Development of a methodology for assessing the financial security of construction enterprises

V N Kosaynova*, N S Seredina, V V Alexeenko
Bryansk State Engineering University of Technology, Stanke Dimitriva ave., 3, Bryansk, 241050, Russia

E-mail: vika0510@mail.ru

Abstract. One of the key challenges in the housing market is to ensure the developer’s reliability. The transition to the project financing mechanism requires the financial sustainability observation within the limits of the established standards by the specialized developers. In current economic conditions a more comprehensive analysis including not only financial sustainability indicators is needed for the disclosure of the financial situation of a building industry company. The authors selected the indicators groups and identified the specific indicators for the construction industry. These indicators were considered in comparing their actual values with standards. They reflect the financial security. The highest degree of safety is achieved under the condition that the whole complex of indicators is within the permissible limits of its threshold values, and the threshold values of one indicator are achieved with no connection with the others. In the process of implementing the assessment methodology the cumulative indicators were calculated for each group of indicators. On the basis of the above-mentioned, an integral index was obtained for each of the enterprises included in the sample. The authors adapted the financial security assessment model based on the data presented on the portal of the Unified Developers Register taking into account a specific territory (Bryansk Region). The formulated and tested model made it possible to assess the financial security of the largest enterprises in the construction industry, draw appropriate conclusions and propose management solutions within the framework of these or those indicators.

Introduction
Financial security determines the ultimate state of financial stability, in which the enterprises must be involved in order to implement their strategy, characterized by the ability of the enterprise to withstand the external and internal threats.

Enterprises with a low level of financial security cannot withstand the threats of the macro, meso and microenvironment. The organization monetary circulation constant monitoring gives a possibility for the problems’ timely identification in the company's activities, responding to market fluctuations and making changes in the enterprise management.

The issues of financial security are particularly relevant for the construction industry.

According to the analytical reports of the Russian Academy of Science and Ministry of Economic Development the construction sector can become a new driver of the Russian economy in the short term.
The transition to the mechanism of project financing is a key point for civilized work in the housing market. This scheme is used in several European countries and has already proven its effectiveness.

Federal Law of 30.12.2004 N 214-FL (amended 12.25.2018) “On participation in the shared construction of the apartment buildings and other real estate objects; on amendments to some legislative acts of the Russian Federation” regulates the activities of the specialized developers. The article 3.1 spells out the items to be disclosed, including the document containing information on the developer financial stability own funds standards amount calculation.

According to the Decree of the Government of the Russian Federation of 26.12.2018 N 1683 (amended 13.03.2019) “On the standards of the developer’s activities financial sustainability”, only the indicator of security of obligations the indicator of targeted use of funds, the amount of the developer’s own funds and the order of calculation are estimated in the framework of assessing financial sustainability.

In case of the standards non-compliance, the developer faces the following problems:
- by the arbitral tribunal decision, the suspension of the activity of attracting co-investors funds;
- administrative responsibility: the developer is presented an order he is to fulfill within a certain period of time; otherwise, a fine is imposed.

In the current economic conditions, for the disclosure of the financial situation of a building industrial company, a more comprehensive analysis is needed, including not only financial sustainability indicators.

The authors believe, the financial security of enterprises it is necessary to be assessed.

**Methodology and methods of research**

The indicator approach adapted for enterprises in the construction industry was chosen among numerous methods for assessing financial security [1], [2], [3], [4].

In order to ensure financial security in a building industry enterprise, a system of indicators which allow assessing the current and prospective level of a company's financial condition and the level of financial security should be defined.

Each indicator is assigned corresponding normal limits of values in order to ensure the stable protection of financial interests from identified real and potential threats of external and internal nature.

The authors selected the indicators groups and identified the specific indicators for the construction industry.

These indicators, reflecting financial security, were considered in comparing their actual values with the standards.

When choosing indicators, it should be noted that it is possible to calculate critical and normal values for such indicators. The scientists consider the marginal values to be the threshold (critical) values of financial security indicators. Non-compliance with these indicators may lead to the formation of negative trends (threats) in the field of financial security, and eventually to the disproportions in the economic activity of the enterprise and disruption of its development as a whole.

The indicator approach is based on a coefficient analysis of various groups of indicators determining financial security with a set of indicators.

The main purpose of the financial security analysis is to identify and eliminate shortcomings in financial activities in a timely manner and to find the reserves for improving financial performance.

The indicators’ groups with a set of indicators are presented in Table 1.

**Table 1. Indicators of construction enterprises financial security**

| Indicators of the specialized developers' property status | The share of current assets in the property |
| --- | --- |
| Receivables share | Mobile assets ratio |
| Growth rate of enterprise property |
Assessment of the specialized developers’ property status indicators is necessary for the analysis of the state and the enterprise property formation efficiency, mainly the production assets. It allows to assess the predictability and consistency of the management policy of the fixed assets, other assets of the enterprise.

Credit rating is one of the most important criteria for determining the level of financial security. Credibility includes the liquidity and solvency analysis. The inability of the company to repay its debt obligations in a timely manner may lead to the risk of bankruptcy. Information on the absolute liquidity indicator is necessary for the raw materials and materials suppliers; on the intermediate liquidity indicator - for banks; on general liquidity - for investors.

Financial stability indicators reflect the general financial condition and the company's ability to repay debts using its own funds and reflect the financing sources structure in the assets structure. It is possible to determine the degree of capital adequacy in the composition of the financing sources and whether the company can ensure timely repayment of borrowed sources of financing from liquid assets relying on these indicators.

The business activity evaluation is necessary in order to compare the efficiency of the resource use by the enterprise. Business activity is manifested in the dynamic development of the economic entity, the achievement of its goals, as well as the rate of the funds turnover, on which the annual turnover rate depends.

And the last group of profitability indicators, showing the relative efficiency of the enterprise as a whole and of individual areas, characterizing the profitability of sales, assets, capital, cost recovery, etc. Profitability indicators characterize the final results of the organization more fully than profit because their value reflects the effect ratio and the available or used resources. In addition to evaluating the activities of the company, they are used as a tool in investment policy, pricing, etc. Therefore, in the assessment of financial security, they are given special attention.
The highest degree of safety is achieved under the condition that the whole complex of indicators is within the permissible limits of its threshold values, and the threshold values of one indicator are achieved without any detriment to others.

**Results and Discussion**

The study was based on the empirical data of the construction industry enterprises located in the Bryansk region for the period from 2014 to 2018.

According to the analytical report with statistic data on the most successfully functioning enterprises in the territory of the Bryansk region, 9 enterprises, which accounted for more than 75% of the total housing construction have been selected.

Financial security was investigated with the help of the software product “Audit Expert”, which allows not only to carry out calculations using domestic reporting but also IFRS reporting. It also allows comparing indicators for the industry and make development forecasts.

Next, we calculate the integral indicator, which is the sum of the cumulative indicators. The information necessary for the calculation of standards for assessing the financial sustainability of the developer’s activities is compiled on the basis of its accounting data and disclosed in the financial statements.

**Table 2.** the calculation of the integral indicator using the indicator method

| Company          | Cumulative       | Integral indicator of financial security |
|------------------|------------------|------------------------------------------|
|                  | property status  | liquidity and solvency | financial sustainabi ty | business activity | profita bility | |
| Ltd CP Megapolisi stroi | 1.15 | 0.86 | 1.50 | 0.17 | 2.5 | 5.7 |
| Ltd CP Sax       | 2.09 | 7.19 | 3.26 | 2.46 | 3.37 | 18.37 |
Aggregates and directly integrated indicator of the enterprise financial security should be compared with the threshold value. The threshold value of the cumulative indicators is presented in Table 3.

| Ltd CP Instroi | 2.66 | 1.45 | 2.43 | 0.68 | 2.72 | 11.77 |
| Ltd Stroigarant | 2.39 | 1.01 | 0.63 | 0.65 | 0.10 | 4.78 |
| Ltd Bryansk Stroi Development | 2.12 | 2.25 | 0.17 | 0.08 | 2.22 | 6.84 |
| Ltd CP UCC Nadezhda | 2.66 | 1.05 | 2.21 | 1.84 | 1.27 | 9.03 |
| Ltd CP BSK | 2.16 | 2.29 | 4.25 | 0.84 | 3.21 | 12.66 |
| Ltd Premium Project | 2.33 | -0.25 | 4.04 | 1.05 | 2.41 | 9.55 |
| JSC Fabrika Atmosferi CP | 2.83 | 1.07 | 3.74 | 3.65 | 2.79 | 14.08 |

Analyzing the available data, it is obvious, that all the indicators for 9 enterprises of the construction industry are below the threshold values. This indicates a low level of financial security and, as a consequence, there is a risk of the enterprise losing its solvency and financial stability. The low level of financial security does not allow the company to operate stably and effectively, to ensure a high potential for the future development and growth. It is necessary to develop a number of management decisions, namely:
- to improve property status;
- to increase solvency;
- to strengthen financial sustainability;
- to increase business activity and profitability.

Since the standards calculation for the obligation security and target verification of the funds use are carried out quarterly on the last day of the reporting quarter, the assessment of financial security should also be realized quarterly.

Summary
The business entity management should organize its financial protection in such a way as to create the conditions for the sustainable development of the company, reduce the impact of external economic crises, analyze and prevent the potentially unsuccessful bargaining. It is also necessary to optimize accounting policies, to develop and implement a transparent financial control system. It is important to use the services of reliable creditors and banking structures in business. The company should carry out intensive work with personnel, allowing to prevent acts of fraud and other violations able to cause any financial losses. Ensuring the protection of information and compliance with commercial secrets is believed to improve the level of the enterprise financial security.

References
[1] Blazhevich O G 2015 The concept of “financial security of the enterprise” and the formation of a system of indicators for its evaluation (Scientific Herald: Finance, Banks, Investments) 3 30-36.
[2] Blazhevich O G 2010 Financial security of enterprises: determination of the minimum required level (Scientific Herald: Finance, Banks, Investments) 3 (8) 25-31.
[3] Zwolak J 2017 Financial security of small and medium sized enterprises in Poland 68 (4) 399-412
[4] Pera J 2017 An enterprise’s financial stability and its sustainable growth. A risk-based perspective (Przedsiębiorczość Międzynarodowa) 3 (2) 49-62.