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DIFFERENTIATION OF FINANCIAL STABILITY OF CONSTRUCTION ENTERPRISES IN THE CRISIS PERIOD: A COMPARATIVE ANALYSIS

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The article analyzes the dynamics of financial indicators of Ukrainian construction enterprises under martial law. The relevance of the study is due to the critical need to identify typical trajectories of changes in the financial stability of construction enterprises in the period of large-scale economic shocks. The purpose of the article is to carry out a comparative analysis of the financial performance of construction enterprises of various sizes during 2020–2024 and to identify typical patterns of degradation or preservation of financial stability. The research methodology is based on a comprehensive analysis of the financial performance of 10 construction companies in the Kyiv region, covering the pre-war (2020–2021) and military (2022–2024) periods. An evaluation system has been developed that includes four blocks of indicators: liquidity, financial stability, efficiency, and business activity. Based on a ten-point scale, indicators for each enterprise were calculated. The results of the study revealed a critical degradation of financial indicators in most of the sample enterprises: only one enterprise (10%) maintained a stable position, while seven enterprises (70%) moved into the crisis category. Three typical trajectories of financial behavior were identified: stable, unstable, and crisis. The greatest degradation was observed in the indicators of autonomy (43% decrease in the crisis group) and asset turnover (59–77% decrease in the unstable and crisis groups). The scientific novelty of the study lies in the development of an approach to the typology of enterprises by trajectories of financial stability under martial law, which allows to identify critical points of transition from one category to another. The practical value of the study lies in the possibility of using the developed typology to diagnose early signs of a financial crisis and make preventive management decisions.

Keywords: construction enterprises, crisis period, comprehensive assessment, comparative analysis, martial law, typology of enterprises.

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Introduction and formulation of the problem

The construction industry has traditionally been an indicator of the general state of the economy, as its activities are directly related to investment activity, lending and long-term planning. Under martial law, Ukrainian construction companies have faced unprecedented challenges: destruction of infrastructure, disruption of supply chains, labor shortages, volatility

in prices for materials and energy, and restricted access to finance.

At the same time, the construction sector is called upon to play a key role in the country’s recovery, the implementation of large-scale infrastructure projects, and the provision of housing for internally displaced persons. In such circumstances, it is critical to understand the real financial condition of

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Differentiation of financial stability of construction enterprises in the crisis period: a comparative analysis

construction companies, identify typical trajectories of their adaptation to crisis conditions, and identify the factors that determine the ability of an enterprise to maintain financial stability.

Despite numerous studies of the financial sustainability of enterprises, there is a lack of comprehensive comparative analyses covering the transition period from stable conditions to martial law and taking into account the specifics of the construction industry. Most existing studies focus either on the analysis of individual enterprises or on industry-wide trends without detailing typical patterns of financial behavior. Therefore, there is a need to conduct a comparative analysis of the dynamics of key financial indicators of construction companies of different sizes in order to identify typical trajectories of change in their financial sustainability.

Analysis and research of publications

The problem of financial sustainability of enterprises in the context of crisis phenomena is actively studied by both domestic and foreign scientists.

Zhou et al. (2022) studied the impact of the digital economy on the sustainable development of Chinese enterprises in the context of economic transformation, finding that enterprises with higher financial sustainability demonstrate better adaptability [1]. At the same time, the authors focused on technological factors, while the impact of military operations was left out.

Alaka et al. (2018), in their study of the factors of bankruptcy of construction companies, found that liquidity and debt burden are key predictors of financial crises in the construction sector [2]. However, their analysis was based on data from developed economies in stable conditions.

Among the domestic studies, it is worth noting the works devoted to the financial analysis of construction companies. Polous (2020) carried out a systematic analysis of the digitalization indicators of Ukrainian enterprises, but did not consider the dynamics in crisis conditions [3]. Teplyuk (2021) studied trends in the innovative development of small businesses in the digital economy, emphasizing the need to adapt to a rapidly changing environment [4].

Ishchuk and Sozansky (2022) conducted a comparative assessment of the import dependence of Ukrainian machine building in the context of current challenges, demonstrating the significant vulnerability of industries dependent on imported components [5]. This issue is also relevant for the construction sector, which actively uses imported materials and equipment.

Sazonets and Voloshyna (2023) analyzed the formation of the economic potential of industries under conditions of uncertainty, emphasizing the importance

of financial stability as a basis for development [6]. However, their study did not cover the specifics of martial law.

The analysis of the literature shows that despite a significant number of studies on the financial sustainability of enterprises, there are no comprehensive comparative studies covering the transition from stable conditions to martial law specifically for the construction industry of Ukraine. There are also no studies devoted to the typologization of enterprises by trajectories of change in financial sustainability using integrated assessment systems.

Purpose of the article

The purpose of the article is to carry out a comparative analysis of the dynamics of financial indicators of construction enterprises in the Kyiv region during 2020-2024, to identify typical patterns of degradation or preservation of financial stability under martial law and to develop a typology of enterprises by trajectories of their financial behavior.

To achieve this goal, the following tasks need to be solved:

- to develop a system for assessing the financial sustainability of construction companies;
- to carry out a comparative analysis of the financial performance of enterprises in the pre-war and war periods;
- to identify typical trajectories of changes in financial sustainability;
- to classify enterprises by the level of financial stability as of 2024.

Presentation of the main material

The empirical basis of the study is the financial statements of 10 construction companies in the Kyiv region for 2020-2024: Express-VP LLC, Construction Management-77 LLC, Rostdorstroy LLC (RDS LLC), Onur Construction International LLC, DS Prom Group LLC, Techno-Bud-Center LLC, Brovary Road Construction Bureau No. 50 PJSC, ShRBU-48 LLC, Avtostrada Group of Companies LLC, and Avtomagistral PE.

The selection of enterprises is based on the following criteria: territorial localization (all enterprises operate in the Kyiv region), a variety of scales (from small to large enterprises), segmental diversification (housing, road construction, infrastructure projects), availability of financial statements, representativeness (the selected enterprises provide about 8% of the total revenue of construction enterprises in the region as of 2023).

To assess financial sustainability, a comprehensive approach is applied, including four blocks of indicators:

- liquidity: current liquidity ratio as an indicator of the company's ability to cover short-term liabilities.

- financial sustainability: the autonomy ratio as an indicator of the company’s independence from external sources of financing.
- efficiency: return on assets as a measure of the efficiency of using available resources.
- business activity: turnover of total assets as an

indicator of the intensity of asset use for income generation.

A ten-point rating scale has been developed for each indicator (Table 1), which allows normalizing heterogeneous indicators and calculating an integral financial stability index.

Table 1

Scale for assessing financial indicators

Indicator	Excellent (10 points)	Good (7 points)	Satisfactory (4 points)	Unsatisfactory (2 points)
Current liquidity ratio	≥ 2.0	1.5-1.99	1.0-1.49	< 1.0
Autonomy coefficient	≥ 0.5	0.3-0.49	0.1-0.29	< 0.1
Return on assets	≥ 0.15	0.08-0.149	0.01-0.079	< 0.01
Asset turnover	≥ 1.0	0.6-0.99	0.3-0.59	< 0.3

We propose to calculate the integral index as the arithmetic mean of the scores for the four blocks of indicators. Based on the value of the integral index, enterprises are classified into three groups:

- stable (integral score ≥ 6): enterprises that maintain an acceptable level of financial performance;
- unstable (integral score 4-6): enterprises with deterioration of certain indicators;

– crisis (integral score < 4): enterprises with critical degradation of financial indicators.

An integral assessment of the financial stability of ten construction companies for the period 2020-2024 revealed dramatic changes in their financial situation (Table 2).

Table 2

Integral assessment of financial sustainability of construction companies, 2020 and 2024

Company	Integral score 2020	Integral score 2024	Δ (change)	Trend	Group (2024)	Group (2020)
Express-BP LLC	6.25	7.75	1.5	↑	Stable	Stable
LLC “Construction Management-77”	5.75	2.5	-3.25	↓↓	Crisis	Unstable
LLC “RDS”	4.25	2.5	-1.75	↓↓	Crisis	Unstable
Onur Construction International LLC	3.75	3	-0.75	↓↓	Crisis	Crisis
DS Prom Group LLC	3	2	-1	↓↓	Crisis	Crisis
Techno-Bud-Center LLC	7	4	-3	↓↓	Unstable	Stable
PJSC “Brovary Road Construction Company No. 50”	7.75	3.75	-4	↓↓	Crisis	Stable
LLC “SHRBU-48”	6.25	3.5	-2.75	↓↓	Crisis	Stable
Avtostrada Group LLC	7.75	4.75	-3	↓↓	Unstable	Stable
PE “Avtomagistral”	8.5	3.75	-4.75	↓↓	Crisis	Stable

As shown in Table 2, in 2020, six companies (60%) belonged to the stable group with an integral score of more than 6 points. As of 2024, the situation has changed radically: only one company (Express-VP LLC) has maintained a stable position, and moreover, it has even improved its integral score from 6.25 to 7.75. Two companies (Techno-Bud-Center

LLC and Avtostrada Group LLC) moved into the unstable category, and seven companies (70% of the sample) found themselves in the crisis zone with an integral score below 4.

The most dramatic decline was demonstrated by Avtomagistral PE (down 4.75 points), Brovary Road Construction Company No. 50 (-4.0 points),

and Construction Management-77 LLC (-3.25 points). These companies lost their leadership positions and moved from the stable category directly into the crisis.

The analysis of the dynamics of individual blocks of indicators allowed us to identify the most vulnerable aspects of financial activity. Liquidity indicators showed mixed dynamics: Express-VR LLC maintained a stable 7 points, while Brovaryske ShBU No. 50 PJSC fell from the maximum 10 to 4 points. The most critical situation is observed in the financial sustainability indicators, where most enterprises have scores of

2-4 points, indicating critically low autonomy and high dependence on external financing.

Performance indicators revealed a systemic problem of profitability: while in 2020 several companies showed excellent results (10 points), as of 2024, no company reached this level. Only one enterprise has improved its business activity (Express-BP LLC reached 10 points), while the rest have stagnated or declined.

Typologization of enterprises by financial behavior trajectories allowed us to identify three characteristic patterns (Table 3).

Table 3

Typology of construction companies by level of financial sustainability, 2020 and 2024

Group	Number (2020)	Number (2024)	Characteristics	Enterprises (2024)
Stable (≥6 points)	6	1	The indicators are maintained at an acceptable level	Express-VP LLC
Unstable (4-6 points)	2	2	Deterioration of certain indicators	Techno-Bud-Center LLC; Avtostrada Group LLC
Crisis (<4 points)	2	7	Critical degradation	Construction Management-77 LLC; RDS LLC; Onur Construction International LLC; DS Prom Group LLC; Brovary Road Construction Company No. 50 PJSC; ShRBU-48 LLC; Avtomagistral PE

Pattern A (stable trajectory) is characterized by maintaining or even improving the integral score above 6 points. This pattern is represented only by Express-BP LLC, which has demonstrated a unique ability not only to maintain but also to improve its financial position under martial law. The analysis of this company's indicators shows a balanced approach: the company has maintained acceptable liquidity (7 points), high autonomy (10 points), moderate efficiency (4 points), and significantly improved business activity (from 4 to 10 points). This indicates a successful adaptation of the business model to the crisis conditions, in particular by accelerating asset turnover and maintaining equity.

Pattern B (unstable trajectory) is characterized by a decrease in the integral score to the range of 4-6 points, which indicates a deterioration in individual indicators while maintaining overall operating capacity. This group includes Techno-Bud-Center LLC (down from 7.0 to 4.0) and Avtostrada Group LLC (down from 7.75 to 4.75). The analysis of their indicators

shows a typical scenario: preservation of basic liquidity (4 points) and financial stability (4-7 points), but a critical decline in efficiency and business activity. These companies are at risk and require active measures to increase profitability and accelerate asset turnover.

Pattern B (crisis trajectory) is characterized by a progressive degradation of indicators with a drop in the integral score below 4 points. This group includes seven enterprises, five of which have moved from the stable to the unstable category. This pattern demonstrates a comprehensive deterioration in all blocks of indicators: low liquidity (2-4 points), critically weak financial stability (mostly 2 points), negative or minimal profitability (2-4 points), and weak business activity (2-4 points). Such companies need to be fundamentally restructured or risk losing their solvency.

A comparison of the average values of key indicators in the pre-war (2020-2021) and war (2022-2024) periods by the selected groups allowed us to quantify the scale of changes (Table 4).

Table 4
Dynamics of average values of financial indicators by groups of enterprises

Indicator	Pre-war (2020-2021)	Military (2022-2024)	Δ %
Current liquidity ratio			
Stable	1.947	2.112	8.49%
Unstable	1.189	1.089	-8.39%
Crisis	1.225	1.125	-8.15%

Table 4 shows a significant differentiation in the impact of the crisis on different groups of enterprises. An enterprise in the stable group (Express-VP LLC) even improved its current ratio by 8.5%, which indicates that its short-term solvency has strengthened. Instead, the unstable and crisis groups showed a decrease in liquidity by 8.4% and 8.2%, respectively.

The most critical changes are observed in the autonomy indicator. While the stable group maintained a relatively high level of equity with a decrease of only 2.9%, the crisis group lost 43% of its autonomy, indicating a critical increase in dependence on external financing and a threat of losing financial independence.

Performance indicators show a paradoxical dynamic. The stable group has improved its return on assets from negative (-0.5%) to positive (2.4%), which is explained by the successful adaptation of the business model. The unstable group lost 87.5% of its profitability, while the crisis group moved into the loss-making zone (-11.4% in the war period).

Business activity was the most differentiated indicator. The stable group almost doubled its asset turnover (+92.4%), which indicates an intensification of operating activities. Instead, the unstable and crisis groups lost 77.1% and 58.9% of their turnover, respectively, indicating stagnation in operating activities and inefficient use of available resources.

The identified patterns suggest that the critical points of transition from one category to another are: a decrease in the autonomy ratio below 0.3 (which occurs when more than 15-20% of equity is lost), a drop in return on assets into the negative zone, and a decrease in asset turnover by more than 50% compared to the pre-war period.

Conclusions

The study revealed a critical degradation of the financial stability of most construction companies in the Kyiv region under martial law. Only 10% of the sample companies were able to maintain a stable financial position, while 70% fell into the crisis category.

The scientific novelty of the study is as follows:
 – a system for assessing the financial sustainability of construction enterprises based on four blocks of indicators (liquidity, financial stability, efficiency, business activity) using a ten-point rating scale has been developed.

– three typical trajectories of financial behavior of construction enterprises under martial law are identified: stable (maintaining an integral score $e \gg 6$), unstable (deterioration to the level of 4- 6 points) and crisis (degradation below 4 points).

– critical points of transition between categories were identified.

– it was found that the most vulnerable indicators under martial law were autonomy (a 43% drop in the crisis group) and asset turnover (a 59-77% decrease in the unstable and crisis groups).

The practical significance of the research results lies in the possibility of using the developed typology for:

– diagnostics of early detection of signs of transition of an enterprise from one category to another;

– making preventive management decisions to strengthen financial stability;

– identification of priority areas of financial recovery depending on the type of trajectory;

– assessing the creditworthiness of enterprises by financial institutions.

The results of the study allow us to formulate recommendations for enterprises of different groups. Stable enterprises should focus on consolidating their positions by diversifying their sources of income and maintaining a high level of equity. Unstable companies need urgent measures to increase profitability and accelerate asset turnover to prevent them from falling into the crisis category. Crisis enterprises need comprehensive restructuring, including raising additional capital, optimizing their asset structure, and revising their business model.

Prospects for further research include an in-depth analysis of the factors that determine whether an enterprise belongs to a particular trajectory, including the impact of the scale of activity, market segment, ownership structure, and geographic location of construction projects. It is also advisable to expand the sample to test the stability of the identified patterns and to develop econometric models for predicting the transition of enterprises between categories based on early indicators of the financial crisis.

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ДИФЕРЕНЦІАЦІЯ ФІНАНСОВОЇ СТІЙКОСТІ
БУДІВЕЛЬНИХ ПІДПРИЄМСТВ У КРИЗОВИЙ
ПЕРІОД: КОМПАРАТИВНИЙ АНАЛІЗ

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У статті досліджено динаміку фінансових показників будівельних підприємств України в умовах воєнного стану. Актуальність дослідження зумовлена критичною необхідністю ідентифікації типових траєкторій зміни фінансової стійкості підприємств будівельної галузі в період масштабних економічних потрясень. Метою статті є здійснення компаративного аналізу фінансових показників будівельних підприємств різного масштабу протягом 2020–2024 років та виявлення типових патернів деградації або збереження фінансової стійкості. Методологія дослідження базується на комплексному аналізі фінансових показників 10 підприємств будівельної галузі Київського регіону, що охоплюють довоєнний (2020–2021) та воєнний (2022–2024) періоди. Розроблено систему оцінювання, що включає чотири блоки показників: ліквідність, фінансову стійкість, ефективність та ділову активність. На основі десятибальної шкали розраховано показники для кожного підприємства. Результати дослідження виявили критичну деградацію фінансових показників у більшості підприємств вибірки: лише одне підприємство (10%) зберегло стабільну позицію, тоді як сім підприємств (70%) перейшли в кризову категорію. Встановлено три типові траєкторії фінансової поведінки: стабільну, нестабільну та кризову. Найбільшу деградацію зазнали показники автономії (падіння на 43% у кризовій групі) та оборотності активів (зниження на 59–77% у нестабільній та кризовій групах). Наукова новизна полягає у розробці підходу до типологізації підприємств за траєкторіями фінансової стійкості в умовах воєнного стану, що дозволяє ідентифікувати критичні точки переходу від однієї категорії до іншої. Практична цінність дослідження полягає у можливості використання розробленої типології для діагностики ранніх ознак фінансової кризи та прийняття превентивних управлінських рішень.

Keywords: будівельні підприємства, кризовий період, комплексна оцінка, компаративний аналіз, воєнний стан, типологія підприємств.

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