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Assessment of the global banking system financial stability

Annotation

Theoretical analysis of the global banking system concept is made. The principal factors of its financial stability are marked.

Closeness and direction of relation are determined, and the quantitative estimate of principal relative indices of the global banking system financial stability is made. The comparative analysis of relative indices of the global banking system financial stability for years 2007 and 2015 permitted to mark principal factors and the key factor for both years, being the return on assets. Increase in the value of this factor evidences the growth of banking management role after the world financial crisis. In view of Basel III tightened requirements with respect to assets management, it is the profit use of bank's assets that guarantees banking services profits.

Keywords

financialization, global banking system, financial stability

1 Subject matter formulation

The financialization as demonstration of world economy globalization is related to global integration of financial markets and trans-nationalization of financial services rendering. After the world financial and economic crisis of 2007-2009, the issue of the global banking financial stability acquired special actuality. The financial stability of banking systems is considered as a guarantee of global financial stability and pre-requisite of world economy continuous development. Improvement of national and supranational institutional and regulatory tools of financial supervision, application of the monetary credit policy in the sphere of banking activity, assessment of financial stabilization of the global banking system will contribute into risk management. Monitoring of profitability and productivity as principal criteria of the global banking activity financial stability shall promote the prompt reaction on the risk of international liquidity, increase in capitals shadow circulation, capital global flow asymmetry, changes in trans-boundary flows of banking capital, and all this determines actuality and importance of the assessment of global banking system financial stability.

2 Review of bibliography

Professor of Princeton University H.S. Shin studied the interrelation between the effectiveness of financial institutions, global banking risks formation and financial stability (Shin, 2015). The impact of banks financial stability on the

corporate sector is analysed in the collective paper by V. Bruno and H.S. Shin (Bruno and Shin, 2014). The significant achievement of this paper consists in the empiric confirmation of financial instability dependence on global liquidity and trans-boundary flow of capital. Moreover, H.S. Shin together with I. Azis determined the interrelation between local, regional and global banking systems, as well as management of elevated global liquidity risk, capital flows and macro-prudential aspects with regard to Asian perspectives (Azis and Shin, 2015).

V.V. Koziuk considered the principles of global banks solvency guarantee as a factor of the global financial stability (Koziuk, 2009).

D.N. Chorafas alerts to complicity of global banks regulation and impact of these measures on other spheres of economy (Chorafas, 2012). J. Dermine analyzes banking system management and concepts of banks income maximization [recommendations issued by the Basel Committee, Organization for Economic Cooperation and Development and European Union with respect to improvement of banking corporate management and, in particular, risk management] (Dermine J., 2013).

N.V. Stukalo, M.V. Lytvyn, G.G. Polishko believe that any banking crisis is an expected phenomenon within the dynamics of economic system development as a whole, and is combined with currency or debt crisis (N.V. Stukalo et al., 2015). G.T. Karcheva shares this opinion: "the synergetic paradigm of banking systems takes into account multivariate, alternativeness of banking systems development, imminence of their passing through many bifurcation points, threshold, synergetic

effects that determine a non-linear development of banking system and crisis inevitableness” (Karcheva, 2015).

C. Minoiu, J.A. Reyes conducted a network analysis of global banking activity in the period of 1978 – 2010, and denied the hypothesis about the dependence that may exist between the closeness of connections in the global banking network and crisis incidence. They declared that the world financial crisis of 2008 – 2009 was caused by other factors, which do not include the coherence (Minoiu and Reyes, 2013).

A series of scientific studies is dedicated to the interpretation of the global banking system concept, in particular, P.M. Senyshch conducted a theoretical and methodological analysis of the “banking system” concept; he revealed the principal types of banking systems with due regard to their potential possibilities to assure economic growth, including that in a post-crisis period. (Senyshch, 2013). M.Yu. Vasina analyzed the global banking system structure as a principal element of the system of world economic relations under the conditions of globalization rate growth and its transformation under global financial disbalances (Vasina, 2015). H.S. Shin’s scientific papers contain the author’s vision of the global banking system (Azis and Shin, 2015). Viral V Acharya, Philipp Schnabl studied the influence of the global banking activity on financial instability (Acharya and Schnabl, 2010).

However, the problem of assessment of the global banking system financial stability needs additional attention.

The goal of this paper consists in studying principal banks role under the conditions of global financial instability.

Principal tasks of the study are: analysis of the global banking system concept; theoretical analysis of scientific bibliography concerning the assessment of the global banking system financial stability and revealing of key factors existing at the actual development period; empiric examination of the global banking system financial stability.

3 Results of the study

The world financial crisis of 2007 – 2009 confirmed the fundamental importance of the global banking system for the world economy continuous development. The analysis of scientific sources permits to understand that the concept of “global banking system” is used by scientists in fact, however, the unique interpretation of this notion does not exist yet. In particular, P.M. Senyshch believes that the concepts of world banking system and global banking system are identical. “The world banking system is the global banking system, in other words, it is the totality of elements of a

banking system that exists in the world at a certain period” (P.M. Senyshch, 2013). Taking into account a close relationship between the higher and lower organization and functional levels, V.V. Kovalenko and O.G. Koreneva propose to make analysis of banking activity taking as the example the first hierarchical level – commercial banks.

Studies conducted by C. Minoiu and J. A. Reyes prove that the network aspects do not influence the general effectiveness of the global banking system under conditions of the financial instability (Minoiu and Reyes, 2013), and, basing on this conclusion we shall not consider the influence of network aspects on the financial stability of the global banking system.

It is bankruptcy, as well as the merger of large banks, firstly in the USA and then in Europe, that caused the world financial economic crisis. In view of the paper subject matter, we intentionally do not consider acquisition or bankruptcy of other institutions that belong to the financial sector, including agreements on restructuration of financial groups that do not perform banking activity. 517 USA banks were liquidated during the period 2007 – 2015 (Bankrate, 2015). During the world financial crisis of 2007 – 2009 some commercial acquisitions took place in Europe: the Dutch ABN AMRO acquired Royal Bank of Scotland Fortis Grupo Santander (Great Britain, Belgium, Spain), British Alliance & Leicester acquired Grupo Santander (Spain), and Icelandic Kaupthing Bank – ING Direct (Netherlands), however, governments and central banks made attempts to restore financial system. For example, the government of Great Britain at the beginning of February took control of the insolvent Northern Rock (Great Britain), and such principal banks as Royal Bank of Scotland Group (up to 81.14 % Bought) (Great Britain), HBOS (up to 43.5% Bought) (Great Britain), Lloyds TSB (up to 43.5% Bought) (Iceland) in mid-October. The government of Portugal acquired the Banco Português de Negócios (Portugal) for 8 trillion US dollars. The National Bank of Denmark made the merger for the first time since 1928; it acquired the insolvent Roskilde Bank, which was one of the 10 top banks in Denmark with about 33 000 shareholders, for 0 dollars. The National Bank of Switzerland furnished capital to the Swiss global company UBS. Icelandic financial inspection implemented large-scale actions to regulate banking sector, however failed to impede a wave of bankruptcy and financial instability that caused a dramatic economic depression in the country. The government of Ireland provided the principal banks of the country with the support.

Imperfection of the regulatory and legal framework with respect to the transnational banks restructuring, reorganization or insolvency that

existed at the moment of the world financial crisis, caused the necessity to improve this issue. Consultations between governments, central banks, international financial organizations, experts and scientists took place with the aim to make decisions on supervision and regulation of financial institutions which are too big and complex to become insolvent and fail. In particular, since 2011 the Financial Stability Board founded by G20 and the Basel Committee on banking supervision coordinate the list of too big to fail banks, whose insolvency shall cause negative consequences for the global economy. The methodology of determining too big to fail banks, is continuously improving, the list of these banks is up-dated on the annual basis, and the requirements of global big banks change. In particular, in 2015 there were 30 biggest banks of the USA, Europe, China and Japan included into such a list. As to the country of origin, the majority of banking institutions are American (JP Morgan Chase, Citigroup, Bank of America, Goldman Sachs, Morgan Stanley, Bank of New York Mellon, State Street and Wells Fargo). The European banks included into the list are: Deutsche Bank (Germany); HSBC, Barclays, Standard Chartered and Royal Bank of Scotland – all of them are British banks, Santander (Spain), Credit Suisse and UBS (Switzerland), ING Bank (Netherlands), Nordea (Sweden), Unicredit (Italy) and BNP Paribas, Societe Generale, Credit Agricole and Group BPCE – France. Asia is represented by four Chinese banks (Agricultural Bank of China, Bank of China, China Construction Bank and Industrial and Commercial Bank of China) and three Japanese banks (Mitsubishi UFG, Mizuho and Sumitomo Mitsui). The list is up-dated on the annual basis. To guarantee the state stability, the own criteria are developed and too big to fail national banks being under central banks audit are indicated. Experts analyze the data concerning

financial stability of the banks which are included into the list. However, in experts' opinion the list of too big to fail banks must be wider (it must include up to 80 banks). Hence, let us analyze a larger list. We made a comparative analysis of relative financial stability of world banks that form a principal frame of the global banking system. The selected banks are present in Forbes Global 2000 list of the biggest public companies in 2008 crisis year (data of 2007) and 2016 (data of 2015), when the global banking system, in principle, has adopted to new institutional and regulatory measures taken at a national and supranational level. We shall construe the term "financial sector continuous development" as such a state which is characterized by a positive tendency when financial corporations perform their functions in economy assuring certain level of transactions profits under the conditions of dynamic changes in institutional medium (both endogenous and exogenous factors), as well as a long-term maintenance of the said tendency (Kovalenko, 2007).

The analysis of scientific papers concerning the assessment of banking systems financial stability permitted to mark some general factors (Acharya and Schnabl, 2010; Azis and Shin, 2015; Karcheva, 2015; Kovalenko and Koreneva, 2015; Kolobov and Petryk, 2012; Kuznietsova and Kovalenko, 2012; Slav'iuk, 2015). We mark seven relative parameters in our empiric study, that characterize the general financial stability of banking activity (return on sales, return on assets, total assets return, costly characteristic factor, return on equity and return on capital, return on costs). The use of relative indices permits to make comparison by years, which is impossible when using absolute indices. We calculated these factors basing on data given by 317 banks from Forbes Global 2000 list for year 2008 (data of 2007), and 315 banks from the list of 2016 (data of 2015); the results are given in Table 1.

Table 1 Relative indices of banking system financial stability, % (years 2007 and 2015)

	Return on sales		Costly characteristic factor		Return on assets		Return on equity		Return on capital		Total assets return		Return on costs	
	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015	2007	2015
Average:	14	19	86	81	1	1	7	16	72	123	6	7	20	34
Maximum:	71	94	209	180	7	5	41	612	833	4545	20	471	241	1700
Minimum:	-109	-80	29	6	-7	-4	-122	-157	7	0	1	0	-52	-100
Mean deviation:	13.3	16	13.3	16	1.0	1	10.5	56	81.7	320	3.3	26	23.7	102

Source: calculation are made on the basis of (Forbes, 2008 and Forbes, 2016)

The data of Table 1 prove that the average indices for banks included into Forbes Gloval 2000 list are much better, and this fact evidences that the external and internal conditions for global banking system functioning have become better. It is worth to mention the increase in non-uniformity of the banking system in 2015, it is evidenced by

the increase in deviation from average values, except for return on assets index.

To mark principle factors that influence the global banking system financial stability, as well as the quantitative estimate of this influence we build a multifactor regression. The model of multiple regression is build upon calculation of the

correlation matrix for all possible predictors to select independent variables in every year model.

The regress and (Y) for both years is the return on sales. The result of correlation matrix calculation for year 2007 demonstrates closeness and direction of relation between return on sales and other variables. Table 2 shows that a direct reverse relationship (-1) exists between return on sales

and costly characteristic factor, it means that this dependence is not stochastic but direct, by this reason we neglect this predictor. To make further calculations we select return on assets direct strong relationship (0.843), return on equity direct medium relationship (0.504), and return on costs (0.861). Sig. (2-tailed) for both of them is 0.000.

The list of independent variables for 2007

Table 2 Correlation matrix of relationship between profit on sales and other variables in 2007

		Return on sales Environment	Costly characteristic factor	Return on assets	Return on equity	Return on capital	Total assets return	Return on costs
Return on sales n	Pearson Correlation	1	-1.000**	0.843**	0.504**	-0.341**	0.028	0.861**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.627	0.000
	N	314	314	314	314	314	314	314

includes x_1 – return on costs; x_2 – return on equity; x_3 – return on assets.

The model is statistically significant (Table 3). Durbin-Watson test equals 2.185, which is more than 2 (DW = 2 indicates autocorrelation non-existence), however, within the limits of the table interval. Non-adjusted multiple R for these data

equals 0.935, and non-adjusted value of R2 is 0.874, while the value of adjusted repeated R2 is 0.873. This difference is not too big. Sig. F Change = 0.000.

Sig column in Table 3 shows that all variables introduced into the model are statistically significant.

Table 3 Statistical estimate of the whole model for year 2007

Model	R	R Square Environment	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0,935a	0.874	0.873	4.77541	0.874	715.661	3	310	0.000	2.185

Table 4 Model coefficients for year 2007

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.218	0.380		5.836	0.000
	Return on assets	4.308	0.426	0.331	10.117	0.000
	Return on equity	0.297	0.028	0.234	10.538	0.000
	Return on costs	0.312	0.017	0.554	17.973	0.000

The interpretation of the model for year 2007 shows that the return on sales for banking products / services in 2007 depended mostly on return on assets. We see that when the return on assets increases by 1 %, return on sales increases by 4.3 %. When the return on costs increases by 1 %, return on sales increases by 0.312 %. When the return on equity increases by 1 %, return on sales increases by 0.297 %.

The result of correlation matrix calculation for

year 2015 demonstrates closeness and direction of relation between return on sales and other variables. The table shows that a direct reverse relationship (-1) exists between return on sales and costly characteristic factor, it means that this dependence is not stochastic but direct, by this reason we neglect this predictor. To make further calculations we select return on equity direct medium relationship (0.715), and return on costs (0.549). Sig. (2-tailed) for both of them is 0.000.

Table 5 Correlation between return on sales and other variables for year 2015

		Return on sales Environment	Costly characteristic factor	Return on assets	Return on equity	Return on capital	Total assets return	Return on costs
Return on sales	Pearson Correlation	1	-1.000**	0.715**	0.280**	-0.145*	-0.087	0.549**
	Sig. (2-tailed)		0.000	0.000	0.000	0.010	0.125	0.000
	N (number of observations)	315	315	314	315	315	314	315

Source: calculated using data (Forbes, 2016)

The list of independent variables for year 2015 includes x_1 – return on costs; x_2 – return on assets.

The model is statistically significant (Table 4). Durbin-Watson test equals 1.987, which practically equals 2, that proves autocorrelation non-existence). Non-adjusted R for these data equals

Table 6 Model Summary 2015

Model	R	R Square Environment	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	0.785a	0.617	0.614	9.93162	0.617	250.058	2	311	0.000	1.987

Table 7 Model coefficients for year 2015. Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	7.086	0.805	8.801	0.000
	Return on assets	10.893	0.680	16.018	0.000
	Return on costs	0.054	0.006	9.255	0.000

The interpretation of the model for year 2015 shows that the return on sales for banking products / services in 2015 depended mostly on return on assets. We see that when the return on assets increases by 1 %, return on sales increases by 10.893 %. When the return on costs increases by 1 %, return on sales increases by 0.054 %.

4 Conclusions

The comparative analysis of relative indices of global banking system financial stability for years 2007

and 2015 permitted to mark the principal factors. For year 2007, the principal factors of financial stability were return on costs, return on equity and return on assets, and for year 2015 they were return on costs and return on assets. The key factor for the both years is the return on assets. The value of this factor has doubled, which proves the growth of banking management role in 2015. In view of Basel III tightened requirements with respect to assets management, it is the profit use of bank's assets that guarantees banking services profits.

0.935, and non-adjusted value of R2 is 0.617, while the value of adjusted R2 is 0.614. This difference is not too big. Sig. F Change = 0.000.

Sig column in Table 7 evidences that the two independent variables introduced into the model are statistically significant.

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