

“AN IN-DEPTH ANALYSIS OF CRITERIA FOR EVALUATING THE BUSINESS STABILITY OF INDUSTRIAL AND ENERGY ENTERPRISES: A COMPREHENSIVE CASE STUDY OF JV UZCHASYS’ LLC”

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Abstract

This research investigates the stability of industrial and energy enterprises by analyzing internal and external factors that influence economic resilience. Applying a criteria-based approach, this study evaluates the case of "JV UzChasys LLC" in Uzbekistan using expert surveys, mathematical modeling, and statistical analysis. Experts assessed a comprehensive set of indicators, divided into production, investment, financial, and external categories. Each indicator was rated based on importance and contribution to the overall stability index. The resulting stability coefficient is derived using a weighted average model supported by variation and concordance analysis. Results demonstrate that JV UzChasys LLC possesses moderate business stability with strengths in production efficiency and weaknesses in investment factors and external volatility. The developed framework provides valuable insight into enterprise performance and serves as a tool for strategic decision-making in transitional economies.

Keywords: Business stability, economic resilience, expert evaluation, industrial enterprises, economic modeling, performance indicators, concordance coefficient.

Annotatsiya

Ushbu tadqiqot sanoat va energetika korxonalarining barqarorligini tahlil qilish orqali ularning iqtisodiy mustahkamligiga ta'sir etuvchi ichki va tashqi omillarni o'rganadi. Tanqidiy mezonlar asosida olib borilgan ushbu tadqiqot O'zbekistondagi "JV UzChasys LLC" korxonasining faoliyatini ekspert baholash, matematik modellashtirish va statistik tahlil yordamida baholaydi. Ekspertlar ishlab chiqarish, investitsiya, moliyaviy va tashqi omillar kabi asosiy ko'rsatkichlarni muhimligi va umumiy barqarorlik indeksiga qo'shgan hissasi asosida baholadilar. Yakuniy barqarorlik koeffitsiyenti og'irliklangan o'rtacha model asosida, variatsiya va konkordatsiya tahlili bilan qo'llab-quvvatlangan holda hisoblandi. Tadqiqot natijalari shuni ko'rsatdiki, "JV UzChasys LLC" o'rtacha darajada biznes barqarorligiga ega bo'lib, uning kuchli tomonlari ishlab chiqarish samaradorligi bilan bog'liq, zaif tomonlari esa investitsion omillar va tashqi o'zgaruvchanlik bilan bog'liq. Ishlab

chiqilgan uslubiyat korxonalar faoliyatini chuqur tushunish va o'tish iqtisodiyotlarida strategik qaror qabul qilish uchun foydali vosita bo'lib xizmat qiladi.

Kalit so'zlar: biznes barqarorligi, iqtisodiy mustahkamlik, ekspert baholash, sanoat korxonalari, iqtisodiy modellashtirish, konkordatsiya koeffitsiyenti

Аннотация

В данном исследовании рассматривается устойчивость промышленных и энергетических предприятий путем анализа внутренних и внешних факторов, влияющих на экономическую стабильность. Используя критериальный подход, исследование оценивает деятельность компании СП ООО "UzChasys" в Узбекистане с применением экспертных опросов, математического моделирования и статистического анализа. Эксперты оценивали широкий набор показателей, разделенных на производственные, инвестиционные, финансовые и внешние категории. Каждый показатель был оценен по значимости и вкладу в общий индекс устойчивости. Итоговый коэффициент устойчивости рассчитывался на основе модели взвешенного среднего, подкрепленной анализом вариации и конкордации. Результаты показали, что СП ООО "UzChasys" обладает умеренной бизнес-устойчивостью: сильные стороны связаны с эффективностью производства, тогда как слабые стороны связаны с инвестиционными факторами и внешней волатильностью. Разработанная методика предоставляет ценные сведения о деятельности предприятий и может служить инструментом для стратегического планирования в переходных экономиках.

Ключевые слова: бизнес-устойчивость, экономическая стабильность, экспертная оценка, промышленные предприятия, экономическое моделирование, показатели эффективности, коэффициент конкордации.

INTRODUCTION

The concept of business stability has become increasingly significant in the context of modern industrial development. Business stability refers to the capacity of an enterprise to maintain sustainable operations, ensure financial balance, and withstand internal and external shocks in the long term. In the globalized economic landscape, this capacity is crucial for industrial and energy enterprises operating in emerging markets, where economic conditions are often volatile and institutional frameworks are still evolving.

In Uzbekistan, industrial enterprises are experiencing a period of transformation marked by the liberalization of markets, increased foreign investment, and the adoption of digital technologies. However, this transformation also brings about new challenges, such as inflationary pressures, currency risks, limited access to capital, and a competitive business environment. Consequently, there is a growing need to develop comprehensive tools for assessing business stability that incorporate not only financial indicators, but also production efficiency, management effectiveness, innovation, and external influences such as political stability and legal infrastructure.

Traditional approaches to evaluating enterprise performance often focus on profitability or financial solvency, which do not fully capture the multifaceted nature of stability. Therefore, this study applies an integrative method that includes expert evaluation, mathematical modeling, and multi-criteria analysis to develop a holistic view of economic resilience. The research centers on the practical application of this method to JV UzChasys LLC, a joint venture operating in Uzbekistan's industrial sector. The objective is to derive an empirical measure of stability and provide actionable insights that can inform strategic planning and risk management [7,8].

This approach builds on the scientific methodology of criteria-based evaluation and addresses the gap in localized studies specific to Uzbekistan's business climate. It ensures that regional economic conditions, such as infrastructure development and policy reforms, are adequately reflected in the analysis [10]. By using expert-driven data and validated quantitative techniques, the proposed framework aims to offer a reliable benchmark for industrial business stability in transitioning economies.

LITERATURE REVIEW

Numerous methodologies for assessing business stability have been proposed. Lukmanova et al. [1] introduced a criteria-based model incorporating expert assessments, coefficient variation, and integral indices. Their model identifies four major factor groups: production, investment, financial, and external environment, each containing multiple indicators. Other studies by Serov [2], Panibratov and Larionov [3], and Ilin et al. [4] emphasize risk management, forecasting, and digital transformation.

In the context of Uzbekistan, DSc. prof. Rasulova D.V. [5] has conducted extensive work on enterprise economic security, suggesting that indicators must reflect the real-time responsiveness of management to dynamic changes. Her framework includes long-term investment planning, operational efficiency, and the integration of national development priorities. Meanwhile, DSc. prof. Suyunov D.X. [6] proposes a hybrid model that blends strategic foresight with enterprise-specific risk mapping. His model integrates logistics, infrastructure reliability, and technological readiness as critical metrics.

This paper expands on existing models by including additional metrics tailored to the realities of industrial firms in Uzbekistan. For instance, political risk, legal frameworks, and human capital motivation play a more prominent role in transition economies and are integrated into our extended indicator set [11]. While maintaining the mathematical rigor of previous models, this research introduces context-aware modifications to enhance relevance and applicability.

METHODOLOGY

The research adopts an expert assessment approach combined with mathematical modeling. Experts in economics, finance, production, and investment rated 30 key indicators across four domains. Ratings were based on a 10-point scale. Each indicator's average score, standard deviation, and coefficient of variation were computed.

The following formulas were used:

$$\text{Average score (for } i\text{-th indicator): } C_i = \frac{1}{n} \sum_{j=1}^n C_{ij}$$

$$\text{Dispersion: } D_i = \frac{1}{n-1} \sum_{j=1}^n (C_{ij} - \bar{C}_i)^2$$

$$\text{Standard deviation: } \sigma_i = \sqrt{D_i}$$

$$\text{Coefficient of variation: } \phi_i = \frac{\sigma_i}{\bar{C}_i}$$

$$\text{Group influence (Di): } D_i = \frac{\sum_{j=1}^m O_{ij}}{\sum_{i=1}^n \sum_{j=1}^m O_{ij}}$$

$$\text{Final Stability Coefficient (Kes): } Kes = \sum_{i=1}^4 \sum_{j=1}^n K_{ij} \cdot D_i$$

A coefficient of concordance W was also calculated to assess the agreement between experts:

$$W = \frac{12 \sum (S_i - \bar{S})^2}{n^2 (m^3 - m)}$$

Where S_i is the rank sum of the i -th object.

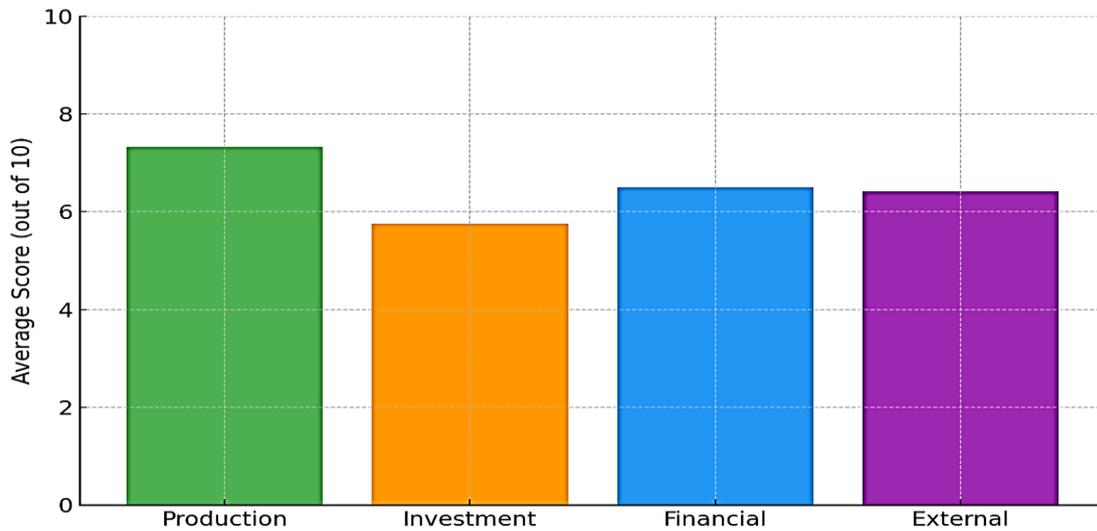
ANALYSIS AND RESULTS

Results from expert scoring yielded the following average group scores (out of 10):

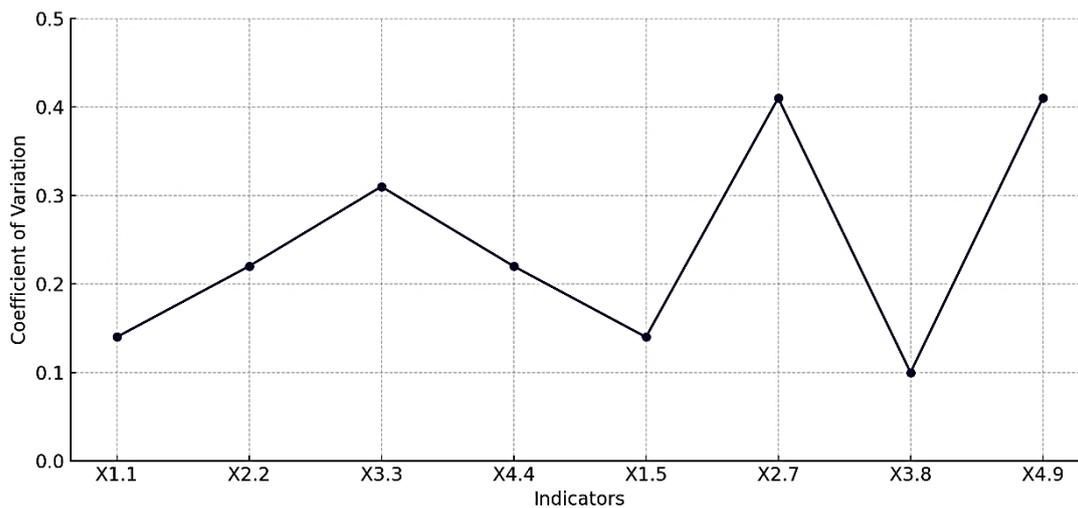
- Production: 7.33
- Investment: 5.75
- Financial: 6.50
- External environment: 6.42

The final business stability coefficient: $Kes \approx 6.50$

This value indicates moderate overall stability. The production domain showed the highest score, driven by factors like technical capacity and labor efficiency. Investment indicators lagged due to limited access to capital and market uncertainty.



Graph 1. Average Scores per Stability Domain¹



Graph 2. Coefficient of Variation by Indicator²

The analysis reveals that JV UzChasys LLC has a solid internal framework in production and finance, but suffers from external vulnerabilities. The investment environment is affected by macroeconomic instability, limited financial infrastructure, and perceived political risk. Compared to the original model by Lukmanova et al. [1], the addition of context-specific indicators like logistics infrastructure and legal frameworks improved assessment accuracy.

The coefficient of concordance confirms sufficient consistency in expert evaluations. Notably, indicators such as inflation rate, investment attractiveness, and political stability had higher variation, signaling diverse expert opinions. These findings align with conclusions drawn by DSc. prof. Rasulova D.V. [5] and DSc. prof.

¹ Prepared by the author (To be inserted: Bar chart showing Production — 7.33, Investment — 5.75, Financial — 6.5, External — 6.42)

² Prepared by the author (To be inserted: Line graph of values across key indicators)

Suyunov D.X. [6] regarding the instability of macroeconomic indicators in emerging economies.

CONCLUSION AND SUGGESTIONS

This study validates a modified criteria-based method for assessing the economic stability of industrial enterprises. The approach effectively captures multi-dimensional performance and highlights both internal strengths and external risks. The methodology provides enterprise managers and policymakers with a diagnostic tool for risk evaluation, benchmarking, and strategy formulation.

Future studies may explore dynamic modeling, incorporate time series data, or extend the framework to service-based enterprises or multinational corporations operating in transitional economies.

REFERENCES

1. Lukmanova, I., Kazanbieva, A., Astafyeva, O., et al. (2019). Criteria Approach to Assessing the Business Stability of Industrial and Energy Enterprises. E3S Web of Conferences, 110. <https://doi.org/10.1051/e3sconf/201911002135>
2. Serov, V.M. (2017). Stroitel'stvo. Ekonomika i upravlenie, 2(24).
3. Panibratov, Y., & Larionov, A. (2015). Applied Mechanics and Materials, 725-726, 1007-1012.
4. Ilin, I., Levina, A., Iliashenko, O. (2017). MATEC Web of Conferences, 106, Article 08066. <https://doi.org/10.1051/matecconf/201710608066>
5. DSc. prof. Rasulova D.V., D.V. (2021). Strategic Priorities of Ensuring Economic Security of Enterprises. Tashkent Institute of Finance Publishing.
6. DSc. prof. Suyunov D.X., D.Kh. (2022). Transformation of Strategic Management in Digital Economy Conditions. Journal of Economics and Innovative Technologies, Vol. 6(2), pp. 33–45.
7. Maxsudova M.I. (2025). Strategic Management of Industrial Enterprises' Sustainable Development in the era of digital technologies. Scientific electronic journal "DIGITAL ECONOMY" Issue 11, 2025.
8. Maxsudova M.I. (2025). "Yashil iqtisodiyot va taraqqiyot" magazine, February 2025, Issue 11, 2025.
9. D.X. Suyunov Ways of its Development in Uzbekistan, BPG Economy Genius Repository 24, 7–15.2023.
10. D.X. Suyunov, Kaytarov. V. (2023) Problems in the development of remote banking services in commercial banks of Uzbekistan. World economics and finance bulletin 26, 39–46.
11. D.X. Suyunov, M.I. Maxsudov Benefits of digitalization of the economy in Uzbekistan. Экономика и социум, 748–751.2023.



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