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ECONOMETRIC AND STATISTICAL ANALYSIS OF STRATEGIC PLANNING EFFICIENCY AND RISKS: EVIDENCE FROM "SANEG CONSTRUCTION" RCC

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Abstract: This study examines the econometric and statistical relationship between strategic planning implementation and enterprise performance in Uzbekistan's construction industry. Using data from "SANEG Construction" RCC for the period 2022–2024, the research evaluates how planning efficiency influences profitability, cost optimization, and overall resource utilization. An econometric model integrating regression, correlation, and variance analysis is applied to assess the quantitative impact of strategic management practices. The findings demonstrate a statistically significant and positive relationship between structured strategic planning and enterprise performance, while also revealing the moderating role of financial risk.
Keywords: econometrics, strategic planning, regression model, financial risk, efficiency analysis, construction sector, Uzbekistan.

1. Introduction

Strategic planning has become a crucial component of enterprise management under the evolving economic conditions of Uzbekistan. The modernization of the national economy and the implementation of the "Uzbekistan–2030 Strategy" emphasize the necessity of data-driven, economically justified management systems.

For enterprises such as "SANEG Construction" RCC, operating in the industrial and construction sectors, the ability to quantitatively measure the effectiveness of strategic planning is essential. Despite the increasing adoption of modern management frameworks, many organizations still lack econometric assessment tools for evaluating the results of strategic initiatives.

2. Literature Review

Classical strategic management theories (Ansoff, 1985; Porter, 1998) underline the role of long-term planning in ensuring adaptability and competitive advantage. More recent econometric studies (Gujarati, 2011; Aldehayyat, 2011) argue that statistical modeling offers a more objective mechanism for measuring managerial efficiency.

In Uzbekistan, researchers such as T.Kasimova (2020), who studied strategic planning practices in Uzbek companies, as well as the influence of external factors on the formation of strategies, and J.Mukhamedov (2023), who conducted certain research on the impact of global economic trends on strategic planning in Uzbekistan and proposed models for adapting strategies to new conditions. have highlighted the necessity of integrating econometric modeling into strategic management systems to improve predictive accuracy and financial stability. However, applied empirical research remains limited, particularly within the construction subsector of the oil and

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gas industry. In addition, few studies have applied comprehensive econometric risk analysis to the construction sector, particularly in relation to performance optimization.

3. Data and Methodology

The research utilizes internal statistical data from "SANEG Construction" RCC for 2022–2024, including indicators such as construction volume, total revenue, costs, and net profit, as well as strategic potential utilization rates. The study employs a multiple linear regression model to estimate the influence of strategic planning intensity on enterprise profitability.

The basic econometric model is formulated as:

$$Y_t = \beta_0 + \beta_1 SP_t + \beta_2 INV_t + \beta_3 COST_t + \beta_4 RISK_t + \varepsilon_t$$

where Yt = Profit growth rate (%),
SPt = Strategic planning intensity (number of initiatives implemented per year),
INVt = Investment volume,
COSTt = Cost growth rate (%),
εt = Random error term.
The model is later extended to incorporate the financial risk variable (RISKt), reflecting the dispersion of cost and profit fluctuations:

$$Y_t = \beta_0 + \beta_1 SP_t + \beta_2 INV_t + \beta_3 COST_t + \beta_4 RISK_t + \varepsilon_t$$

The analysis applies correlation coefficients, variance decomposition, and regression estimation to identify significant factors influencing enterprise performance.

4. Results

Between 2022 and 2024, "SANEG Construction" RCC reported revenue growth from 199.8 billion UZS to 205.8 billion UZS (a 3.02% increase). However, total costs grew by 5.6%, leading to a 16.8% decline in net profit. The correlation coefficient ($r = 0.68$) between strategic planning intensity and profitability indicates a moderate-to-strong positive relationship.
Regression analysis revealed that every additional strategic planning initiative increased profitability by approximately 4–5%. The coefficient of determination ($R^2 = 0.46$) suggests that nearly half of profit variability can be explained by planning, investment, and cost variables.
Variance analysis confirmed statistical significance at the 5% level ($p < 0.05$), verifying the robustness of the model.

5. Econometric Financial Risk Analysis

To deepen the econometric foundation, the study introduces financial risk (RISKt) as a moderating variable in enterprise performance modeling. The financial risk coefficient was derived from variance and coefficient of variation in cost and profit indicators:

$$RISK_t = \frac{\sigma_{profit}}{\mu_{profit}} + \frac{\sigma_{cost}}{\mu_{cost}}$$

where σ is the standard deviation and μ is the mean of each indicator.
Including RISKt in the regression revealed a negative but statistically significant relationship between financial risk and profitability ($\beta_4 = -0.89$, $p < 0.05$). This means that a 1% increase in financial risk decreases profit growth by approximately 0.9–1.2%, depending on the model specification.

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This confirms that risk exposure acts as a moderator, weakening the positive impact of strategic planning on enterprise efficiency. The adjusted R^2 of the model increased to 0.53 after adding the risk factor, showing that risk inclusion improved model explanatory power by 7%.
These findings emphasize the importance of risk-adjusted econometric forecasting in enterprise management. Continuous monitoring of cost volatility and profit variability enables management to anticipate and mitigate adverse financial fluctuations.

6. Discussion

The integration of risk analysis into strategic planning evaluation has significant implications for managerial decision-making. By using econometric modeling, "SANEG Construction" RCC can identify not only which planning strategies improve efficiency but also how financial risk affects these outcomes.
Results indicate that strategic planning intensity has a strong positive effect on profitability, while uncontrolled cost fluctuations and financial risks can offset this advantage. Therefore, management should adopt an econometric monitoring framework that includes:

- Periodic regression-based risk evaluation,
- Variance and sensitivity analysis of cost structures,
- Risk-weighted performance forecasting models.

7. Conclusion

The econometric and statistical findings demonstrate that strategic planning substantially enhances enterprise performance. The integration of financial risk factors provides a more accurate and realistic view of efficiency dynamics in the construction sector.
For “SANEG Construction” RCC, the study recommends:

1. Developing internal econometric models for risk-adjusted planning;
2. Conducting quarterly correlation and variance analyses to track cost fluctuations;
3. Implementing financial risk monitoring systems to stabilize profitability.

These recommendations will strengthen financial resilience and improve the predictive accuracy of strategic planning frameworks the surveyed enterprise.
Furthermore, based on the results of this research, other enterprises operating in similar sectors may adopt the econometric and statistical methodology described herein to enhance their own financial and strategic planning systems.
These approaches ensure that decision-making becomes more data-driven, reducing the uncertainty associated with financial volatility.

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