

Tetyana A. Vasylyeva<sup>1</sup>, Sergiy V. Leonov<sup>2</sup>, Sergiy D. Bohma<sup>3</sup>

## THE IMPACT OF IMPLICIT BANK CONSOLIDATION ON SYSTEMIC RISK IN THE BANKING SYSTEM OF UKRAINE

*The article provides the definition of implicit consolidation processes in the banking system and offers a new approach to bank consolidation measurement. The impact of implicit consolidation of bank capital on systemic risks in the banking system of Ukraine is determined.*

*Keywords: banking consolidation; mergers and acquisitions; financial soundness; systemic risk; banking system.*

Тетяна А. Васильєва, Сергій В. Леонов, Сергій Д. Богма

## ВПЛИВ НЕЯВНОЇ КОНСОЛІДАЦІЇ БАНКІВ НА СИСТЕМНИЙ РИЗИК У БАНКІВСЬКІЙ СИСТЕМІ УКРАЇНИ

*У статті визначено поняття неявних консолідаційних процесів у банківській системі та запропоновано новий підхід до розрахунку рівня консолідації банків. Формалізовано вплив неявної консолідації банківського капіталу на системні ризики в банківській системі України.*

*Ключові слова: консолідація банків; злиття і поглинання; фінансова стійкість; системний ризик; банківська система.*

*Форм. 1. Табл. 2. Рис. 1. Літ. 10.*

Татьяна А. Васильева, Сергей В. Леонов, Сергей Д. Богма

## ВЛИЯНИЕ НЕЯВНОЙ КОНСОЛИДАЦИИ БАНКОВ НА СИСТЕМНЫЙ РИСК В БАНКОВСКОЙ СИСТЕМЕ УКРАИНЫ

*В статье определено понятие неявных консолидационных процессов в банковской системе и предложен новый подход к расчету уровня консолидации банков. Установлено влияние неявной консолидации банковского капитала на системные риски в банковской системе Украины.*

*Ключевые слова: консолидация банков; слияния и поглощения; финансовая устойчивость; системный риск; банковская система.*

**Problem setting.** In the world practice M&As are the basic forms of banking consolidation representing the explicit consolidation of bank capital in a country that results in the reduction in the number of banks in the system. It should be noted that banking consolidation in Ukraine is not characterized by active M&A deals between banks, thus not leading to reduced number of banks. Instead, we can observe simple buying and selling of banks. Hence, we consider that consolidation of bank capital in Ukraine goes in its implicit form. Such form of bank consolidation might contribute to systemic risks in the banking system of Ukraine causing the necessity of appropriate studies in this field.

**Latest research and publications analysis.** The relationship between banking consolidation and systemic risk has been widely investigated by Y. Amihud et al. (2002), G. De Nicolo et al. (2004), A. Uhde & U. Heimeshoff (2009), G. Weib et al. (2014) and others. However, there are no studies, which provide the determination of

<sup>1</sup> Ukrainian Academy of Banking under the National Bank of Ukraine, Sumy, Ukraine.

<sup>2</sup> Ukrainian Academy of Banking under the National Bank of Ukraine, Sumy, Ukraine.

<sup>3</sup> Ukrainian Academy of Banking under the National Bank of Ukraine, Sumy, Ukraine.

impact of different forms of bank consolidation on systemic risk in the banking system, particularly for Ukraine.

**The research objective** is to determine the impact of implicit consolidation of bank capital on systemic risk in the banking system of Ukraine.

**Key research findings.** Taking into account the peculiarities of banking consolidation in Ukrainian practice we propose to define the meaning of implicit banking consolidation as amalgamation of capitals of banks, considering that legally bank capital is concentrated in different banks and not in one institution. That is the consolidation of managerial decisions of one investor who really owns several banks, formally owned by different companies. Such implicit bank groups can have negative effects on the banking system stability hereby leading to an increase in systemic risks.

Using the public data from the Internet sources (Politica-ua.com; trust.ua; sv27.com; www.bank.gov.ua) we have defined 6 implicit consolidated banking groups in Ukraine, which include 23 banks and named after real last owners of these banks (for example, "Country Ukraine" consists of 6 banks owned by state bodies of Ukraine, Mykola Lagun as a physical body owns 5 banks (Delta Bank, Kreditprombank, Astra et al.):

- 1) Country Ukraine (6);
- 2) Country Russian Federation (4);
- 3) SCM Finance (3);
- 4) Privat Group (3);
- 5) M. I. Lagun (5);
- 6) UniCredit Group (2).

As a measure of banking consolidation foreign scientists and practitioners often use a share of a bank on deposit, loan or other markets after M&A deals (Uhde et al., 2009; Weib et al., 2014). In consideration of impossibility to use this approach for Ukrainian practice we propose to develop it according to domestic peculiarities, so the indicator will include banks' position both at the loan and deposit markets. Another important fact considered in our measurement of consolidation is that analysts when determining the impact of M&As on the banking system, first of all estimate the consequences of banking consolidation on the level of concentration. So the measurement of implicit banking consolidation in Ukraine is done using the following formula:

$$IC = \sum_{i=1}^n \left( \frac{L_i}{TL} \times \frac{TL}{TL+TD} + \frac{D_i}{TD} \times \frac{TD}{TD+TL} \right)^2, \quad (1)$$

where  $IC$  – banking consolidation indicator;  $L_i$  – loans of  $i$  bank at the loan market;  $D_i$  – deposits of  $i$  bank at the deposit market;  $TL$  – total bank loans;  $TD$  – total bank deposits.

As for the measurement of systemic risk we have chosen the widely used Z-score indicator of banking system's financial soundness (Uhde et al., 2009; Amihud et al., 2002) and financial soundness indicators (FSIs), developed by the International Monetary Fund (IMF) and published by the National Bank of Ukraine. It should be noted that we made calculations for all 6 groups separately and for the whole implicit consolidated bank groups using the period of 2006–2013.

**Table 1. Correlation between core FSIs and IC of implicit consolidated banking groups in Ukraine, authors' calculations by from www.bank.gov.ua**

Code	Core FSIs	1. M Lagun	2. Country Ukraine	3. Country Russian Federation	4. SCM Finance	5. Privat Group	6. UniCredit Group	All implicit groups
I1	Regulatory capital to risk-weighted assets	0.50	0.91	0.84	0.47	0.68	-0.03	0.82
I2	Regulatory Tier 1 capital to risk-weighted assets	0.52	0.95	0.89	0.49	0.68	-0.03	0.85
I3	Nonperforming loans net of provisions to capital	-0.45	-0.70	-0.82	-0.61	-0.49	-0.33	-0.76
I4	Nonperforming loans to total gross loans	-0.37	-0.59	-0.73	-0.56	-0.38	-0.41	-0.67
I5	Sectoral distribution of loans to total loans							
926S	Deposit-takers	0.49	-0.15	-0.21	0.33	0.40	-0.55	-0.02
CB00	Central Bank	-0.60	-0.85	-0.85	-0.49	-0.61	-0.06	-0.81
OF00	Other financial corporations	0.77	0.86	0.94	0.74	0.78	0.03	0.92
GG00	General government	0.45	0.96	0.93	0.56	0.67	0.12	0.88
NF00	Nonfinancial corporations	0.87	0.64	0.54	0.64	0.88	-0.60	0.65
OD00	Other domestic sectors	-0.81	-0.58	-0.48	-0.61	-0.85	0.66	-0.58
NR00	Nonresidents	-0.49	0.15	0.21	-0.33	-0.40	0.55	0.02
16	Return on assets	0.00	-0.56	-0.53	-0.04	-0.05	-0.29	-0.40
17	Return on equity	-0.02	-0.59	-0.56	-0.07	-0.08	-0.28	-0.43
18	Interest margin to gross income	0.15	0.76	0.80	0.28	0.31	0.43	0.68
19	Noninterest expenses to gross income	0.53	0.39	0.31	0.48	0.64	-0.43	0.41
I10	Liquid assets to total assets	-0.75	0.65	0.56	0.55	0.84	-0.47	0.66
I11	Liquid assets to short-term liabilities	0.67	0.83	0.80	0.66	0.84	-0.09	0.85
I12	Net open position in foreign exchange to capital	-0.52	0.05	0.11	-0.34	-0.46	0.68	-0.04

**Table 2. Correlation between encouraged FSIs and IC of implicit consolidated banking groups in Ukraine,**  
*authors' calculations by from [www.bank.gov.ua](http://www.bank.gov.ua)*

Code	Encouraged FSIs	1. M Lagun	2. Country Ukraine	3. Country Russian Federation	4. SCM Finance	5. Privat Group	6. UniCredit Group	All implicit groups
113	Capital to assets	0.74	0.93	0.94	0.76	0.86	-0.01	0.96
114	Large exposures to capital	-0.05	-0.42	-0.50	-0.33	-0.17	-0.50	-0.45
115	Geographical distribution of loans to total loans							
926G	Domestic economy	0.49	-0.15	-0.21	0.33	0.40	-0.55	-0.02
110W	Advanced economies, excluding China	-0.41	0.22	0.29	-0.25	-0.32	0.57	0.11
200W	Other emerging market and developing countries, including China	-0.71	-0.70	-0.79	-0.70	-0.66	-0.23	-0.82
904W	Central and Eastern Europe	0.06	0.05	0.10	0.14	0.15	-0.30	0.05
901W	Commonwealth of Independent States and Mongolia	-0.88	-0.68	-0.70	-0.75	-0.87	0.27	-0.78
205W	Geographic distribution of total loans: Western hemisphere	-0.21	-0.46	-0.60	-0.41	-0.23	-0.51	-0.54
118	Trading income to total income	-0.52	-0.73	-0.77	-0.39	-0.57	-0.07	-0.73
119	Personnel expenses to noninterest expenses	-0.48	-0.86	-0.78	-0.49	-0.64	0.17	-0.74
120	Spread between reference lending and deposit rates	-0.48	-0.30	-0.36	-0.26	-0.38	0.02	-0.39
121	Spread between highest and lowest interbank rates	0.12	0.27	0.36	0.12	0.04	0.15	0.26
122	Customer deposits to total (noninterbank) loans	0.31	-0.38	-0.49	-0.05	0.13	-0.76	-0.34
123	Foreign-currency-denominated loans to total loans	-0.87	-0.49	-0.44	-0.68	-0.86	0.55	-0.58
124	Foreign-currency-denominated liabilities to total liabilities	-0.59	0.10	0.17	-0.21	-0.40	0.71	0.02

The results of correlation between the IC and core and encouraged FSIs are presented in Tables 1 and 2. As we can see from these tables most of correlation indices show strong negative correlation between IC and FSIs.

Moreover, 19 of 33 correlation indicators between IC and the general indicator of implicit consolidation processes by banks show strong interconnection and 10 of them – the negative one. Thus, it confirms the presence of negative impact of implicit consolidation processes on systemic risk in the banking system of Ukraine.

The correlation between IC and Z-score (Figure 1) also confirms the negative impact of implicit banking consolidation on the systemic risk in Ukrainian banking sector.

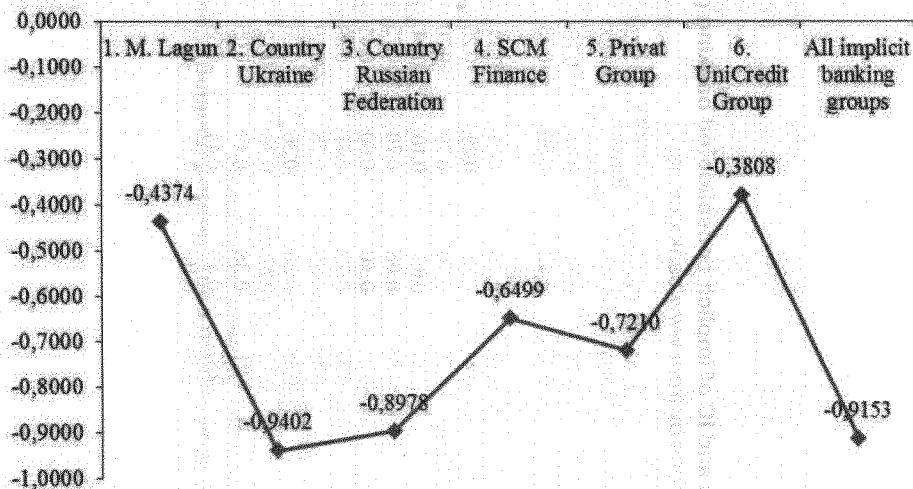


Figure 1. Correlation indices between IC of implicit consolidated banking groups and Z-score, authors' calculations

Hereby, two different approaches to systemic risk measurement in the banking system of Ukraine confirm the negative impact of activity and the existence of implicit consolidated bank groups in Ukraine.

**Conclusions.** We can conclude that implicit consolidated groups of banks in Ukraine can negatively influence the banking system's financial soundness in general, thus spreading the risk of systemic shocks between banks. The Antimonopoly Committee of Ukraine should take measures on reorganizing these implicit amalgamations of banks in the system, otherwise worsening of their financial state can strike other banks. Moreover, the information disclosure standard on real bank owners and their corporate structure should be developed in Ukraine to make it possible to identify implicitly consolidated bank groups and prevent their emergence and activity.

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