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Microeconomics

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EVALUATION OF FINANCIAL AND ECONOMIC SECURITY OF COMMERCIAL ENTERPRISES

Abstract

The paper reviews the basic methodological approaches to evaluating the financial and economic security of commercial enterprises and the expediency of their use in research.

Key words:

Methodological approaches, financial and economic security, business processes.

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Problem Statement. In modern conditions the financial position of commercial enterprises, which provide a result of all elements of the financial and economic relations, is determined by a combination of industrial and economic factors, and is characterized by a system of indicators that reflect the availability, allocation and use of financial resources. Since the main characteristic of the financial and economic condition of the enterprise is its safety, we will study the evaluation of the enterprises trading in construction materials in terms of reaching the safe and sustainable development.

Analysis of recent research and publications. This problem is not new to economics. At the moment, a series of methodological approaches have been developed to the evaluation of financial and economic security of the companies. Among national scientists, who have been developing new and adapting existing methods of analysis of economic and financial security at macro level should be noted the following: I. Blank, F. Butynets, A. Butko, K. Horiacheva, N. Hrytsiuk, L. Donets, K. Izmailova, M. Korobov, Ye. Mnykh, V. Sopko, O. Tereshchenko, S. Shkaraban and others. Significant contribution to the development and improvement of financial analysis techniques made foreign experts, namely: M. Bakanov, S. Barnholts, O. Yefimova, V. Kovalov, M. Mattews, D. Middlton, S. J. Brown, R. Papiehin, A. Thompson, A. Sheremet and others.

Objective Statement. So far, most of the offered methodical approaches to the analysis of financial and economic security are not able to adequately evaluate the condition of the enterprise, and require further improvement. The problem consists in poor methodological development of the evaluation of financial and economic security, improvement of management of financial and economic security of commercial enterprises, as well as practical significance of these improvements for the domestic companies trading in construction materials.

The purpose of the article is to substantiate the approaches and systems of indicators of financial and economic security of commercial enterprises in modern economic conditions.

The main material of the research. In economic studies the following basic approaches are distinguished to evaluate the rate of financial and economic security of economic entities.

Indicative approach provides for the evaluation generalization of financial and economic security of economic entities on the basis of comparison of the boundary (critical and normal) and the actual indicators. The normalized value indices calculated on the basis of regulations (boundary) values of initial parameters can act as the security indicators of the economic entities [1, p. 138–139, 5, p. 11–12, 6, p. 234–237].

Economic-mathematical approach to the evaluation of financial and economic security of economic entities (P_{fes}) provides the use of such functional dependence as follows: [2, p. 251–263, 7, p. 110–112, 9, p. 185–189, 10, p. 177–186]:

$$P_{феб} = a_1 * \int(x_1) + a_2 * \int(x_2) + ... + a_i * \int(x_n), \quad (1)$$

where x_1, x_2, x_n – indicators of business performance; $\int(x1)$, $\int(x_2)$,..., $\int(x_n)$ – local functions of the level of financial and economic security dependence on the respective indices of the performance of economic entities; a_1, a_2,...,a_i – coefficients that reflect the importance of each indicator for the financial and economic security of the economic entities.

Resource and functional approach. The followers of the resource and functional approach [3, pp. 31–35, 4, pp. 99–101, 8, pp. 12–16] propose to determine the level of financial and economic security on the basis of the evaluation rate of resource utilization by the economic entities under each functional compound. They offer the following formula for computation of aggregated criteria of financial and economic security of economic entities:

$$ФЕБ = \sum_{i-1}^{n} k_i d_i \,, \quad (2)$$

where k_i – value of partial functional criteria of financial and economic security of economic entities; d_i – the proportion of the functional significance of the components of financial and economic security of businesses, where d_i, where, $\sum_{i=1}^{n} d_i = 1$, n – number of functional components of the financial and economic security.

Following from the critical analysis of the major methodological approaches to the evaluation of financial and economic security of the companies the author's own approach is offered to determine their positive and negative aspects while evaluating security of the enterprises trading in construction materials. The offered approach involves evaluating the effectiveness of individual business processes in the context of their impact on financial and economic security. The developed methodical approach is directed at determination of anti-crisis financial and economic potential of a commercial enterprise and its further development.

For the analysis twelve commercial enterprises of the city of Lviv and Lviv region who have been working in the construction materials market at least for four years had been selected. The selected commercial enterprises belong to different formats of operation (warehouse, supermarket building (1000 sq. m.), stores with trade area of 300–1000 sq. m., small stores of 300 square meter area) and cover 72.08 % of the construction materials market, which enables to characterize the sample of companies as reliable and representative (Table 1).

Table 1

Sampled population of the companies trading in construction materials (Lviv region and the city of Lviv)

Trading company	Number of stores as for January 1, 2011	Trading area of the stores, sq. m.	The company's share of the market as for January 1, 2011, %
1. Warehouse			
LLC «BEEM-Budmarket»	1	566	4,39
LLC «IMM»	2	385	3,05
2 Network stores with a floor area of 1000 sq. m			
LLC «Praktiker Ukraine»	1	8236	14,53
PRAT «New Line West»	1	7101	14,98
LLC «NVP- Ergo ««	4	4592	7,19
LLC «Askona»	3	3445	7,67
LLC «Desiatka»	2	2788	6,32
3 Stores with trading floor space of 300-1000 sq. m.			
LLC «Ceramics TM»	4	862	4,28
LLC «Santekchnika LV»	1	364	3,36
4 Small stores with trading floor space of up to 300 sq. m			
LLC «Molotok»	3	285	2,18
LLC «Hospodar»	1	230	2,46
LLC «Ceramics Center»	1	139	1,67

The state of financial and economic security of the above listed commercial enterprises are analyzed in economic literature in terms of specific business processes, that is, of organizational managerial, financial analytical, market and trading, which are considered on the basis of literature sources [3, p. 31–35, 5, p. 11–12, 11, p. 91–92].

Evaluation of the **organizational and administrative business processes** of enterprises trading in construction materials is considered in terms of ensuring the efficient performance of enterprises respectively such indicators as rate of change in revenue, gross profit per employee, the level of average wages in the enterprise.

The financial analytical business processes of trading companies are analyzed by the following factors: the level of financial independence (autonomy ratio), income from sales, the level of distribution costs, the rate of supply of in-

ventory through their own current assets, the rate of financial stability, and ratio of working capital movement.

Market business processes of trading companies are evaluated by the coefficient of turnover changes, indices of relative market share and duration of stock turnover.

The dynamics of trade circulation on the one hand, reflects the basic laws of consumer demand and trends in its satisfaction (except for the conditional satisfied demand, that is, purchased goods by force, which in a number of properties will not correspond to optional market buyers), on the other, determines the potential for a retailer commercial income, and then for the profit [11, p. 91–92].

The analysis of **commercial business processes** is carried out in terms of ratio of providing the staff with trade area and the volume of commodity turnover per one square meter of retail area.

The efficiency of retail space utility largely depends on the rational distribution of commercial establishments in the city. The location selection of the store considering its trade area and assortment profile significantly affects the performance of retail trade enterprises [12, p. 88–99].

Determination of partial integral indicators of the effectiveness of individual business processes of the sampled population of enterprises trading in construction materials enables to calculate the integral indicator of the companies' financial and economic security. Based on the evaluation results we will calculate the level of financial and economic security of the businesses trading in construction materials for 2008–2011years (table 2).

Analysis of the integral index of financial and economic security of the surveyed enterprises allows making the following conclusions:

- for the period of 2008–2011 years eight out of twelve commercial enterprises trading in construction materials were able to improve their own financial and economic security. Negative dynamics is observed in «IMM» (–0.123) Ltd. «Enterprise «Ergo» (–0.058) Ltd. «Desiatka» («Ten») (–0.067) Ltd. «Ceramics Center» (–0.025). The highest growth rate was achieved in the «Molotok» («Hammer») Ltd. Company (0.171). «Ceramics TM» (0.137) Ltd. «Praktiker Ukraine» (0.088);
- The LLC «Praktiker Ukraine» (0.730) and highly specialized enterprise of «Ceramics TM» (0.616) Ltd. and «LLC «Santekchnika LV» («Plumbing LV») (0.688) are characterized with the best financial and economic security;
- poor management of financial and economic security is peculiar to small commercial enterprises of «LLC Hospodar» («Owner»), LLC «Ceramics Center» and a network of supermarkets of LLC «Desiatka» («Ten»).

Table 2

Integrated evaluation of economic and financial security of the sampled population of the enterprises trading in construction materials for 2008–2011 years

$$Y_{ФЕБ} = \sum_{n=1}^{4} a_n \cdot Y_n ,$$

$Y_{ФЕБ}$ – integral indicator of the financial and economic security of commercial enterprises, Y_n – partial integral evaluation of managerial (Y_y), financial analytical ($Y_Ф$), market (Y_P), trade (Y_T) business processes,
a_n – weight of the partial integral index,
n – the number of partial integral estimates

$$Y_{ФЕБ} = 0{,}21 \cdot Y_y + 0{,}52 \cdot Y_Ф + 0{,}14 \cdot Y_P + 0{,}13 \cdot Y_T$$

Trading company	2008	2009	2010	2011	Absolute deviation 2011 / 2008
1. Warehouse					
LLC «BEEM-Budmarket»	0,389	0,391	0,384	0,454	0,065
LLC «IMM»	0,593	0,495	0,508	0,470	-0,123
2 Network shops with a floor area of over 1000 sq. m					
LLC «Praktiker Ukraine»	0,643	0,641	0,747	0,730	0,088
PRAT «New Line West»	0,512	0,629	0,667	0,567	0,055
LLC «NVP- Ergo»	0,417	0,432	0,424	0,359	-0,058
LLC «Askona»	0,443	0,486	0,502	0,487	0,043
LLC «Desiatka»	0,410	0,469	0,453	0,344	-0,067
3 Stores with trading floor space of 300–1000 sq. m.					
LLC «Ceramics TM»	0,478	0,701	0,540	0,616	0,137
LLC «Santekchnika LV»	0,680	0,707	0,673	0,688	0,009
4 Small stores with trading floor space of up to 300 sq. m					
LLC «Molotok»	0,262	0,270	0,349	0,433	0,171
LLC «Hospodar»	0,236	0,219	0,298	0,311	0,075
LLC «Ceramics Center»	0,276	0,456	0,309	0,251	-0,025

The results of integrated evaluation enable to rank the sampled population of commercial enterprises trading in construction materials and distribute them according to the zones of financial and economic security.

Using the generalized descriptions of average values the trading enterprises in construction materials were distributed into the zones by the formula of $k = 1\ 3{,}322 * \log 12$, where k is a number of groups.

As a result, we have got four zones with an interval of (0,730–0,251)/4)0.119. The generalized feature that was grouped according to the defined intervals, allowed forming a scale of characteristics for financial and economic security of commercial enterprises (Table 3).

Table 3

Scale of characteristics of financial and economic security of commercial enterprises

Interval	Zone characteristic (level of financial and economic security)
0,611–1	Absolutely safe
0,491–0,610	Sufficiently safe
0,371–0,490	Unstable
0–0,370	Crisis

On the basis of the developed scale of financial and economic security we will distribute the sampled population of commercial enterprises by zones (fig. 1).

The results of ranking companies and their distribution by the zones of financial and economic security enable to reasonably come to the development of strategic and operational measures to improve security, as well as to determinate the levers and instruments for improvement of the financial and economic security in terms of specific groups.

The analysis would be incomplete without the determination of all factors of financial and economic security, discussed above, those who have the greatest impact on its level. The last stage of our analysis is especially important for the development of a reliable system of financial and economic security management, because decision making on the priority eliminating risks or threats is one of the most important.

This problem can be solved by applying the methods of correlation and regression analysis. To construct the correlation-regression model of financial and economic security of trading in construction materials companies we will determine the level of correlation dependence between the resulting value and its factors (Table 4).

Based on the evaluation of the correlation relations it was revealed that the greatest influences (over 0.75) on the level of financial and economic security of the studied commercial businesses are produced by the following five factors: income from sales; coefficient of financial stability; level of financial independence;

mobility ratio of working capital; and relative market share. Therefore, they are included into the correlation-regression equation, which is as follows:

$$Y = -0{,}50889 + 0{,}030 \cdot x_4 + 0{,}403 \cdot x_7 + 0{,}121 \cdot x_8 + 0{,}097 \cdot x_9 - 0{,}005 \cdot x_{10}. \quad (3)$$

The pair correlation coefficient (R) equals 0.92, which indicates a high degree of relation between the components of the density effect on net profit. The coefficient of determination (R^2) according to the calculations is 0.85, i. e. not less than 85 % of the variation of financial and economic safety of sampled population of trading in construction materials enterprises due to the variation of identified impact factors.

Figure 1

Rating of the sampled population of commercial enterprises trading in construction materials by financial and economic security, 2011

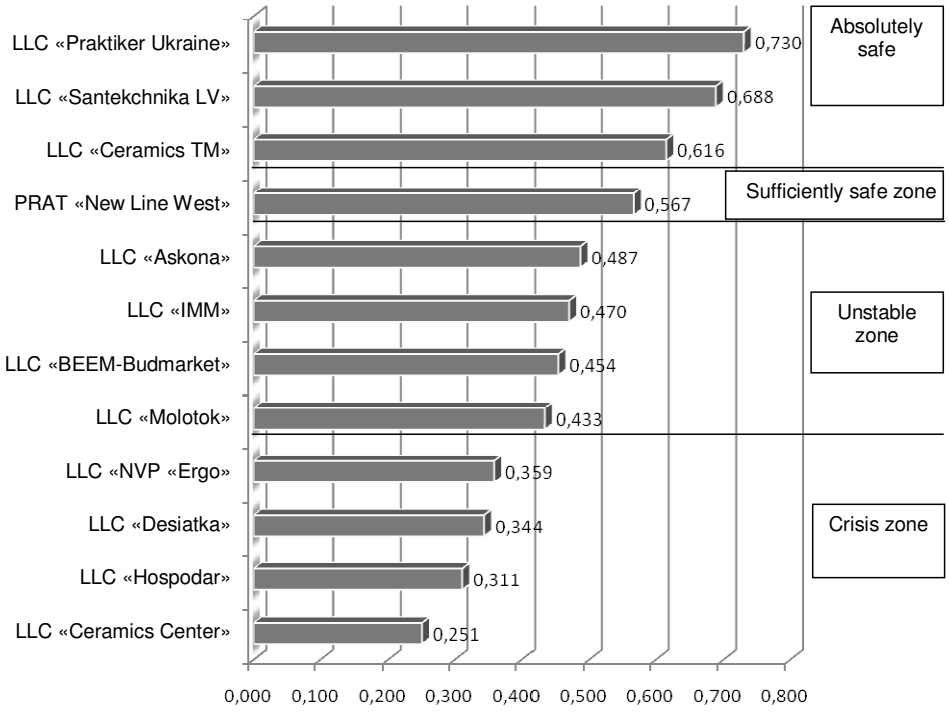

Table 4

Indicators for the construction of correlation-regression model of financial and economic security of trading in building materials enterprises

Indicator	Notation	Correlation dependence *Y*
The level of financial and economic security of commercial enterprises	*Y*	
Ratio of income changes	x_1	0,56
Profit per employee, thousand UAH	x_2	0,45
The average wage in the enterprise, thousand UAH	x_3	0,58
The level of income from sales,%	x_4	0,77
The level of distribution costs,%	x_5	0,69
Rate of inventory provision with own working assets	x_6	0,62
Coefficient of financial stability.	x_7	0,89
Level of financial independence (autonomy ratio)	x_8	0,91
Mobility ratio of working capital	x_9	0,93
Relative market share,%	x_{10}	0,84
Duration of inventory turnover, days	x_{11}	0,37
Rate of turnover change	x_{12}	0,73
Ratio of provision with trade area, sq. m / employees	x_{13}	0,44
Turnover of 1 sq m retail area, thousand UAH / sq. m	x_{14}	0,60

The resulting value of *F* is above the tabled value, and that confirms the statistical significance of the regression equation as a whole, and the adequacy of the model according to the Fisher criterion.

The obtained regression model will enable the management of commercial enterprises to track the impact the deterministic factors produce on changes in the level of financial and economic security of an enterprise and make adjustments in the process of decision making to strengthen the financial and economic security, which is extremely important in today's dynamic development.

Conclusions

The state of financial and economic security of the sampled population of the enterprises trading in construction materials is analyzed in terms of specific business processes, namely: organizational managerial, financial analytical, market and trade. The analysis of the integral index behavior of financial and economic security of the studied companies showed the following:

- despite the effect produced by the crisis on the economy over the period of 2008–2011, reight out of twelve enterprises trading in construction materials were able to improve their own financial and economic security;
- the best position of financial and economic security characterizes the trading companies in construction materials belonging to the enterprise network with the trading area over 1000 sq. m., and highly specialized enterprises with the area ranging from 300 to 1000 sq. m.;
- poor management of financial and economic security is peculiar to small commercial enterprises of «LLC Hospodar» («Owner»), LLC «Ceramics Center» and a network of supermarkets of LLC «Desiatka» («Ten»)

The results of integrated evaluation enabled to rank the accumulation sample of the enterprises trading in construction materials, and distribute them by the zones of financial and economic security.

Following from the results of correlation-regression analysis there were singled out the factors that have the greatest impact on financial and economic security of the studied commercial enterprises, namely: income from sales; the coefficient of financial stability; the level of financial independence; mobility ratio of working capital; and the relative market share. Based on this regression, the model was developed of financial and economic security of the enterprises trading in construction materials, which will allow their managers to track the impact the deterministic factors produce on the changes in financial and economic security and to make adjustments in the process of decision making on the improvement of the financial and economic security.

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