



Comparative Aspects of Statistical Evaluations Reflecting Basic Indicators of Development of Banking Sectors of Various Groups of European Countries

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Abstract: The problems of functioning of banking sector of economy attract great attention of various researchers in modern economic conditions. It is connected with the fact that banking sector is the fundamental link of interconnection between various economic entities when solving key financial aspects in their economic relations. More than that, under conditions of globalization such interconnections appear at various levels of arising interrelations between economic entities under study which may be banking sectors of both individual countries and groups of such countries. At the same time the analysis of the current situation and development of proposals on further development of any economic entity assumes, first of all, the consideration of various statistical data which are described with the help of the sum total of statistical indicators. Proceeding from that, the work presents various aspects of statistical evaluations reflecting the basic indicators of development of the banking sectors of various European countries. Making such analysis allows us not only judge about the current interconnections of the banking sectors of various countries of Europe but also mark the ways of further development on the basis of formulation of models which allow us to take into account the presence of existing statistically significant dependencies between indicators of development of the sum total of banking sectors of various countries under consideration.

Key words: assets, credit, liabilities, deposit, banking sector, statistical evaluation, cash flows.

Introduction:

The banking sector of the economy being the sum total of banking institutions, which ensure the movement of cash flows between various economic entities and spheres of economic life, plays an important role in the development of any country. First of all the banks play an important role in reproduction structure of economy as the flow and redistribution of financial and capital resources are organized by means of their activity. At the same time under conditions of globalization, development of integration processes both in financial markets and between various countries, the functioning of the banking sector of any individual country in many ways depends on the integral development of the markets of capital of other countries. It is based on the fact that close interconnection and interaction are the characteristic peculiarities of the development of the world financial markets revealed in corresponding change of the dynamics of cash flows of various sectors of economies of individual countries. The development of the world financial and economic crisis in September-October, 2008 is an example of such interdependence. (Ivashina and Scharfstein, 2010; Tong and Wei, 2011).

With the purpose of development of acceptable solutions, directed at overcoming the arising disproportions in the development of banking sector, the consideration and study of various interconnections between banking sectors of various countries is an important moment. Various statistical evaluations of the comparative analysis of the activity of banking sectors of various countries make, as a rule, the basis of such consideration. At the same time, the evaluations under consideration allow us not only to make the comparative analysis of the development of banking



sectors of various countries but directly analyze the development of banking sectors under consideration. Ultimately, it determines the necessity of examining those problems which are stipulated by the chosen themes of research. Besides, on the assumption of the importance of taking into account the consequences of debt financial crisis of Europe, prevailing interaction of Ukraine's banking sector with the banking sectors of Europe, we will mainly consider the comparative aspects of development of the domestic banking sector of the economy with the banking sectors of European countries.

Review of Literature:

The problems of functioning and development of European banking sectors are in the centre of attention of various researchers. In particular, the work by Goddard, Molyneux, Wilson and Tavakoli (2007) makes the detailed review of the banking sectors of the countries of European Union. In so doing, it gives special attention to the elasticity of price component of the function of demand for financial resources, importance of motivation in the development of relations between banking sectors of individual European countries.

The factors, explaining the change of interest margin in the banking sector of the countries of the European Union as an integral part of elasticity of price component of the function of demand for financial resources, are studied in the work by Maudos and Fernandez de Guevara (2004). The level of credit risk and the level of banking capitalisation are, in particular, related to these factors. It was emphasized that the factors under review are specific for every country of the European Union and for each institutional type of banking establishment. Nevertheless, the work of Maudos and Fernandez de Guevara (2004) doesn't make general conclusion as to the differences of such factors from the point of view of the banking sectors of the countries of Central and Eastern Europe and the countries of Western Europe.

The separate study of factors, explaining the change of interest margin in the banking sector of the countries of Central and Eastern Europe in comparison with the banking sector of the countries of Western Europe, is conducted in the work by Claeys and Vander Vennet (2008). Along with such factors as the level of credit risk and level of banking capitalisation, which influence the change of interest margin in the banking sector of the countries of Central and Eastern Europe, Claeys and Vander Vennet also consider the presence of capital of foreign and state banks. At the same time, the work shows that presence of foreign and state banks is the distinguishing feature of the change of interest margin in the banking sector of Central and Eastern Europe in comparison with the banking sector of the countries of Western Europe (Claeys and Vander Vennet, 2008).

The work by De Haas and Van Lelyveld (2006) gives more detailed review of the role and importance of foreign banks in the sphere of credit stability of the banking sector of the countries of Central and Eastern Europe. The special attention in their research De Haas and Van Lelyveld give both to the stability of development of individual banks and average change of interest rate on credit.

At the same time it should be emphasized that the special attention to the functioning and development of the countries of Central and Eastern Europe was caused by the changes connected with the decentralization of pricing in the market of banking services under the influence of competition growth on the part of certain banks. In particular the given direction occupies the central place in the following studies:

- by Carbó, Humphrey, Maudos and Molyneux (2009), where they give the comparison between the competition and pricing in the market of banking services for various countries of Europe on the basis of consideration of translogarithmic function of earnings and Herfindahl-Hirschman index;
- by Yildirim and Philippatos (2007), where they analyze the influence on the competition in the banking sector of the countries of Central and Eastern Europe under the impact of the banking reforms



in progress which influence the change of the structure of banks' revenues and price elasticity concerning the obtained funds and granted credit resources.

At the same time the works by Dobrovolskaya and Lyashenko (2013), Kots and Lyashenko (2012) consider the problems of interaction of banking sectors of various groups of European countries dividing them into the following groups:

- banking sectors of the developed countries of Europe;
- banking sectors of the countries of the former USSR;
- banking sectors of the rest of European countries.

This structuring of banking sectors of various countries of Europe allows us to make the more detailed analysis of their interaction and identify the most significant factors of mutual influence. At the same time we receive the possibility to make the comparative analysis concerning the development of the banking sector of the economy of any single country and banking sectors of various groups of the countries under study that allows us to identify the closest points of mutual influence and their existing difference.

As a whole the key directions in the development of banking sectors of various countries of Europe are viewed on the basis of the study of efficiency of the corresponding directions of banking activity. It is worth mentioning the following works as the examples of such studies:

- Semih and Philippatos (2007), where the authors make an emphasis on the analysis of scale when considering the bank's expenditure functions determining its efficiency;
- Bonin, Hasan and Wachtel (2005), where the efficiency of the banking sector is viewed from the point of view of productivity of certain banks, mutual influence on banking activities of investment, export-import and cooperative banks. At the same time Bonin (2004) lays emphasis on the fact that it is the efficient interaction in interbank market that has decisive significance for the development of banking sector as a whole.

Thus, we can say that the research of mutual influence on the development of banking sectors of various countries of Europe has many-sided directions which give the integral picture of the problem under study. At the same time the continual changes in the financial markets and their influence on the banking sector of the economy stipulate the necessity of doing a new research where the choice of both the various time horizons of the analysis and the various groups of countries from the point of view of which this analysis can be made. In so doing, it is also possible to use various instruments for making the corresponding analysis that, as a whole, expands the possibilities of obtaining the results for comparing the banking sectors of various countries. It is the reason we have chosen for our consideration the subject area of the given research.

Methodology and data for research:

First of all, it should be noted that no matter what the selection of instruments for making the comparative analysis of banking sectors of various countries may be, it is based on the descriptive statistics of the data under study. It is connected with the fact that it is the descriptive statistics that allows us to systematize the data under study, reveal the characteristic regularities in the dynamics of the presented data and quantitatively describe them with the purpose of doing research. In the given work we shall consider the following:

- the average, which shows the average value of the data series under study and allows us to judge on the average about the differences in absolute values of indicators which reflect the dynamics of functioning of banking sectors of various European countries;
- the median which divide the data series under consideration in two equal parts, one of which will have the value of the indicator under study not more than the median and the other one – the values of the indicator under study not less than the median;
- the minimum and maximum of the indicator under study which reflects the dynamics of



functioning of the banking sector which allows us to speak about the swing of the series as an indicator of its change;

- the standard deviation which is the indicator of dispersion of values of the data series under study reflecting the dynamics of functioning of banking sector;
- the asymmetry which we may use as a base for judging about the form of distribution of values of the data series under study, their correlation with the normal distribution and possibility of making predictions on the basis of the use of classic approaches of the analysis of statistical data;
- the excess as a measure of acuteness of the peak of distribution of values of the data series under study which in total with the coefficient of asymmetry allows us to speak about the correlation of distribution of the data series under study with normal distribution.

The correlation analysis and the calculation of correlation coefficients that allow us to speak about the direction of mutual influence of banking sectors of various countries of Europe will be a significant addition to the basic indicators of descriptive statistics of the data under study presented above.

We will calculate t-statistic and its p-level for each of the acquired values of correlation coefficients for determination of significance of such directions of mutual influence (Moore, 1996; Meng, Rosenthal and Rubin, 1992). Confidence limits of significance of obtained coefficients will be calculated for confirmation of credibility of calculated coefficients (Meng, Rosenthal and Rubin, 1992; Lee and Nicewander, 1988).

At the same time it is worth mentioning that one of the significant manifestations of the changes under review in interaction of banking sectors of various countries is the dynamics of input and output cash flows of the banks. It is connected with the fact that at present stage of development banks play important role not only as key economic entities of the economies of certain countries but as the key players and sources of resources in the world financial markets (Kuzemin, Lyashenko, Bulavina and Torojev, 2005). The output cash flows of the banks are identified with active operations of the bank where the operations connected with credits are of key significance. The input cash flows are identified with passive operations of the bank where the operations connected with deposits are of key significance. Thus, we shall make the comparative analysis of statistical evaluations of the development of the banking sectors of various countries of Europe on the basis of the analysis of the change of their assets, liabilities, volumes of given credits and obtained funds on deposit accounts. At the same time it is reasonable to consider such set of data from the point of view of banking sector of the economy and non-banking sector of the economy.

We have the following groups of countries for making comparative analysis of statistical evaluations of development of banking sectors of various countries of Europe:

- banking sectors of the developed countries of Europe (Group 1),
- banking sectors of the countries of the former USSR (Group 2),
- banking sectors of the rest of the countries of Europe (Group 3),
- banking sector of Ukraine (Group 4).

This selection is based on the point of view that banking sectors under consideration must be not only interconnected on the level of economic relations but must be comparable, at least, by the mentality of the development of the economies of certain countries or, at least, from the point of view of those countries which declare this sort of mentality and are aspiring to it. At the same time, it is important to emphasize that the groups under consideration, to some extent, determine various degrees of influence of existing institutional regulators of economic processes on functioning and development of banking sectors of various countries of Europe as well (Almeida, Campello and Weisbach, 2004; Allayannis and Mozumdar, 2004).

Thus, the essence of making the above mentioned analysis consists in comparison of development of



both banking sectors of various groups of European countries and banking sector of Ukraine with banking sectors of various groups of countries of Europe. The basis of this comparison is formed by various statistical indicators which were presented above.

The period from 2000 to 2011 was chosen as a time interval that allows us to consider together both the periods of stable economic development and the periods of manifestations of crisis phenomena. At the same time it is important to take into account the possible denial of such consideration when the separate consideration of the period of stable development and the period of manifestation of crisis phenomena is at first sight more acceptable. That's why the quarter was chosen as certain time count for which various indicators of development of banking sectors of economies are considered (consequently each data series contains 48 values). The chosen presentation of data series allows us to level the possible fluctuations in indicators under study taking place due to various reasons including those caused by necessary market changes and take into account the influence of seasonal component in economic development and its influence on changes of banks' activities. At the same time, we consider not the absolute values of certain indicators but their changes by certain quarters. All data have been taken from the site of the Bank for International Settlement (<http://www.bis.org/publ/quarterly.htm>), the unit of measurement of the presented data – billions of US dollars.

The group of developed countries of Europe according to the data of The Bank for International Settlement by the results of the chosen research period includes not less than 25 countries for which the statistical values of development of their banking sectors of economies are presented and the indicators of other banking sectors of economies of the developed countries of Europe not having independent presentation are tabulated separately in option Other (<http://www.bis.org/publ/quarterly.htm>).

The group of developing countries of Europe, in accordance with the data of The Bank for International Settlement by the results of the chosen period for the research, includes not less than 20 countries for which the statistical values of the development of their banking sectors of economies are presented and the indicators for other developing countries not having independent presentation are tabulated in option Residual Europe (<http://www.bis.org/publ/quarterly.htm>) The group of developing countries of Europe, which were part of the former USSR, includes 7 countries, the rest of the developing countries of Europe form the group of the developing countries of the rest of Europe.

Results and their discussion:

Table 1 presents the basic statistical indicators for the cash flows of the banking sectors of various countries of Europe under study which reflect the changes of their assets both as a whole and with the account of their division into non-banking sector and banking sector. The conformity of the specific groups of banking sectors of various countries of Europe presented in Table 1 is given above, the unit of measurement of initial data series - billions of US dollars (the same remarks apply to the following tables given below as well)

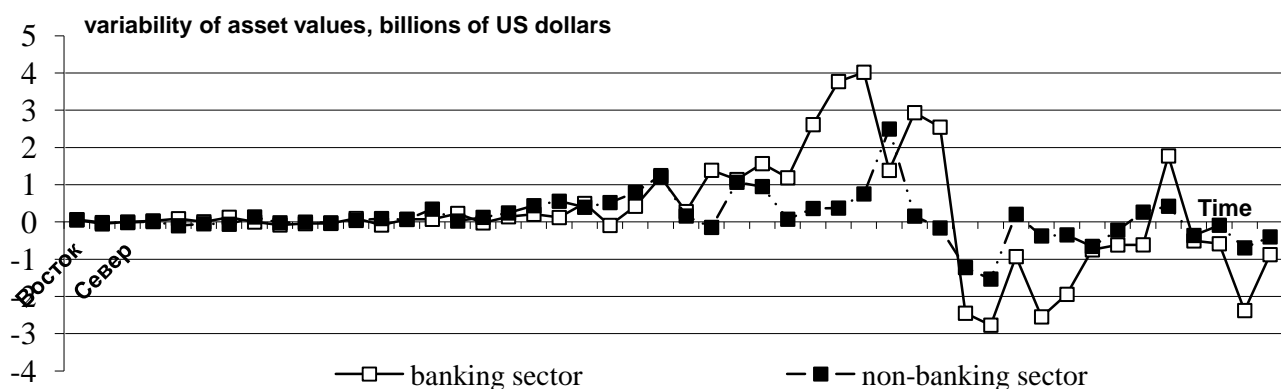


Table 1: The basic statistical indicators of data series reflecting the changes of assets values of banking sectors of various countries of Europe

Assets	Groups	Statistical indicators							
		Average	Median	Standard deviation	Excess	Asymmetry	Min	Max	Scope
Common	1	166,77	187,37	444,90	2,11	0,06	-1148,34	1559,02	2707,35
	2	3,31	2,24	12,35	2,31	-0,23	-35,93	35,75	71,69
	3	9,78	8,31	17,30	0,16	0,27	-31,59	47,12	78,71
	4	0,34	0,13	1,87	0,75	-0,02	-4,30	4,77	9,08
non-banking sector	1	57,24	65,87	102,10	0,65	-0,36	-204,07	280,23	484,30
	2	1,21	0,51	5,02	2,36	0,94	-9,85	18,26	28,11
	3	4,44	4,31	8,55	0,07	0,15	-13,05	24,20	37,24
	4	0,12	0,07	0,61	4,97	0,82	-1,53	2,50	4,03
banking sector	1	109,53	97,43	371,48	2,14	0,09	-997,54	1278,79	2276,33
	2	2,10	1,26	8,48	2,73	-0,48	-26,08	25,10	51,18
	3	5,34	4,33	10,28	0,51	0,14	-18,64	31,85	50,49
	4	0,22	0,06	1,44	1,08	0,42	-2,77	4,02	6,79

Table 1 data shows that statistical indicators of data reflecting the values of changes of assets of the banking sector of Ukraine significantly differ from the corresponding indicators of data for other groups of banking sectors of various countries of Europe. It can be naturally explained by, first of all, the fact that other groups of banking sectors of various countries of Europe unite several countries.

At the same time the prevalence of variability of values, first of all of banking sector, in formation of the dynamics of variability of common assets is characteristic for both the banking sector of the economy of Ukraine and other groups of banking sectors under study. As the example, Table 1 shows the dynamics of change of assets of non-banking and banking sector of the economy of Ukraine. The data of Pic.1 show the prevailing role of the variability of values of banking sector's assets in comparison with non-banking sector of the economy of Ukraine.



Pic.1. Dynamics of changes of assets' values of the banking and non-banking sectors of Ukraine's economy in 2000-2011 in quarterly figures

At the same time, the statistical indicators of data representing the values of change of banking sector assets for such groups as banking sectors of the countries of the former USSR (Group 2) and banking sectors of the rest of the countries of Europe (Group 3) are the most comparable ones. But it should be noted that such comparability can't be seen by all presented indicators of data reflecting the values of change of banking sectors' assets of the groups of European countries under study.



At the same time we can assert that the characteristic changes in the structure of output cash flows of the banking sectors of the groups of countries of Europe under study determine the changes typical for output cash flows reflecting the change in values of the credits granted (Table 2).

Table 2: Basic statistical indicators of data series reflecting the change in values of given credits by banking sectors of various countries of Europe

Credits	Groups	Statistical indicators							
		Average	Median	Standard deviation	Excess	Asymmetry	Min	Max	Scope
Common	1	121,29	109,26	384,72	3,23	-0,07	-1159,29	1353,1	2512,4
	2	2,61	1,44	10,75	1,43	0,28	-21,98	33,63	55,61
	3	7,60	3,77	13,21	1,25	1,03	-19,67	47,94	67,61
	4	0,24	0,07	1,46	0,79	0,23	-2,84	4,08	6,92
non-banking sector	1	36,40	35,54	67,16	0,74	0,19	-115,52	204,77	320,28
	2	1,08	0,43	4,34	4,33	1,49	-5,94	18,02	23,96
	3	3,43	1,25	6,73	0,65	1,05	-8,89	20,73	29,61
	4	0,09	0,03	0,36	1,32	0,55	-0,73	1,06	1,79
banking sector	1	84,90	53,99	336,07	3,53	-0,17	-1061,90	1158,36	2202,25
	2	1,53	0,68	7,81	2,46	-0,20	-22,10	22,83	44,93
	3	4,17	3,83	7,87	2,41	0,56	-16,29	31,26	47,56
	4	0,15	0,04	1,21	1,19	0,32	-2,59	3,25	5,84

The same conclusions can be made as to the input cash flows of the banking sectors of various groups of countries of Europe. Besides, such cash flows correspondingly can be presented as liabilities of banking sectors (Table 3) and volumes of funds raised for deposit accounts of these or other banks which determine the banking sectors of the groups of European countries (Table 4).

Table 3: Basic statistical indicators of data series reflecting the change in values of liabilities of banking sectors of various groups of European countries

Liabilities	Groups	Statistical indicators							
		Average	Median	Standard deviation	Excess	Asymmetry	Min	Max	Scope
Common	1	129,98	139,99	389,91	2,50	-0,41	-1161,47	1212,99	2374,47
	2	2,86	4,06	26,68	14,27	-2,86	-133,25	48,81	182,06
	3	2,40	0,74	9,70	3,44	-0,67	-34,54	23,60	58,15
	4	0,33	0,14	1,37	0,09	-0,09	-3,03	3,51	6,53
non-banking sector	1	30,41	27,00	103,09	1,12	-0,08	-252,53	317,73	570,26
	2	0,51	0,16	1,67	0,20	0,56	-2,58	4,57	7,16
	3	0,94	0,56	3,71	3,13	-0,41	-12,09	10,54	22,62
	4	0,06	0,01	0,18	6,51	1,83	-0,25	0,85	1,10
banking sector	1	99,57	125,01	312,26	2,63	-0,26	-908,94	1037,6	1946,54
	2	2,35	3,97	26,66	15,69	-3,04	-136,66	51,14	187,80
	3	1,45	1,42	8,28	2,98	-1,04	-29,89	15,48	45,37
	4	0,27	0,17	1,38	0,43	-0,09	-3,24	3,76	7,00



Table 4: Basic statistical indicators of data series reflecting the change in values of deposits volumes of banking sectors of various groups of European countries

Deposits	Groups	Statistical indicators							
		Average	Median	Standard deviation	Excess	Asymmetry	Min	Max	Scope
Common	1	114,85	128,87	377,23	4,27	-0,81	-1303,72	1168,96	2472,68
	2	2,84	3,90	26,71	14,23	-2,85	-133,32	48,69	182,01
	3	2,36	0,65	9,72	3,70	-0,73	-35,19	23,51	58,71
	4	0,33	0,14	1,36	0,11	-0,09	-3,02	3,50	6,53
non- banking sector	1	28,38	23,82	95,10	1,18	-0,24	-249,76	276,24	526,00
	2	0,51	0,19	1,66	0,16	0,54	-2,58	4,55	7,13
	3	0,92	0,54	3,72	3,06	-0,44	-12,09	10,37	22,46
	4	0,06	0,02	0,18	6,72	1,84	-0,26	0,85	1,10
banking sector	1	86,47	108,31	308,02	4,34	-0,66	-1053,96	1008,04	2062,0
	2	2,33	3,97	26,68	15,65	-3,04	-136,71	50,96	187,68
	3	1,43	1,31	8,29	3,07	-1,06	-30,11	15,37	45,48
	4	0,28	0,16	1,38	0,44	-0,09	-3,24	3,76	6,99

Tables 3 and 4 show (first of all, it is shown by the values of average, scope and standard deviation) the following:

- significant difference of the presented statistical indicators for banking sectors of the group of developed countries of Europe and the banking sector of Ukraine;
- comparatively comparable values of the presented statistical indicators for the banking sectors of the group of countries of Europe of the former USSR and the banking sectors of the group of the rest of the countries of Europe;
- prevailing significance of banking sector in formation of general liabilities and raised funds on deposit accounts of banks as their component part.

Besides, if we consider the form of distribution of analyzed data series it is important to note that from the point of view of assets and given credits such data of the banking sectors of various groups under consideration are most likely to be described as normal distribution. But it can't be said from the point of view of those data series which present liabilities and amount of funds on deposit accounts of the banking sectors of various groups under study. This conclusion is based on the analysis of such statistical indicators as excess and asymmetry. Thus, when developing the models of development forecast of the banking sectors of various groups under study this observation should be taken into account. This very observation concerns the method of building regressive models for the analysis of arising interconnections between the banking sectors of various groups of countries under study. At the same time we should stress the necessity of using the method of maximum likelihood rather than method of least-squares (for determination of rating points in regressive dependences).

But, as it was stated above, it is advisable to calculate the coefficients of correlation between data series reflecting various indicators of development of the banking sectors under review for determination of existing interconnections between the banking sectors under study. Table 5 and Table 6 present the values of correlation coefficients and parameters of their statistical significance between data series representing the change of the amount of granted credits and change of the amount of obtained funds on deposit accounts in the banking sector of Ukraine in comparison with other banking sectors of various groups of European countries are given as an example of identification of this sort of connections. The given choice of further consideration of the problem under study doesn't limit it as a whole but only emphasizes the significance of the study of one of the tasks of the given work which



brings it to the analysis of interconnections between the banking sector of Ukraine and banking sectors of various European countries.

Table 5: The values of correlation coefficients and parameters of their statistical significance between data series representing the change of the amount of given credits in the banking sector of Ukraine in comparison with other banking sectors of various groups of European countries from the point of view general credits, credits to non-banking and banking sectors of economy

Credits	Groups	Values of correlation coefficients and parameters of their statistical significance				
		r	t-statistic	p-level	Confidence Limits (Refined Fisher Z):	
					Lower Limit	Upper Limit
General	1	0,4442	3,3624	0,0016	0,1813	0,6422
	2	0,8473	10,8202	0,0000	0,7385	0,9100
	3	0,8098	9,3610	0,0000	0,6792	0,8870
Non-banking sector	1	0,4069	3,0215	0,0041	0,1374	0,6149
	2	0,4667	3,5794	0,0008	0,2084	0,6585
	3	0,5608	4,5943	0,0000	0,3261	0,7247
Banking sector	1	0,3885	2,8597	0,0064	0,1161	0,6012
	2	0,8149	9,5374	0,0000	0,6872	0,8902
	3	0,7097	6,8317	0,0000	0,5292	0,8238

The data provided in Table 5 show that statistically the correlation coefficients between the data series representing the change of the amount of granted credits in the banking sector of Ukraine in comparison with other banking sectors of various groups of European countries from the point of view of general credits, credits to non-banking and banking sectors of economy are significant. Besides, the interconnection between the data series under study is mutually positive. From the economic point of view such interconnection means that changes of the amounts of assets and bank credits in the banking sector of Ukraine are closely interconnected with the changes in the amounts of assets and bank credits which take place in other banking sectors of various groups of European countries. It speaks about the presence of processes of mutual crediting which may be confirmed by the values of correlation coefficients from the point of view of every banking sector taken separately and presented in Table 5.

At the same time, the data presented in Table 6 testify about the absence of statistical significance of obtained values of correlation coefficients between data series representing the change of amount of obtained funds on deposit accounts of the banking sector of Ukraine in comparison with other banking sectors of various groups of European countries under study.

Table 6: Values of correlation coefficients and parameters of their statistical significance between data series representing the change of the amount of funds obtained on deposit accounts of the banking sector of Ukraine in comparison with other banking sectors of various groups of European countries from the point of view of general deposits, deposits of non-banking and banking sectors of economy

Deposits	Groups	Values of correlation coefficients and parameters of their statistical significance				
		R	t-statistic	p-level	Confidence Limits (Refined Fisher Z):	
					Lower Limit	Upper Limit
General	1	0,0809	0,5506	0,5846	-0,2058	0,3533
	2	0,0920	0,6265	0,5341	-0,1952	0,3629
	3	0,2467	1,7264	0,0910	-0,0398	0,4917
сектора Non-banking	1	-0,1161	-0,7926	0,4321	-0,3836	0,1719
	2	0,1230	0,8403	0,4051	-0,1652	0,3895



sector	3	-0,0076	-0,0514	0,9592	-0,2881	0,2742
Banking sector	1	0,0632	0,4296	0,6695	-0,2226	0,3378
	2	0,0707	0,4806	0,6331	-0,2155	0,3443
	3	0,2159	1,4997	0,1405	-0,0719	0,4669

From the point of view of various countries, the different conditions of attracting resources into banking sector of economy are the explanation of this fact. And what is more, we can assert that such conditions of attracting resources for the economy of Ukraine have specific character because they are frequently connected with the change of political situation in the country. The fact that calculated values of correlation coefficients between data series representing the change of amount of obtained funds on deposit accounts taken separately by the banking sector of the first and second groups of countries of Europe and the first and third group of countries of Europe are statistically significant and are correspondingly 0.5825 and 0.5002 is the confirmation of this statement. This fact should be taken into account both when developing the models of analysis of interconnection of banking sectors of various groups of European countries and when selecting the mechanisms of development of those or other sectors.

Conclusion:

Thus, the work considers certain aspects relating to making comparative analysis of functioning and development of banking sectors of various groups of countries at the example of European data. At the same time it notes the importance of preliminary consideration of the basic statistical indicators of data series under study and values of coefficients of their correlations for the further substantiation and selection of models of such data interdependence analysis. At the same time the analysis made allowed us to reveal the points of contact and difference in the analysis of functioning of banking sectors of various groups of European countries that allows us to speak about similarities and differences of conditions of functioning of the segment of economic interrelations under study. In particular, from the point of view of development of banking sector of economy, its significant dependence on its own self-development was revealed which expression is the significant share of banking sector practically in all basic indicators of its activity: volumes of general assets, credits granted, existing liabilities and obtained funds. That's why we may think that the vulnerability of the development of banking sector of any particular country is in many ways determined by the level of its own development and presence of stable connections with the banking sectors of other countries.

References:

- Allayannis, G., and A. Mozumdar. (2004). The impact of negative cash flow and influential observations on investment–cash flow sensitivity estimates. *Journal of Banking & Finance*, 28(5), 901-930.
- Almeida, H., M. Campello, and M. S. Weisbach. (2004). The cash flow sensitivity of cash. *The Journal of Finance*, 59(4), 1777-1804.
- Bonin, J. P. (2004). Banking in the Balkans: the structure of banking sectors in Southeast Europe. *Economic systems*, 28(2), 141-153.
- Bonin, J. P., Hasan, I., & Wachtel, P. (2005). Bank performance, efficiency and ownership in transition countries. *Journal of Banking & Finance*, 29(1), 31-53.
- Carbó, S., Humphrey, D., Maudos, J., & Molyneux, P. (2009). Cross-country comparisons of competition and pricing power in European banking. *Journal of International Money and*



Finance, 28(1), 115-134.

Claeys, S., & Vander Vennet, R. (2008). Determinants of bank interest margins in Central and Eastern Europe: A comparison with the West. *Economic Systems*, 32(2), 197-216.

De Haas, R., & Van Lelyveld, I. (2006). Foreign banks and credit stability in Central and Eastern Europe. A panel data analysis. *Journal of banking & Finance*, 30(7), 1927-1952.

Dobrovolskaya, I. A., & Lyashenko, V. V. (2013). Interrelations of banking sectors of European economies as reflected in separate indicators of the dynamics of their cash flows influencing the formation of the resource potential of banks. *European Applied Sciences*, 1(2), 114-118.

Foulis, D. J., & Randall, C. H. (2003). Operational statistics. I. Basic concepts. *Journal of Mathematical Physics*, 13(11), 1667-1675.

Goddard, J., Molyneux, P., Wilson, J. O., & Tavakoli, M. (2007). European banking: An overview. *Journal of Banking & Finance*, 31(7), 1911-1935.

Ivashina, V., & Scharfstein, D. (2010). Bank lending during the financial crisis of 2008. *Journal of Financial economics*, 97(3), 319-338.

Kots, G. P., & Lyashenko, V. V. (2012). Banking sectors of the economies of European countries in the representation of statistical interrelation between indices that characterize their development. *European Applied Sciences*, 1 (November-December), 461-465.

Kuzemin, A., Lyashenko, V., Bulavina, E., & Torojev, A. (2005). Analysis of movement of financial flows of economical agents as the basis for designing the system of economical security (general conception). In *Third international conference "Information research, applications, and education"* (pp. 27-30).

Lee Rodgers, J., & Nicewander, W. A. (1988). Thirteen ways to look at the correlation coefficient. *The American Statistician*, 42(1), 59-66.

Maudos, J., & Fernandez de Guevara, J. (2004). Factors explaining the interest margin in the banking sectors of the European Union. *Journal of Banking & Finance*, 28(9), 2259-2281.

Meng, X. L., Rosenthal, R., & Rubin, D. B. (1992). Comparing correlated correlation coefficients. *Psychological bulletin*, 111(1), 172.

Moore, L. M. (1996). The basic practice of statistics. *Technometrics*, 38(4), 404-405.

Semih Yildirim, H., & Philippatos, G. C. (2007). Efficiency of banks: recent evidence from the transition economies of Europe, 1993-2000. *European Journal of Finance*, 13(2), 123-143.

Tong, H., & Wei, S. J. (2011). The composition matters: capital inflows and liquidity crunch during a global economic crisis. *Review of Financial Studies*, 24(6), 2023-2052.

Yildirim, H. S., & Philippatos, G. C. (2007). Competition and contestability in Central and Eastern European banking markets. *Managerial Finance*, 33(3), 195-209.