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ALTERNATIVE WAYS OF EVALUATION OF COMMERCIAL BANK'S FINANCIAL SOUNDNESS ON AN EXAMPLE OF JSC «PROMINVESTBANK»

After 2008–2009 crisis financial strength of commercial bank, somehow measured quantitatively, has become extremely important for its prosperity. A question of trust between the bank and the client has become exceptionally urgent, and from now on not only interest rate is an ultimate indicator for investors and borrowers, but also bank's stability and the chances an investment is secured are. Assessment of financial stability and reliability of commercial banks is presented in theoretical and practical research papers by various ranking methods, and the most popular is the calculation of CAMELS-rating, suggested in 1978 by the USA Federal Reserve System. However, in 2008 it suffered from harsh criticism as it was used as a part of the Emergency Economic Stabilization Act and provided an unfair selection of banks which were about to be reorganized: «too big to let fail». For external purposes large banks also use services of specialized agencies, such as Moody's, Standard & Poor's and Fitch, but they are costly and suspected to be affected from time to time by bribes. However, there is an alternative as recognized and proven national methodologies exist. Namely in this paper we will consider method of commercial banks' financial strength evaluation proposed by V. S. Kromonov, and another – by J. I. Lerner.

Analysis of commercial banks' financial strength is a relatively new task for Central Banks and auditors as well as for scientists. First reviews, which provided an outlook and comparison of the respective factors, were published by Central Banks of Great Britain and Scandinavian countries in the middle of 1990-s. IMF is responsible for creation of so-called FSI-system (Financial Soundness Indicators) which is used all over the world. Ukraine's Central Bank also uses IMF's methodology and Basel II recommendations. Theoretical fundamentals of banks' financial strength were researched by such western scientists as Clark R. C. [5], Dudley G. [6], Dash E. [7], Ioannidis C., Pasiouras F., Zopounidis C. [8], Schaeck K., Cihak M.[9] and the others; and Ukrainian scientists Lerner U.[2], Efremova N., Zolotarjova O., Grozan J.[3] and the others. However, research in this area is mainly connected with theoretical analysis and working models are not usually proposed.

The purpose of this paper is to describe, test, compare and popularize even further two working models of estimation of commercial bank's financial soundness. To reach this aim the following tasks were solved:

- describe the methodology of estimation of commercial bank's financial strength with the help of models proposed by V. S. Kromonov [1] and J. I. Lerner [2];
- test these methods while calculating financial soundness of JSC «Prominvestbank» in 2008–2011;
- compare the results, provided by two methods;
- make a conclusion regarding the prospects of usage of these methods in banking.

The first model was proposed by the group of Russian economists, connected with «Profile» magazine, and is relatively widely used in Russian specialized printed media. Kromonov's method presupposes a calculation of the following factors:

As some specifications to the table are required, risk generating assets broadly represent a total value of: interest-bearing loans, issued by the Bank; investments in securities; funds on correspondent accounts; funds, accumulated for further sharing etc. Secured capital represents a total amount of Bank's fixed assets (excluding intangible assets), precious metals etc. The other parameters, needed for calculation of Bank's financial strength, can be obtained directly from financial reports.

Table 1

Factors used for estimation of commercial bank's financial strength according to Kromonov's method [1]

	Name	Calculation methodology	Symbol
K_1	General reliability factor	$\frac{C}{RA}$	<i>C</i> – bank's net equity; <i>RA</i> – risk generating assets; <i>SA</i> – short-term assets; <i>DL</i> – demand liabilities; <i>TL</i> – total bank's liabilities; <i>SC</i> – secured capital; <i>LC</i> – legal capital.
K_2	Acid ratio	$\frac{SA}{DL}$	
K_3	Cross-factor	$\frac{TL}{RA}$	
K_4	Current ratio	$\frac{(SA + SC)}{TL}$	
K_5	Capital immunity ratio	$\frac{SC}{C}$	
K_6	Profit stock capitalization ratio	$\frac{C}{LC}$	

In this paper all the calculations are made for a fourth-year period: since 2008 till 2011. The period itself was chosen intentionally to compare the financial strength of JSC «Prominvestbank» in 2008–2009, when financial crisis had led to a significant decrease in Bank's net profit and an abrupt outflow of deposits had occurred, with its financial state in 2010, when an effective internal management and mobilization of large subordinated debt improved the situation greatly. 2011 was the first year during a three-year period, when «Prominvestbank» showed a positive net profit; simultaneously, a credit expansion recommenced and an overall liquidity slightly decreased. These aspects are generally testified by the results of calculations of coefficients, used in Kromonov's method, which are represented in a table 2.

Table 2

Value of factors, used in Kromonov's method, comparing to the standard in 2008–2011

Factor	Value				Standard
	2008	2009	2010	2011	
K_1	0,1442	0,2286	0,1641	0,1602	1
K_2	0,2253	0,3662	0,3895	0,5238	1
K_3	1,0712	1,0476	1,0735	1,0427	3
K_4	0,1969	0,2681	0,2492	0,2652	1
K_5	0,8913	0,471	0,6246	0,5681	1
K_6	16,2976	1,0223	0,8680	0,9615	3

Values of the respective factors in general represent a dynamic of Bank's efficiency during observed period. The most notable discrepancy is between 2008 and the other periods. The values of general reliability factor, acid ratio and current ratio were significantly lower than they are in 2009–2011. However, capital immunity ratio and profit stock capitalization ratio were hugely higher. Below we will see if this discrepancy affected a value of cumulative coefficient.

It is also obvious that in vast majority of cases all six factors' values were much lower than their standard values. However, the standard values themselves are relatively questionable, especially for general reliability factor, cross-factor and current ratio. Specifically, a standard value of general reliability factor is stated as 1, which practically means that risk generating assets must be equal or lower than net equity. However, in practice, paid liabilities are several times higher than the bank's own funds. If the bank had worked only with risk generating assets in the amount not greater than its net equity, it quickly would have become a loss-making. A standard value of cross-factor is also doubtful as it stimulates banks to invest in risk generating assets only a third of their total liabilities. Current ratio standard value stimulates banks to capitalize their assets. On the contrary, banking practice shows that increasing amount of capital investment might turn into serious problems with liquidity. When it decreases for some reasons, own real estate and other fixed assets are unable to guaranty banks' liabilities.

Above-mentioned problems are partially compensated with adequate weighting coefficients, used during a calculation of an integral coefficient of bank's financial strength as a part of Kromonov's method. A respective formula is shown below [1]:

$$N = \frac{K_1}{1} \times 45 + \frac{K_2}{1} \times 20 + \frac{K_3}{3} \times 10 + \frac{K_4}{1} \times 15 + \frac{K_5}{1} \times 5 + \frac{K_6}{3} \times 5. \quad (1)$$

For JSC «Prominvestbank» N equals 49,14; 29,1; 27,06 and 29,58 for 2008–2011 respectively. In paper [2] N is calculated for 16 Ukrainian banks with foreign investments, and arithmetic mean is 39,95. Virtually this means, that in 2009–2011 JSC «Prominvestbank» was financially unstable comparing to the others and was only in 25th percentile. Kromonov's method has shown that in 2008, surprisingly, Bank's financial strength was significantly higher. This is due to a very high profit stock capitalization ratio value, i. e. Bank's reserves were high comparing to its net equity value.

On the whole, Kromonov's method implies that the bank, which possesses a high financial strength, should:

- invest in risk generating assets not more than its net equity costs;
- possess as many liquid assets as its demand liabilities cost;
- possess as many fixed assets as its net equity costs;
- possess three times more liabilities than risk generating assets;
- have an amount of both liquid and fixed assets which equals a total amount of liabilities;
- have net equity in an amount which is three times higher than its legal capital.

This method seems to be overcautious, but it is mainly used as a means of an internal audit and it is only useful in comparison. On the contrast, a method created by Kharkiv's economist J. I. Lerner claims to be a finished product and does not necessarily demand a data for comparing. In general, it operates with a number of balance sheet items, which are slightly tighter connected with banks' active and passive operations. Factors, required for further calculations, are shown in table 3.

Lerner's method is based on so-called balance factors method and implies that a compulsory identity exists between some items from balance sheet. Specifically, an equation which represents this identity is shown in formula 2.

$$L + K_B + F = C + K_T + K_t + R_p + K_o. \quad (2)$$

On the basis of this equation it is possible to calculate a vast range of factors which represent long-term, short-term and current financial strength of commercial bank; this method also allows determining an external financial strength, which might be useful for external investors and clients, and an internal one, which is relatively more cautious and plays more important role for bank's management. Table 4 shows how to calculate miscellaneous types of commercial banks' financial

strength. Principles of balance factors method define a way bank's financial strength is determined using this system: it depends on when certain calculated value reaches 1 or more. An example is shown in table 5, where all the respective values are calculated for JSC «Prominvestbank». Gray cells represents the type of financial strength inherent for the Bank in a certain period.

Table 3

Factors, used for determination of bank's financial strength according to Lerner's method
(in thousands of UAH)

Name	Symbol	Value			
		2008	2009	2010	2011
Monetary assets	L	2 529 398	7 955 614	7 976 437	7 987 612
Credit exposure (investments)	K_e	21 988 551	19 360 769	23 621 270	27 035 812
Fixed assets	F	2 971 579	2 928 279	3 015 148	3 137 520
Net equity	C	3 262 369	5 417 038	4 589 742	5 081 901
Clients' base	K_m	15 014 783	14 593 393	21 693 964	18 774 247
Short-term credits	K_t	7 144 412	9 119 646	7 366 234	12 602 683
Settlements	R_p	1 731 089	887 281	666 694	213 488
Payable accounts	K_o	336 875	227 304	296 221	1 488 625
Cash in vault and on a/c, securities, corresponding accounts	D	2 317 676	7 525 874	7 547 657	7 469 951
Receivable accounts	R_a	125 061	380 973	344 506	225 624

The results of Lerner's method do not contradict the results of Kromonov's method but demonstrate slightly different data. It is notable that in 2008 an external financial strength of JSC «Prominvestbank» appears to be, in general, the lowest (which actually corresponds with the truth) and in 2010 – the highest. Generally, Bank's financial strength is pretty low, especially in long-term perspective, and the results of internal audit would probably show that Bank is on the verge of liquidity crisis. It is also notable that, in most cases, financial strength has decreased in 2011.

An estimation of commercial bank's financial soundness is an important part of analysis for both internal and external purposes. There are popular and widely used methods, such as CAMELS-ranking and IMF's methodology, but they are not admissible in every particular case. An alternative may be represented by methods, created and approved on practice by independent economists, and a good example of such methods is two of them, developed by V. S. Kromonov and J. I. Lerner.

The first one presupposes calculation of six coefficients, based on balance sheet items value, namely general reliability factor, acid ratio, cross-factor, current ratio, capital immunity ratio and profit stock capitalization ratio. This method is mainly based on further comparison: firstly with standard values (which are rather questionable and overcautious in some cases and should be improved) and secondly – with industry average with the help of cumulative coefficient. This method is obviously designed for external analysts and allows to make a precise forecast on the chance of investments' safe return. Applied to JSC «Prominvestbank», this method has shown the highest financial soundness in 2008, mainly because by that time bank's net equity comprised mainly reserves. In the other periods it has shown low financial strength so that bank was only in 25th percentile comparing with the other banks with foreign investments.

Lerner's method does not necessarily demand a comparison. It is an independent methodology, based on balance factors method, which allows calculating of a vast range of financial soundness parameters.

Table 4

Method of calculation of different types of commercial bank's financial strength according to Lerner's methodology [2]

	Types of financial strength (depending on value)	Types of financial strength (depending on the period of calculation)					
		Current		Short-term		Long-term	
		Condition	Calculation	Condition	Calculation	Condition	Calculation
External	Highest	$D \geq R_p + K_o$	$\frac{D}{R_p + K_o}$	$D \geq R_p + K_o + K_t$	$\frac{D}{R_p + K_o + K_t}$	$D \geq R_p + K_o + K_t + K_T$	$\frac{D}{R_p + K_o + K_t + K_T}$
	Average	$L \geq R_p + K_o$	$\frac{L}{R_p + K_o}$	$L \geq R_p + K_o + K_t$	$\frac{L}{R_p + K_o + K_t}$	$L \geq R_p + K_o + K_t + K_T$	$\frac{L}{R_p + K_o + K_t + K_T}$
	Low	$L + K_B \geq R_p + K_o$	$\frac{L + K_B}{R_p + K_o}$	$L + K_B \geq R_p + K_o + K_t$	$\frac{L + K_B}{R_p + K_o + K_t}$	$L + K_B \geq R_p + K_o + K_t + K_T$	$\frac{L + K_B}{R_p + K_o + K_t + K_T}$
	Critical	$L + K_B < R_p + K_o$	$\frac{L + K_B}{R_p + K_o}$	$L + K_B < R_p + K_o + K_t$	$\frac{L + K_B}{R_p + K_o + K_t}$	$L + K_B < R_p + K_o + K_t + K_T$	$\frac{L + K_B}{R_p + K_o + K_t + K_T}$
Internal	Highest	$D \geq K_B + R_a$	$\frac{D}{K_B + R_a}$	$D \geq K_B + R_a + K_t$	$\frac{D}{K_B + R_a + K_t}$	$D \geq K_B + R_a + K_t + K_T$	$\frac{D}{K_B + R_a + K_t + K_T}$
	Average	$L \geq K_B$	$\frac{L}{K_B}$	$L \geq K_B + K_t$	$\frac{L}{K_B + K_t}$	$L \geq K_B + K_t + K_T$	$\frac{L}{K_B + K_t + K_T}$
	Low	$K_B + R_a \geq C$	$\frac{K_B + R_a}{C}$	$K_B + R_a \geq C + K_t$	$\frac{K_B + R_a}{C + K_t}$	$K_B + R_a \geq C + K_t + K_T$	$\frac{K_B + R_a}{C + K_t + K_T}$
	Critical	$K_B < C$	$\frac{K_B}{C}$	$K_B < C + K_t$	$\frac{K_B}{C + K_t}$	$K_B < C + K_t + K_T$	$\frac{K_B}{C + K_t + K_T}$

Table 5

Determination of JSC «Prominvestbank» financial strength in dependence of terms and subjects of analysis in 2008–2011

	Type	Current				Short-term				Long-term			
		2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011
External	Highest	1,12	6,75	7,84	4,39	0,25	0,74	0,91	0,52	0,10	0,30	0,25	0,23
	Average	1,22	7,14	8,28	4,69	0,27	0,78	0,96	0,56	0,10	0,32	0,27	0,24
	Low	11,86	24,51	32,81	20,58	2,66	2,67	3,79	2,45	1,01	1,10	1,05	1,06
	Critical	11,86	24,51	32,81	20,58	2,66	2,67	3,79	2,45	1,01	1,10	1,05	1,06
Internal	Highest	0,10	0,38	0,31	0,27	0,08	0,26	0,24	0,19	0,05	0,17	0,14	0,13
	Average	0,12	0,41	0,34	0,30	0,09	0,28	0,26	0,20	0,06	0,18	0,15	0,14
	Low	6,78	3,64	5,22	5,36	2,12	1,36	2,00	1,54	0,87	0,68	0,71	0,75
	Critical	6,74	3,57	5,15	5,32	2,11	1,33	1,98	1,53	0,86	0,66	0,70	0,74

It is helpful for both internal and external auditors as it allows determining external and internal (more conservative and cautious) financial strength in its current, short-term and long-term state. Applied to JSC «Prominvestbank», this method has demonstrated, that the Bank is only safe for current external investments. It appeared to be unstable for external investments on both short-term and long-term scales, and internal analysts should notice that the Bank is in critical financial condition on long-term scale.

CONCLUSION

Thereby both Kromonov's and Lerner's methods prognosticate a new liquidity crisis for JSC «Prominvestbank». In general, these methods appeared to be representative and relatively thorough. They are mainly designed for quick estimation of financial soundness for internal purposes and cannot replace completely specialized agencies' services and IMF's recommendations. However, in some cases they might play a role of an extremely helpful instrument and become an additional means of financial hedge against unexpected circumstances.

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