder the development of bank risk management in Ukraine. It was found that the main problem of risk management functioning in the national banks activity is low quality of bank risk management. That's why with the aim to improve the activity of banking institutions, the authors offer the methodology for assessing banks' riskiness at the macro level, i.e. at the level of regulator with the help of methods of descriptive statistics. The advantages of using these indicators as an alternative to VAR approach are simplicity of calculations, availability of data for calculations, promptness of use and simplicity of interpretation. Furthermore, this approach gave a possibility to identify the level of riskiness of groups of Ukrainian banks and, correspondingly, the level of quality of bank risk management in these groups. Herewith these calculations showed high risks and quite weak or absent risk management in the banks.

## REFERENCES

1. Andersen, T., & Schroder, P. (2010). *Strategic Risk Management Practice: How to Deal Effectively with Major Corporate Exposures* (268 p.). Cambridge: Cambridge University Press.
2. Constantinescu, D., & Nistorescu, T. (2008). *Managementul proiectelor*. Universitaria Publishing, Craiova. Retrieved from <http://editurauniversitaria.ucv.ro/managementul-proiectelor-in-afaceri/rasfoire>
3. Crouhy, M., Mark, R., & Galai, D. (2012). *Risk Management* (390 p.). New York: McGraw-Hill.
4. Drogalas, G., Eleftheriadis, I., Pazarskis, M., & Anagnostopoulou, E. (2017). Perceptions about effective risk management. The crucial role of internal audit and management. Evidence from Greece. *Investment Management and Financial Innovations*, 14(4),

- 1-11. [http://dx.doi.org/10.21511/imfi.14\(4\).2017.01](http://dx.doi.org/10.21511/imfi.14(4).2017.01)
5. Duță, V. M. (2016). Banking Risk Management: An Increasingly Complex Process. *Finante – provocările viitorului (Finance – Challenges of the Future)*, 1(18), 82-93. Retrieved from <http://financejournal.ro/fisiere/revis-ta/1403675796018-009.pdf>
6. Hopkin, P. (2010). *Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management* (384 p.). London: Kogan Page.
7. ISO/Guide 73: 2009(en). Risk management – Vocabulary. Retrieved from <https://www.iso.org/obp/ui/#iso:std:iso:guide:73:ed-1:v1:en>
8. Kireitsev, H. H. (2001). Фінансовий менеджмент [*Finansovyi menedzhment*] (440 p.). Zhytomyr: ZHITI.
9. Kornev, M. M. (2006). Сущность риск-менеджмента и его интеграция в банковскую деятельность [Sushchnost risk-menedzhmenta i ego integratsiya v bankovskuyu deyatel'nost']. *Sbornik nauchnykh trudov Severo-Kavkazskogo universiteta*, 7, 84-92.
10. Kondratiuk, E. A. (2004). Понятие банковских рисков и их классификация [Ponyatie bankovskikh riskov i ikh klassifikatsiya]. *Dengi i kredit*, 6, 43-50.
11. Kuzmak, O. M. (2011). Ефективна система ризик-менеджменту, як дієвий засіб забезпечення стійкості банківських установ [Efektivna systema ryzyk-menedzhmentu, yak diievyi zasib zabezpechennia stiihosti bankivskykh ustanov]. *Visnyk KHNNU*, 2, 164-168.
12. Prymostka, L. O. (2004). Фінансовий менеджмент у банку [*Finansovyi menedzhment u banku*] (468 p.). Kyiv: KNEU.
13. Prymostka, L. O. (2007). Управління банківськими ризиками [*Upravlinnia bankivskymy ryzykamy*] (600 p.). Kyiv: KNEU.
14. Starostina, A. O., Kravchenko, V. A. (2004). Ризик-менеджмент: теорія та практика [*Ryzyk-menedzhment: teoriia ta praktyka*] (200 p.). Kyiv: IVTS "Vydavnytstvo "Politekhnik".
15. Shirinskaya, E. B. (1998). Финансово-аналитическая служба в банке: Практическое пособие [*Finansovo-analiticheskaya sluzhba v banke: Prakticheskoe posobie*] (144 p.). Moscow: FBK-PRESS.
16. Sifumba, C. M., Mothibi, K. B., Ezeonwuka, A., Qeke, S., & Matsoso, M. L. (2017). The risk management practices in the manufacturing SMEs in Cape Town. *Problems and Perspectives in Management*, 15(2-2), 386-403. [http://dx.doi.org/10.21511/ppm.15\(2-2\).2017.08](http://dx.doi.org/10.21511/ppm.15(2-2).2017.08)
17. Soliman, A., & Mukhtar, A. (2017). Enterprise Risk Management and firm performance: an integrated model for the banking sector. *Banks and Bank Systems*, 12(2), 116-123. [http://dx.doi.org/10.21511/bbs.12\(2\).2017.12](http://dx.doi.org/10.21511/bbs.12(2).2017.12)
18. Національний банк України [Natsionalnyi bank Ukrainy] (2004). Методичні вказівки з інспектування банків "Система кількісної оцінки ризиків" [*Metodychni vkazivky z inspektuvannia bankiv "Systema kil'kisnoi otsinky ryzykiv"*]. Retrieved from <https://bank.gov.ua/doccatalog/document?id=36986>
19. Національний банк України [Natsionalnyi bank Ukrainy] (2016). Ризики та ключові напрями посткризового відновлення банківської системи України. Аналітична записка [*Ryzyky ta kluchovi napriamy postkryzovoho vidnovlennia bankivskoi systemy Ukrainy. Analitichna zapyska*]. Retrieved from [http://www.niss.gov.ua/content/articles/files/bank\\_sustem-93e11.pdf](http://www.niss.gov.ua/content/articles/files/bank_sustem-93e11.pdf)
20. Національний банк України [Natsionalnyi bank Ukrainy] (2017). Показники банківської системи [*Pokaznyky bankivskoi systemy*]. Retrieved from [https://bank.gov.ua/control/uk/publish/article?art\\_id=34661442&cat\\_id=34798593](https://bank.gov.ua/control/uk/publish/article?art_id=34661442&cat_id=34798593)