DOI: 10.55643/fcaptp.1.54.2024.4229

FACTOR ANALYSIS OF FINANCIAL PERFORMANCE AND FORMATION OF STRATEGIC RESILIENCE IN UKRAINIAN IT COMPANIES UNDER THE CHALLENGES OF WAR

Mariya Rubakha
Candidate of Economy Sciences, Associate Professor, Ivan Franko National University of Lviv, Lviv, Ukraine;
e-mail: mariya.rubakha@gmail.com
ORCID: 0000-0003-1596-2678
(Corresponding author)

Lesia Tkachyk
Candidate of Economy Sciences, Associate Professor Ivan Franko National University of Lviv, Lviv, Ukraine;
ORCID: 0000-0002-5758-4989

Iryna Pryimak
Candidate of Economy Sciences, Associate Professor, Ivan Franko National University of Lviv, Lviv, Ukraine;
ORCID: 0000-0002-7846-4353

Nazar Demchyshak
D.Sc. in Economics, Professor, Ivan Franko National University of Lviv, Lviv, Ukraine;
ORCID: 0000-0001-6852-7405

Ruslan Yurkiv
PhD in Economics, Associate Professor of the Department of Finance, Money Circulation and Credit,
Ivan Franko National University of Lviv, Lviv, Ukraine;
ORCID: 0000-0001-9016-6634

Received: 27/10/2023
Accepted: 26/11/2023
Published: 29/02/2024

ABSTRACT

Ukrainian IT companies, a crucial sector of the national economy, currently face challenges and risks associated with contemporary military and adverse macroeconomic realities. Adapting and strengthening the strategic resilience and financial performance of Ukrainian IT companies becomes a pivotal task in times of war. The purpose of the article is to conduct a factor analysis of the financial performance of IT companies and determine the key directions for ensuring the strategic stability of enterprises in this industry in Ukraine.

The article analyzes the primary threats and challenges faced by Ukrainian IT companies, assessing the corresponding measures they implemented to stabilize operations and ensure business processes in 2021-2022. The research allowed for the identification, using economic analysis methods and the construction of multifactorial multiplicative models, of the influencing factors on the financial performance of Ukrainian IT companies during wartime. In particular, five-factor models were constructed to analyze the change in net profit and net income from sales for 7 leading industry companies in Ukraine. The key factors in the models include the structure of funding sources, asset turnover, profitability, cost structure and others.

The importance of fostering strategic resilience for Ukrainian IT companies amid military challenges has been established. Business strategic resilience implies a company's ability to adapt to adverse changes in its external environment while maintaining competitiveness. Directions for shaping strategic resilience in enterprises have been identified, particularly in the context of ensuring financial, operational, and organizational resilience, physical security, business model stability, cyber threat resistance, and corporate social responsibility. The analysis of financial performance factors, employing economic analysis methods in conjunction with an evaluation of how IT companies respond to the challenges of war, will enable a comprehensive risk assessment and effective managerial decision-making within these business structures.

Keywords: factor analysis, IT industry, IT company strategic resilience, net profit, net revenue from sales, business models, cost structure, financial performance

JEL Classification: F19, C10, L86

INTRODUCTION

The importance of the development of the IT industry in Ukraine cannot be overstated. The functioning of the Information Technology sector is a significant factor in maintaining the competitiveness of Ukraine's economy in the face of full-scale russian aggression. Moreover, individual IT companies play a pivotal role in shaping Ukraine's business reputation on the global stage. The IT sector is export-oriented, which means that every IT company represents Ukraine in the international market.

The role of individual IT companies in the economy includes the creation of innovative products, provision of IT services to other market players, job creation for IT profes-

sionals and specialists from other fields, as well as contributing to informal and additional education for IT experts. Furthermore, IT companies serve as clients for other sectors of the economy and are active taxpayers.

IT companies attract foreign investments, foster cooperation, and exchange knowledge with foreign experts, shaping Ukraine's image and promoting its brand in the global business environment. The IT industry operates in close connection with the global economy, as it facilitates the transformation and digitization of other sectors, providing services and creating unique products for Ukrainian and foreign businesses.

However, during a full-scale war, the IT industry faces specific challenges and threats. Serious challenges in the first year of the war included restrictions on IT specialists travelling abroad, periodic power outages, threats to the lives of employees in settlements close to the front line, occupation of certain localities, and more. Studying the state of IT companies, and analyzing the factors influencing their financial performance and resilience during wartime and post-war economic recovery, is particularly relevant today.

LITERATURE REVIEW

The issues regarding the development of digital businesses and the digitization of business processes (Kvitka A. et al., 2021; Kraus N. and Kraus K., 2021), as well as the development of the IT sector, were relevant in the pre-war period and have become more acute during the time of war.

The problems and peculiarities of Ukrainian IT companies' operations in the context of war are highly pertinent today and have been addressed in various publications. Most frequently, authors of scientific publications research the development of the IT sector as a whole (Zayats O., Yarema T., and Chornomaz M., 2023), the prospects for its further growth (Vikulova A. and Savchuk V., 2020), international aspects of IT business development (Ovsak B., Korzh M., and Ovsak O., 2023), and more. Sher G. (2022) and Woodman A. and Hodgson L. (2022) emphasize the importance of innovation, particularly digital innovation, and investments in human capital to achieve victory over russia and the post-war recovery of Ukraine's economy.

An analysis of the profitability of Ukrainian IT companies is presented in the scientific publication by Polchanov A. et al. (2023). The authors analyze the impact of financial indicators, business activity, and the structure of funding sources on the profits of companies in this industry. The study shows that by expanding their markets, companies in the industry can achieve higher profitability, as increased business activity positively affects their return on assets.

Publications by foreign authors focus on researching the influence of transparency in corporate social responsibility on the financial performance and sustainability of IT firms (Alcaide M., De la Poza, E., and Guadalajara N., 2019) and the effect of corporate governance on financial performance (Kaura P. et al., 2019).

Ovsak B., Korzh M., and Ovsak O. (2023) study the macroeconomic impact of foreign economic activities within the IT industry in Ukraine, along with emerging developmental trends. Their research reveals that the domestic IT sector is progressively adopting the characteristics of international business. This transformation is highly significant as it plays a pivotal role in addressing various issues related to leveraging the advantages of conducting IT business in Ukraine and in establishing the necessary institutional framework to support the sector's growth.

Melnyk T. and Zavhorodnya E. (2023) investigate the export orientation of the domestic IT sector and study the factors influencing the sector's competitiveness between 2014-2021. They identify political and macroeconomic instability in Ukraine as the primary threats to the IT sector.

Almeida F., Santos J.D., and Monteiro J.A. (2020) research the impact of IT industry development on other economic sectors. The scholars analyze the influence of digital transformation processes in three business areas: labour and social relations and marketing.

Shpak N. et al. (2023) identify and analyze the distinctive attributes of Ukrainian IT companies. These traits are examined in the context of applying elements of the business model to enhance the value proposition for consumers of digital services and products.

AIMS AND OBJECTIVES

The aim of this article is to conduct a factor analysis of the financial performance of leading companies in the IT sector and to develop strategies for ensuring the strategic financial stability of business structures within the industry in the context of wartime economic challenges in Ukraine.

METHODS

The research article employed various methods of scientific inquiry, including scientific abstraction, generalization, induction, deduction, and synthesis, to analyze and synthesize the state, challenges, and development strategies of Ukrainian IT companies. Furthermore, graphical and tabular methods, as well as techniques for grouping and comparison, were utilized to illustrate and scrutinize the trends in the development of the IT industry in wartime conditions.

Factorial analysis of net profit and net income from product sales for IT sector companies was conducted using the method of chain substitutions. This method is an instrument of economic analysis and mathematical statistics, employed for statistical transformations and assessments within multifactor models of a multiplicative nature. The core of the method involves the sequential replacement of the base value of a factor (from a specific previous period) with its analyzed value (e.g., in the current period), under the condition of other factors remaining unchanged. The calculated results are then compared with previous ones, allowing for the determination of the impact of the analyzed factor within a multifactor model (Mishchuk H.Yu., Dzhyhar T.M. and Shyshkina O.O., 2017; Volkova R.M. et al., 2015).

The analyzed parameter *(P)* in a multifactor model of a multiplicative type is a function of defined variables *f($R_{1...n}$):*

$$P = f(R_1, R_{2,}, R_3, R_4, R_5 \dots R_n) = R_1 \times R_2 \times R_3 \times R_4 \times R_5 \dots \times Rn$$

According to the method of chain substitutions, the change in the factor value *(P1)* concerning the base value *(P0)* is calculated using the formula:

$$\Delta P = P_1 - P_0 = R_1^1 \times R_2^1 \times R_3^1 \times R_4^1 \times R_5^1 \times \dots \times R_n^1 - R_1^0 \times R_2^0 \times R_3^0 \times R_4^0 \times R_5^0 \times \dots \times R_n^0$$

The change *ΔP* influenced by the factor *R1* is calculated as follows:

$$\Delta P(R_1) = R_1^1 \times R_2^0 \times R_3^0 \times R_4^0 \times R_5^0 \dots \times R_n^0 - R_1^0 \times R_2^0 \times R_3^0 \times R_4^0 \times R_5^0 \dots \times R_n^0 = R_1^1 \times R_2^0 \times R_3^0 \times R_4^0 \times R_5^0 \dots \times R_n^0 - P_0$$

The change *ΔP* influenced by factor *R2* is calculated as follows:

$$\Delta P(R_2) = R_1^1 \times R_2^1 \times R_3^0 \times R_4^0 \times R_5^0 \dots \times R_n^1 - R_1^1 \times R_2^0 \times R_3^0 \times R_4^0 \times R_5^0 \dots \times R_n^0$$

The change *ΔP* influenced by factor *R3* is calculated as follows:

$$\Delta P(R_3) = R_1^1 \times R_2^1 \times R_3^1 \times R_4^0 \times R_5^0 \dots \times R_n^0 - R_1^1 \times R_2^1 \times R_3^0 \times R_4^0 \times R_5^0 \dots \times R_n^0$$

The change *ΔP* influenced by factor *R4* is calculated as follows:

$$\Delta P(R_4) = R_1^1 \times R_2^1 \times R_3^1 \times R_4^1 \times R_5^0 \dots \times R_n^0 - R_1^1 \times R_2^1 \times R_3^1 \times R_4^0 \times R_5^0 \dots \times R_n^0$$

The change *ΔP* influenced by factor *R5* is calculated as follows:

$$\Delta P(R_5) = R_1^1 \times R_2^1 \times R_3^1 \times R_4^1 \times R_5^1 \dots \times R_n^0 - R_1^1 \times R_2^1 \times R_3^1 \times R_4^1 \times R_5^0 \dots \times R_n^0$$

The change *ΔP* influenced by factor *Rn* is calculated as follows:

$$\Delta P(R_n) = R_1^1 \times R_2^1 \times R_3^1 \times R_4^1 \times R_5^1 \dots \times R_n^1 - R_1^1 \times R_2^1 \times R_3^1 \times R_4^1 \times R_5^1 \dots \times R_n^0 = R_1 - \times R_n^1 - R_1^1 \times R_2^1 \times R_3^1 \times R_4^1 \times R_5^1 \dots \times R_n^0$$

The total change *ΔP*, taking into account the influence of all factors, is calculated as follows:

$$\Delta P = P_1 - P_0 = \Delta P(R_1) + \Delta P(R_2) + \Delta P(R_3) + \Delta P(R_4) + \Delta P(R_5) \dots + \Delta P(R_5)$$

Using this method, in the article, we will analyze the net profit and net income from the sale of products for the leading 7 companies in the IT sector in 2021-2022.

RESULTS

We will analyze the state and main problems faced by the IT industry during the full-scale invasion.

DOI: 10.55643/fcaptp.1.54.2024.4229

The geographical structure of the IT industry in Ukraine is characterized by several concentration centres. In 2022, two-thirds of the total net revenue declared by Ukrainian IT companies was concentrated in the capital city, with 123.7 out of 184.4 billion UAH. Specifically, in Kyiv, 3013 companies in the field of information technology were officially registered and operated throughout 2022. Apart from the capital, several other business concentration centres in the field of information technology can be highlighted, including those in Lviv (10.4% of income), Kharkiv (8.1%), Dnipropetrovsk (4.2%), Vinnytsia (3.4%), and Odesa regions (1.7%). It is logical that the regions with a significant share of temporarily occupied territories reported the smallest net income from product sales in 2022: Luhansk, Donetsk, and Kherson regions (IT Ukraine Association, 2022).

The location and concentration of business activity in the field of information technology in Ukraine are traditionally influenced by factors that form so-called centres of economic growth:

- The concentration of educational and scientific centres in major cities, which provide the IT sector with a constant influx of technically educated professionals with knowledge of the English language.
- The concentration of system-forming foreign and local IT companies that create demand in the labour market through continuous high-paying orders due to their high capitalization. They also become the socially responsible core of local IT clusters.
- Formation of an IT ecosystem through clusters of participants and stakeholders united around common interests and cost-saving on a larger scale. This includes co-funding infrastructure projects and educational programs, and even collective protection from hostile takeovers or potential regulatory pressures.
- Proactive urban policies prioritise the development of the information technology sector as a strategic direction for community development and a high level of urban comfort that significantly enhances the resilience and scalability of the local IT ecosystem.

During the full-scale war, the IT industry faced several problems. Figure 1 presents statistics on the percentage of companies that encountered various war-related challenges (IT Ukraine Association, 2022).

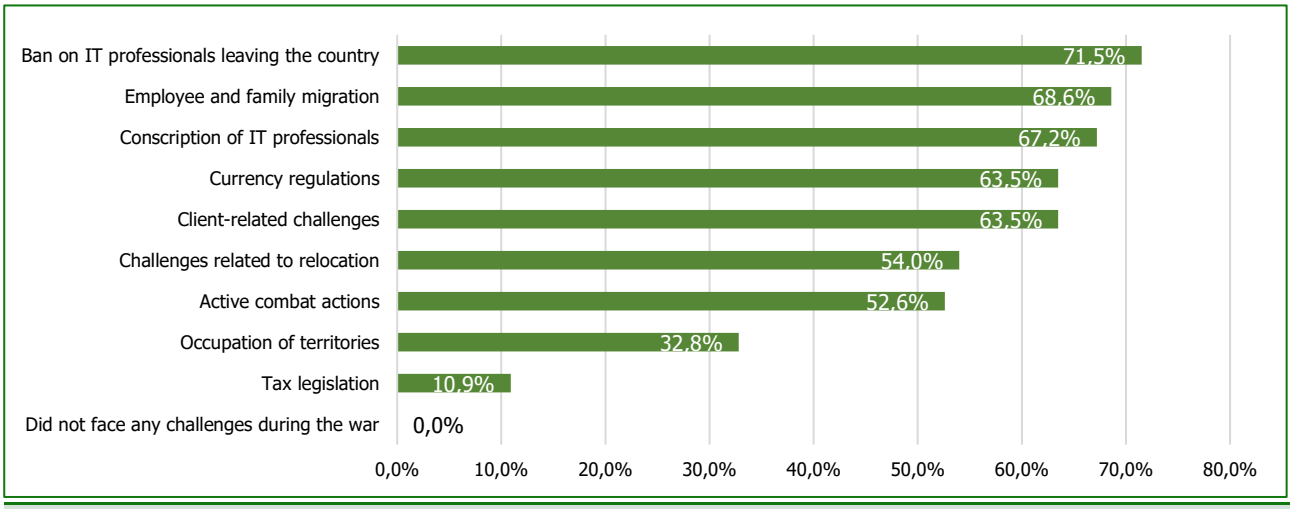

Figure 1. The share of IT companies that encountered war-related challenges. *(Source: calculated and created by the authors according to a report of IT Ukraine Association, 2022)*

All these problems posed a threat to the continuous operation of IT companies, and timely contract fulfillment, and, consequently, could undermine the stability and reputation of the domestic IT industry as a whole, potentially leading to severe financial difficulties for the companies in the sector.

However, according to a survey conducted by the IT Ukraine Association, 34.3% of companies were able to successfully adapt to the new realities, and more than 43% of IT companies expect business growth by the end of 2023.

To stabilize their business processes, IT companies in Ukraine actively resorted to the purchase and use of generators and Starlink systems to ensure uninterrupted operation and internet access, fuel procurement, the creation of a continuous communication system or a separate channel for generating requests, funding employee relocations to different regions or entire offices, and more. Figure 2 provides a more detailed breakdown of the statistics regarding the percentage of companies that implemented various measures to preserve and ensure the effective functioning of their businesses (IT Ukraine Association, 2022).

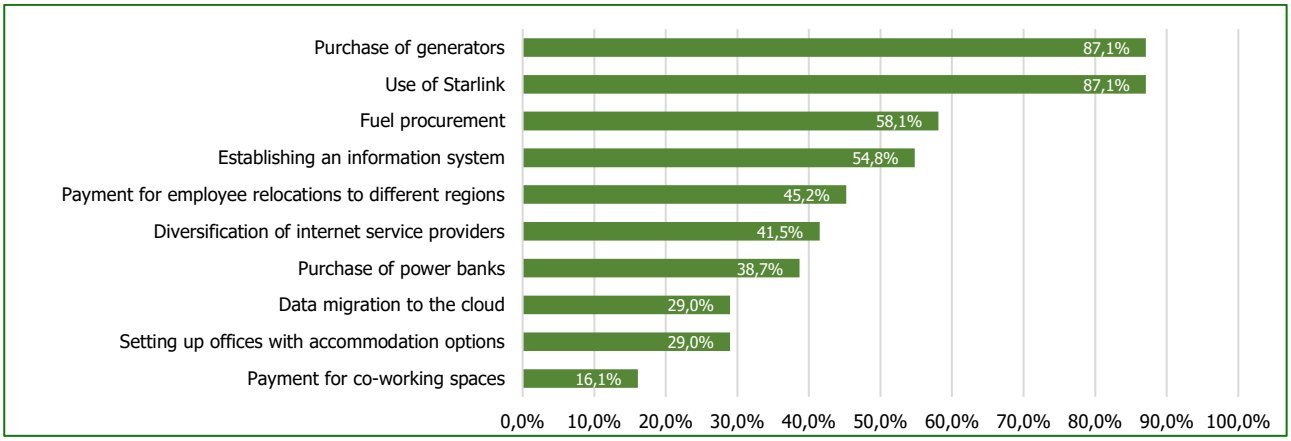

Figure 2. The percentage of IT companies that implemented measures to stabilize their business processes. *(Source: calculated and created by the authors according to a report of IT Ukraine Association, 2022)*

The IT industry in Ukraine is one of the leading sectors of the economy, experiencing rapid growth year by year. Over the last decade, the share of computer services exports in the GDP has increased from 1.8% to 5.27%, and in the export of services, it has risen from 9.08% to 80.19% (see Figure 3).

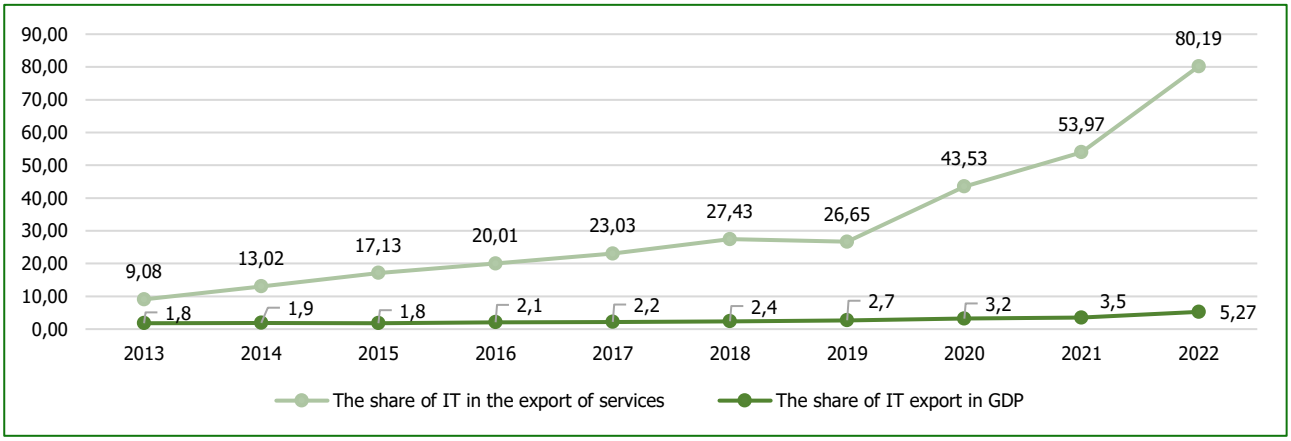

Figure 3 The share of IT products in GDP and in the export of services. *(Source: calculated and created by the authors based on data from the State Statistics Service of Ukraine, 2023)*

Before the full-scale war, Ukraine attempted to support the development of the IT sector and digitalization of the economy at the legislative level (Law of Ukraine (2021)). Despite the war, the IT industry contributed USD 7.35 billion in export revenue to Ukraine's economy in 2022, achieving an 8% growth compared to the previous year (Figure 4). These results were made possible through effective business continuity plans, timely team relocation, and the diversification of development centres both within Ukraine and abroad (IT Ukraine Association, 2022).

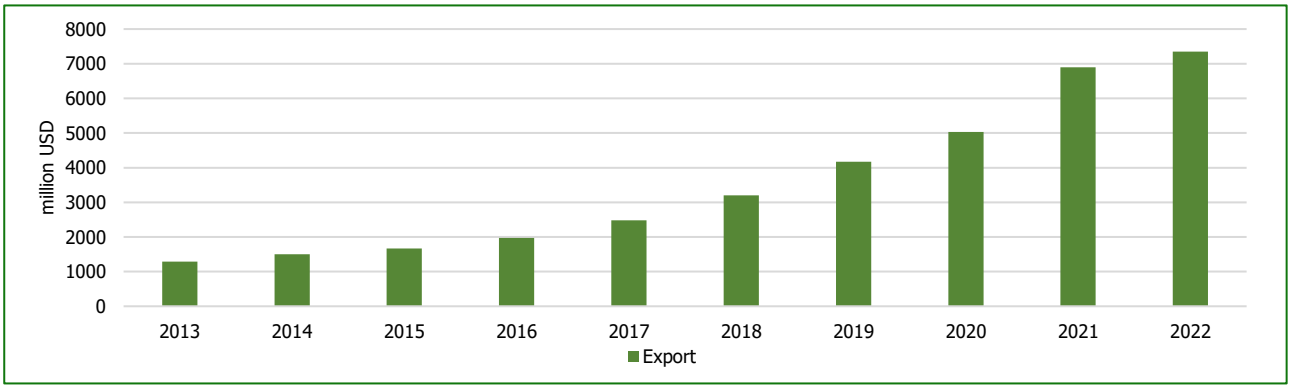

Figure 4. The dynamics of IT exports from Ukraine. *(Source: calculated and created by the authors based on data from the State Statistics Service of Ukraine, 2023)*

DOI: 10.55643/fcaptp.1.54.2024.4229

Throughout the entire analyzed period, IT exports have shown a positive upward trend. Starting from 2018, there has been a rapid increase in the volume of computer services exports from Ukraine, with record levels reached in 2021 and 2022. In 2021, IT exports reached USD 6.9 billion, which was 37.29% higher than the previous year. Despite the ongoing war, IT exports continued to grow in 2022 (IT Ukraine Association, 2022).

Key indicators of the state and dynamics of the IT sector during wartime also include the financial performance of leading companies. Let's focus on two specific metrics: net revenue from sales and net profit, and construct factor analysis models for these indicators using the method of chained substitutions for a sample of Ukrainian companies.

The indicators of net profit and net revenue from sales are important and informative for both internal management and external stakeholders, including investors, and creditors, and are crucial when making strategic decisions and developing business plans. Their growth demonstrates a company's efficiency and competitiveness, its ability to implement new projects, innovate, and maintain financial stability even during times of crisis and war in Ukraine. Let's analyze the changes in net profit and net revenue from sales for IT sector companies in Ukraine during the years 2021-2022:

- EPAM (Ukraine);
- GlobalLogic (Ukraine);
- LLC "Softserve";
- Ciklum (Ukraine);
- Intellias (Ukraine);
- Infopulse (Ukraine);
- Luxoft (Ukraine).

The choice of these specific business structures for analysis is driven by the fact that they are among the largest IT companies in Ukraine based on the number of employees, according to data from the DOU (DOU: Developer Community, 2022) platform. Furthermore, the scope of their activities, as measured by total assets, revenues, and other indicators, varies significantly. Hence, it is important to investigate the factors influencing their performance during the year of war in Ukraine. The net profit of the selected companies for analysis in the five-factor multiplicative model will be a function of the following variables:

- The indicator of the profitability of the realized products by net profit (N_1);
- Asset turnover ratio (N_2);
- The multiplier effect of equity capital (N_3);
- Financial stability coefficient (N_4);
- Borrowed capital (total liabilities) (N_5).

To analyze changes in net income from sales, the five-factor model includes the following factors:

- The Return on Assets ratio (K_1);
- The coefficient of administrative expenses to gross profit (K_2);
- The ratio of operating and administrative expenses (K_3);
- The ratio of net income from sales to operating expenses (K_4);
- Total assets (balance sheet total) (K_5).

These proposed models will be optimal in terms of the comprehensiveness and completeness of the financial analysis of companies.

Let's take a closer look at the selected factors included in the factor analysis models of net income and net revenue from sales. These indicators comprehensively characterize the possibilities of increasing financial performance and the efficiency of the financial management of companies.

The indicator of the profitability of the realized products by net profit (N_1) is key to evaluating the overall efficiency of a company's operational activities and sales, indicating how much net income is generated by the sale of all products (or services). Positive dynamics of this indicator mean that the company can efficiently convert its sales revenue into profit, effectively manage financial resources, and build optimal production processes. High profitability of realized products can also indicate competitiveness and the quality of a product or service in the market. Overall, the growth of this indicator positively affects performance and the ability to withstand challenges and threats under adverse external market conditions

and new business risks, especially in times of war, and essentially determines the portion of net income in the sales revenue of the company.

The asset turnover ratio (N_2) is crucial for evaluating the efficiency of a company's asset utilization and, consequently, the potential for future profit growth. A high value and an increasing trend of this indicator indicate that the company can generate higher turnover in relation to the sum of invested assets and use them more productively. This may result from process optimization, improved sales strategies, better inventory management, and so on.

The multiplicative effect of equity capital (N_3) indicates the degree of financial risk and the efficiency of using the company's equity capital for expansion. This indicator assesses how well a company has been able to increase its assets and property in relation to its invested equity capital. Excessive growth in this coefficient may signify an increase in assets through an increase in liabilities, so business structures need to maintain a balance between expanding the company's development potential and managing risks. In the IT business sector, which often secures financing from abroad at lower interest rates than those in Ukraine, a positive trend in this indicator suggests the utilization of opportunities for financial growth, expansion, and strategic development.

The ratio of equity capital to total liabilities (Financial stability coefficient, (N_4) reflects the financial stability of the business structure. High values of this coefficient and its positive trend indicate that the company has minimal liabilities compared to its equity capital, and the level of the company's dependence on external financing is low, reducing its financial risk and dependence on changes in interest rates of major creditors.

The amount of borrowed capital (total liabilities) (N_5) was included in the factor analysis model of net profit in the context of the need for external financing by companies during wartime to increase profit when there are limited or significantly restricted opportunities to accumulate or attract equity capital. Loan capital in these conditions can help the company maintain its market position or expand its operations, increase sales volumes, and consequently lead to an increase in net profit. It is important to consider that effective management of loan capital and ensuring adequate solvency are key factors in ensuring the positive impact of increased loan capital on the company's financial results.

Let’s consider the selected influencing factors on the net profit from sales volume.

The return on assets ratio (K_1) (Gross Profit / Total Assets) is essential for assessing the effectiveness of a company's use of total assets. It indicates how much profit the company generates per unit of assets it has at its disposal. This indicator is crucial for investors, creditors, and company management. An increase in the return on assets signifies efficient management, high business productivity, successful investment of assets in profitable projects, and an improved financial position of the company.

The coefficient of administrative expenses to gross profit (K_2) is one of the key financial analysis indicators reflecting cost management efficiency for companies operating in the IT sector. Under normal circumstances, reducing the coefficient of administrative expenses to gross profit is considered favourable for businesses, indicating cost optimization and improved management efficiency. However, in the analyzed business sector, during the full-scale invasion of russia into Ukraine, the increase in administrative expenses became one of the conditions for ensuring stability in development, supporting administrative staff, and ensuring proper management of the company in the turbulent external environment. Therefore, the growth of this indicator is justified under the prevailing conditions and contributes to ensuring strategic perspectives and achieving long-term goals of business structures.

The ratio of operating and administrative expenses (K_3) in the model is important for considering the efficiency of cost management within the company. This indicator reflects the proportion of all company expenses that are made up of operating and administrative expenses. The ratio of expenses can have various impacts on the overall financial result of the company. In general, the ratio of operating and administrative expenses depends on various factors such as the industry, the company's size, management strategy, and specific market conditions. There is no “ideal” ratio of operating and administrative expenses; however, the general principle is that operating expenses related to production and service delivery should typically be higher than the expenses associated with managing the company and carrying out general administrative functions. In many companies in the analyzed IT sector, administrative expenses are often relatively high. To achieve successful improvement in the efficiency of business structures, it is important to balance expenses to maximize profitability and efficiency.

The ratio of net income from sales to operating expenses (K_4) allows for an assessment of the efficiency of a company's operational activities. This indicator reflects how much income from sales the company generates per unit of operating expenses. A positive trend in this indicator indicates that the company is increasing its net income from sales compared to

DOI: 10.55643/fcaptp.1.54.2024.4229

operating expenses. This can be the result of operational optimization, cost reduction, or increased sales volume. All of these factors contribute to the potential improvement of the company's financial health and increased financial potential.

The five-factor model for net income from sales also includes the total assets (balance sheet total) (K_5). Total assets indicate the overall scope of a business's activities. An increase in total assets signifies business expansion, investments in new opportunities, or the accumulation of assets for future use. While considering the sources of asset financing and capital structure (equity capital/liabilities) is essential, prudent financial management that leads to an increase in total assets can positively impact the potential, financial and investment capabilities, and production opportunities of business structures.

Let's present the key financial data for the calculation of the required indicators for the IT company EPAM (Ukraine) for 2021-2022 (absolute values in thousands of hryvnias) (Table 1).

Table 1. Financial statement data of EPAM (Ukraine). *(Source: calculated by the authors based on the financial statements (EPAM (Ukraine), 2023)*

EPAM (Ukraine)	31.12.2021	31.12.2022
Net profit (loss)	1,198,502	3,443,159
Gross profit (loss)	1,977,849	3,361,149
Net sales revenue	14,701,899	20,212,715
Administrative expenses	3,32,706	378,966
Operating expenses	17,340,210	13,200,002
Equity capital	5,701,959	9,145,106
Borrowed capital (total liabilities)	1,607,023	1,410,304
Total assets (balance sheet total)	7,308,982	10,555,410

Let's construct a factor analysis model for the net profit of EPAM (Ukraine) based on the data from Table 2.

Table 2. Factor analysis of the net profit of EPAM (Ukraine). *(Source: calculated by the authors based on the financial statements (EPAM (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	EPAM (Ukraine)	31.12.2021	31.12.2022
(N_1)	The indicator of the profitability of the realized products by net profit (Net profit / Net sales revenue)	0.081520217	0.170346191
(N_2)	Asset turnover ratio (Net sales revenue / Total assets (balance sheet total)	2.011483815	1.914915195
(N_3)	The multiplicative effect of equity capital (Total assets (balance sheet total) / Total assets (balance sheet total))	1.281836997	1.154214068
(N_4)	Financial stability coefficient (Equity capital / Borrowed capital (total liabilities))	3.548150213	6.484492705
(N_5)	Borrowed capital (total liabilities)	1,607,023	1,410,304
NI	Net profit	1,198,502	3,443,159
$\Delta NI(N_1) = 0.170346191 \times 2.01148381 \times 1.281836997 \times 3.548150213 \times 1{,}607{,}023 - 1{,}198{,}502 = 1305910.488$			
$\Delta NI(N_2) = 0.170346191 \times 1.914915195 \times 1.281836997 \times 3.548150213 \times 1{,}607{,}023 - 0.170346191 \times 2.011483815 \times 1.281836997 \times 3.548150213 \times 1{,}607{,}023 = -120233.4598$			
$\Delta NI(N_3) = 0.170346191 \times 1.914915195 \times 1.154214068 \times 3.548150213 \times 1{,}607{,}023 - 0.170346191 \times 1.914915195 \times 1.281836997 \times 3.548150213 \times 1{,}607{,}023 = -237374.8851$			
$\Delta NI(N_4) = 0.170346191 \times 1.914915195 \times 1.154214068 \times 6.484492705 \times 1{,}607{,}023 - 0.170346191 \times 1.914915195 \times 1.154214068 \times 3.548150213 \times 1{,}607{,}023 = 1776630.596$			
$\Delta NI(N_5) = 3443159 - 0{,}170346191 \times 1.914915195 \times 1.154214068 \times 6.484492705 \times 1{,}607{,}023 = -480275.7386$			
$\Delta NI = 3443159 - 1198502 = 1305910{,}488 - 120233.4598 - 237374.8851 + 1776630.596 - 480275.7386 = 2244657$			

During the analyzed period, the net profit of the company significantly increased. Based on the constructed five-factor model, we can conclude that the most significant positive impact on the studied indicator was the increase in the indicator

of the profitability of the realized products by net profit (+1305910.488 thousand hryvnias) and the financial stability coefficient (+1776630.596 thousand hryvnias). Maintaining a positive trend in these coefficients will allow for an increase in net profit, with a particular emphasis on the coefficient of financial stability. In contrast, the reduction in the asset turnover ratios and the multiplicative effect of equity capital, as well as the decrease in the volume of total liabilities, reduced the amount of net profit for the business structure.

The model of factor analysis of net sales revenue for EPAM (Ukraine) will have the following form (Table 3).

Table 3. Factor analysis of the net sales revenue of EPAM (Ukraine). *(Source: calculated by the authors based on the financial statements (EPAM (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	EPAM (Ukraine)	31.12.2021	31.12.2022
(K_1)	Return on Assets ratio (Gross Profit / Total Assets)	0.270605263	0.318429033
(K_2)	The coefficient of administrative expenses to gross profit	0.168216077	0.112748944
(K_3)	The ratio of operating and administrative expenses	52.11871743	34.83162606
(K_4)	The ratio of net sales revenue to operating expenses	0.847850113	1.531266056
(K_5)	Total assets (balance sheet total)	7,308,982	10,555,410
NIS	Net sales revenue	14,701,899	20,212,715
$\Delta NIS(K_1) = 0.318429033 \times 0.168216077 \times 52.11871743 \times 0.847850113 \times 7308982 - 14701899 = 2598250.385$			
$\Delta NIS(K_2) = 0.318429033 \times 0.112748944 \times 52.11871743 \times 0.847850113 \times 7308982 - 0.318429033 \times 0.168216077 \times 52.11871743 \times 0.847850113 \times 7308982 = -5704506.417$			
$\Delta NIS(K_3) = 0.318429033 \times 0.112748944 \times 34.83162606 \times 0.847850113 \times 7308982 - 0.318429033 \times 0.112748944 \times 52.11871743 \times 0.847850113 \times 7308982 = -3846121.881$			
$\Delta NIS(K_4) = 0.318429033 \times 0.112748944 \times 34.83162606 \times 1.531266056 \times 7308982 - 0.318429033 \times 0.112748944 \times 34.83162606 \times 0.847850113 \times 7308982 = 6246559.605$			
$\Delta NIS(K_5) = 20212715 - 0.318429033 \times 0.112748944 \times 34.83162606 \times 1.531266056 \times 7308982 = 6216634.307$			
$\Delta NIS = 20212715 - 14701899 = 2598250.385 - 5704506.417 - 3846121.881 + 6246559.605 + 6216634.307 = 5510816$			

Throughout 2022, the net income from sales of EPAM (Ukraine) increased by 5,510,816 thousand UAH. The positive dynamics of the return on assets ratio, the ratio of net sales revenue to operating expenses, and total assets facilitated this growth, with the latter two indicators contributing more significantly to the increase in the analyzed metric. The increase in the net sales revenue to operating expenses ratio resulted in an increase in net income from sales by 6,246,559.605 thousand hryvnias, an increase in total assets by 6,216,634.307 thousand hryvnias, and an increase in return on assets ratio by 2598250.385. Negatively affecting the dynamics were the ratio of administrative expenses to gross profit and the ratio of operating to administrative expenses.

Let's construct factor analysis models for the net profit and net sales revenue of GlobalLogic (Ukraine) in 2021-2022. The necessary financial statement data for calculations are provided in Table 4 (absolute figures in thousands of hryvnias).

Table 4. Financial statement data of GlobalLogic (Ukraine). *(Source: calculated by the authors based on the financial statements (GlobalLogic Ukraine), 2023)*

GlobalLogic (Ukraine)	31.12.2021	31.12.2022
Net profit (loss)	470,979	1,138,589
Gross profit (loss)	9,82,561	1,390,254
Net sales revenue	7,708,009	11,515,158
Administrative expenses	329,863	425,034
Operating expenses	7,089,169	10,574,911
Equity capital	1,993,115	3,131,704
Borrowed capital (total liabilities)	337,195	404,026
Total assets (balance sheet total)	2,330,310	3,535,730

DOI: 10.55643/fcaptp.1.54.2024.4229

Let's build a factor analysis model for the net profit of GlobalLogic (Ukraine). The five-factor model for net profit will take the following form (Table 5).

Table 5. Factor analysis of the net profit of GlobalLogic (Ukraine). *(Source: calculated by the authors based on the financial statements (GlobalLogic Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	GlobalLogic (Ukraine)	31.12.2021	31.12.2022
(N_1)	The indicator of the profitability of the realized products by net profit (Net profit / Net sales revenue)	0.061102549	0.09887741
(N_2)	Asset turnover ratio (Net sales revenue / Total assets (balance sheet total)	3.307718286	3.256797889
(N_3)	The multiplicative effect of equity capital (Total assets (balance sheet total) / Total assets (balance sheet total))	1.169179902	1.129011554
(N_4)	Financial stability coefficient (Equity capital / Borrowed capital (total liabilities))	5.910867599	7.751243732
(N_5)	Borrowed capital (total liabilities)	337,195	404,026
NI	Net profit	470,979	1,138,589
$\Delta NI(N_1) = 0.09887741 \times 3.307718286 \times 1.169179902 \times 5.910867599 \times 337195 - 470979 = 291168.967$			
$\Delta NI(N_2) = 0.09887741 \times 3.256797889 \times 1.169179902 \times 5.910867599 \times 337195 - 0.09887741 \times 3.307718286 \times 1.169179902 \times 5.910867599 \times 337195 = -11732.82427$			
$\Delta NI(N_3) = 0.09887741 \times 3.256797889 \times 1.129011554 \times 5.910867599 \times 337195 - 0.09887741 \times 3.256797889 \times 1.169179902 \times 5.910867599 \times 337195 = -25781.26458$			
$\Delta NI(N_4) = 0.09887741 \times 3.256797889 \times 1.129011554 \times 7.751243732 \times 337195 - 0.09887741 \times 3.256797889 \times 1.129011554 \times 5.910867599 \times 337195 = 225618.13$			
$\Delta NI(N_5) = 1138589 - 0.09887741 \times 3.256797889 \times 1.129011554 \times 7.751243732 \times 337195 = 188336.9918$			
$\Delta NI = 1138589 - 470979 = 291168.967 - 11732.82427 - 25781.26458 + 225618.13 + 188336.9918 = 667610$			

In 2022, despite the war, GlobalLogic (Ukraine) managed to significantly increase its net profit by more than twice, amounting to 667,610 thousand hryvnias. The increase in net profit was achieved through the growth in borrowed capital (+188,336.9918 thousand hryvnias to the net profit), which evidently influenced the expansion of the company's operations. Additionally, increases the financial stability coefficient and the indicator of the profitability of the realized products by net profit. The growth in these indicators will enable the company to maintain a positive trend in net profit in the future. The factor analysis model for the net sales revenue of GlobalLogic (Ukraine) is presented in Table 6.

Table 6. Factor analysis of the net sales revenue of GlobalLogic (Ukraine). *(Source: calculated by the authors based on the financial statements (GlobalLogic Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	GlobalLogic (Ukraine)	31.12.2021	31.12.2022
(K_1)	Return on Assets ratio (Gross Profit / Total Assets)	0.421643901	0.393201404
(K_2)	The coefficient of administrative expenses to gross profit	0.335717579	0.30572399
(K_3)	The ratio of operating and administrative expenses	21.49125243	24.88015312
(K_4)	The ratio of net sales revenue to operating expenses	1.087293729	1.088912994
(K_5)	Total assets (balance sheet total)	2,330,310	3,535,730
NIS	Net sales revenue	7,708,009	11,515,158
$\Delta NIS(K_1) = 0.393201404 \times 0.335717579 \times 21.49125243 \times 1.087293729 \times 2330310 - 7708009 = -519953.0361$			
$\Delta NIS(K_2) = 0.393201404 \times 0.30572399 \times 21.49125243 \times 1.087293729 \times 2330310 - 0.393201404 \times 0.335717579 \times 21.49125243 \times 1.087293729 \times 2330310 = -642193.3459$			
$\Delta NIS(K_3) = 0.393201404 \times 0.30572399 \times 24.88015312 \times 1.087293729 \times 2330310 - 0,393201404 \times 0.30572399 \times 21.49125243 \times 1.087293729 \times 2330310 = 1032200.352$			
$\Delta NIS(K_4) = 0.393201404 \times 0.30572399 \times 24.88015312 \times 1.088912994 \times 2330310 - 0.393201404 \times 0.30572399 \times 24.88015312 \times 1.087293729 \times 2330310 = 11285.71827$			
$\Delta NIS(K_5) = 11515158 - 0.393201404 \times 0.30572399 \times 24.88015312 \times 1.088912994 \times 2330310 = 3925809.311$			
$\Delta NIS = 11515158 - 7708009 = -519953.0361 - 642193.3459 + 1032200.352 + 11285.71827 + 3925809.311 = 3807149$			

The net income from sales of GlobalLogic (Ukraine) for 2021-2022 increased by almost 1.5 times, amounting to 3,807,149 thousand hryvnias. The most significant factor contributing to this growth was the increase in the efficiency of the company's cost management. The ratios of operational and administrative expenses, and the ratio of net sales revenue to operational expenses, all experienced growth during the analyzed period. There was also a substantial increase in the company's assets. However, the profitability of assets and the ratio of administrative expenses to gross profit had a negative impact on the formation of net sales revenue.

Let's construct models for factor analysis of net profit and net sales revenue for LLC "Softserve". It should be noted that there is a group of companies within the "Softserve" corporation engaged in consulting and other services. We will analyze LLC "Softserve" with The Unified State Register of Enterprises and Organizations of Ukraine code 20787166, whose profile is precisely digital services, programming, and digitalization activities. The necessary financial data for calculating the indicators for the years 2021-2022 for the IT company LLC "Softserve" are provided in Table 7 (absolute values in thousands of hryvnias).

Table 7. Financial statement data of LLC "Softserve". *(Source: calculated by the authors based on the financial statements (LLC "Softserve", 2023)*

LLC "Softserve"	31.12.2021	31.12.2022
Net profit (loss)	78,950	79,519
Gross profit (loss)	117,588	68,552
Net sales revenue	500,960	552,661
Administrative expenses	8,995	4,664
Operating expenses	410,307	508,130
Equity capital	157,993	237,512
Borrowed capital (total liabilities)	58,707	90,394
Total assets (balance sheet total)	216,700	327,906

The factor analysis model of the net profit for LLC "Softserve" is provided in Table 8.

Table 8. Factor analysis of the net profit of "Softserve". *(Source: calculated by the authors based on the financial statements (LLC "Softserve", 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	LLC "Softserve"	31.12.2021	31.12.2022
(N_1)	The indicator of the profitability of the realized products by net profit (Net profit / Net sales revenue)	0.157597413	0.143883864
(N_2)	Asset turnover ratio (Net sales revenue / Total assets (balance sheet total)	2.31176742	1.685425091
(N_3)	The multiplicative effect of equity capital (Total assets (balance sheet total) / Total assets (balance sheet total))	1.371579754	1.380587086
(N_4)	Financial stability coefficient (Equity capital / Borrowed capital (total liabilities))	2.691212292	2.627519526
(N_5)	Borrowed capital (total liabilities)	58,707	90,394
NI	Net profit	78,950	79,519
$\Delta NI(N_1) = 0.143883864 \times 2.31176742 \times 1.371579754 \times 2.691212292 \times 58707 - 78950 = -6869.939637$			
$\Delta NI(N_2) = 0.143883864 \times 1.685425091 \times 1.371579754 \times 2.691212292 \times 58707 - 0.143883864 \times 2.31176742 \times 1.371579754 \times 2.691212292 \times 58707 = -19529.12412$			
$\Delta NI(N_3) = 0.143883864 \times 1.685425091 \times 1.380587086 \times 2.691212292 \times 58707 - 0.143883864 \times 1.685425091 \times 1.371579754 \times 2.691212292 \times 58707 = 345.1084486$			
$\Delta NI(N_4) = 0.143883864 \times 1.685425091 \times 1.380587086 \times 2.627519526 \times 58707 - 0.143883864 \times 1.685425091 \times 1.380587086 \times 2.691212292 \times 58707 = -1251.887636$			
$\Delta NI(N_5) = 79519 - 0.143883864 \times 1.685425091 \times 1.80587086 \times 2.627519526 \times 58707 = 27874.84294$			
$\Delta NI = 79519 - 78950 = -6869.939637 - 19529.12412 + 345.1084486 - 1251.887636 + 27874.84294 = 569$			

The net profit of LLC "Softserve" in 2022 increased slightly compared to other analyzed companies in the IT sector, by 569 thousand UAH. The growth in net profit was driven by two factors: the multiplicative effect of equity capital (+345.1084486

DOI: 10.55643/fcaptp.1.54.2024.4229

thousand UAH to the company's net profit) and borrowed capital (+27874.84294 thousand UAH to the company's net profit).

The other factors of the model had a negative impact on the dynamics of net profit, particularly net profit decreased in the context of reduced asset turnover, the profitability of the realized products, and the financial stability coefficient. The factor analysis model of net income from sales for LLC "Softserve" is presented in Table 9.

Table 9. Factor analysis of net sales revenue of LLC "Softserve". *(Source: calculated by the authors based on the financial statements (LLC "Softserve", 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	LLC "Softserve"	31.12.2021	31.12.2022
(K_1)	Return on Assets ratio (Gross Profit / Total Assets)	0.542630365	0.209059914
(K_2)	The coefficient of administrative expenses to gross profit	0.076495901	0.068035944
(K_3)	The ratio of operating and administrative expenses	45.61500834	108.9472556
(K_4)	The ratio of net sales revenue to operating expenses	1.220939443	1.087637022
(K_5)	Total assets (balance sheet total)	21,6700	327,906
NIS	Net sales revenue	500,960	552,661
$\Delta NIS(K_1) = 0.209059914 \times 0.76495901 \times 45.61500834 \times 1.220939443 \times 216700 - 500960 = -307954.4826$			
$\Delta NIS(K_2) = 0.209059914 \times 0.068035944 \times 45.61500834 \times 1.220939443 \times 216700 - 0.209059914 \times 0.068035944 \times 45.61500834 \times 1.220939443 \times 216700 = -21345.17588$			
$\Delta NIS(K_3) = 0.209059914 \times 0.068035944 \times 108.9472556 \times 1.220939443 \times 216700 - 0.209059914 \times 0.068035944 \times 45.61500834 \times 1.220939443 \times 216700 = 238334.6093$			
$\Delta NIS(K_4) = 0.209059914 \times 0.068035944 \times 108.9472556 \times 1.087637022 \times 216700 - 0.209059914 \times 0.068035944 \times 108.9472556 \times 1.220939443 \times 216700 = -44763.33352$			
$\Delta NIS(K_5) = 552661 - 0.209059914 \times 0.068035944 \times 108.9472556 \times 1.087637022 \times 216700 = 187429.3827$			
$\Delta NIS = 552661 - 500960 = -307954.4826 - 21345.17588 + 238334.6093 - 44763.33352 + 187429.3827 = 51701$			

During the analyzed period, LLC "Softserve" increased its net revenue from sales by 51,701,000 hryvnias, which is significantly lower than other companies in the industry. The positive impact on the growth of this indicator was due to the improvement in cost structure (increasing the ratio of operational to administrative expenses) and the expansion of the company's operations (growth in total assets). However, the decrease in asset profitability, the ratio of net revenue from sales to operational expenses, and the ratio of administrative expenses to gross profit negatively affected LLC "Softserve's" net revenue from sales. To maintain a positive trend in net revenue from sales, it is essential to focus on the key indicator that reduces this analyzed figure - asset profitability and continue to expand business operations (total assets).

We will also analyze the company Ciklum (Ukraine) and build factor analysis models for its net profit and net income from sales. Table 10 provides the necessary financial statement data for the years 2021-2022 (in thousands of hryvnias).

Table 10. Financial statement data of Ciklum (Ukraine). *(Source: calculated by the authors based on the financial statements (Ciklum (Ukraine), 2023)*

Ciklum (Ukraine)	31.12.2021	31.12.2022
Net profit (loss)	65.164	96.320
Gross profit (loss)	236.066	276.076
Net sales revenue	4.063.443	4.819.083
Administrative expenses	148.996	150.359
Operating expenses	157.147	158.928
Equity capital	75.244	171.564
Borrowed capital (total liabilities)	163.942	322.807
Total assets (balance sheet total)	239.186	494.371

The calculations of coefficients and the factor analysis model for the net profit of Ciklum (Ukraine) are presented in Table 11.

Table 11. Factor analysis of the net profit of Ciklum (Ukraine). *(Source: calculated by the authors based on the financial statements (Ciklum (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	Ciklum (Ukraine)	31.12.2021	31.12.2022
(N_1)	The indicator of the profitability of the realized products by net profit (Net profit / Net sales revenue)	0.016036647	0.019987205
(N_2)	Asset turnover ratio (Net sales revenue / Total assets (balance sheet total)	16.98863228	9.747907948
(N_3)	The multiplicative effect of equity capital (Total assets (balance sheet total) / Total assets (balance sheet total))	3.178804955	2.881554405
(N_4)	Financial stability coefficient (Equity capital / Borrowed capital (total liabilities))	0.458967196	0.531475464
(N_5)	Borrowed capital (total liabilities)	163,942	322,807
NI	Net profit	65,164	96,320
$\Delta NI(N_1) = 0.019987205 \times 16.98863228 \times 3.178804955 \times 0.458967196 \times 163942 - 163942 = 16052.86839$			
$\Delta NI(N_2) = 0.019987205 \times 9.47907948 \times 3.178804955 \times 0.458967196 \times 163942 - 0.019987205 \times 16.98863228 \times 3.178804955 \times 0.458967196 \times 163942 = -34615.43845$			
$\Delta NI(N_3) = 0.019987205 \times 9.747907948 \times 2.881554405 \times 0.458967196 \times 163942 - 0.019987205 \times 9.747907948 \times 3.178804955 \times 0.458967196 \times 163942 = -4357.707013$			
$\Delta NI(N_4) = 0.019987205 \times 9.747907948 \times 2.881554405 \times 0.531475464 \times 163942 - 0.019987205 \times 9.747907948 \times 2.881554405 \times 0.458967196 \times 163942 = 6673.721368$			
$\Delta NI(N_5) = 96320 - 0.019987205 \times 9.747907948 \times 2.881554405 \times 0.531475464 \times 163942 = 47402.55571$			
$\Delta NI = 96320 - 65164 = 16052.86839 - 34615.43845 - 4357.707013 + 6673.721368 + 47402.55571 = 31156$			

Ciklum (Ukraine) is relatively smaller in terms of business activity compared to its competitors. The net profit of the business structure increased in 2022 by 31,156 thousand hryvnias, nearly 1.5 times. The growth in net profit was driven by an increase in borrowed capital (+47,402.56 thousand hryvnias), the financial stability coefficient (+6,673.72 thousand hryvnias), and the profitability of realized products (+16,052.87 thousand hryvnias). However, the asset turnover and the multiplicative effect of equity capital decreased, leading to a decrease in net profit.

The necessary calculations and the model for factor analysis of net revenue from sales for Ciklum (Ukraine) are presented in Table 12.

Table 12. Factor analysis of the net sales revenue of Ciklum (Ukraine). *(Source: calculated by the authors based on the financial statements (Ciklum (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	Ciklum (Ukraine)	31.12.2021	31.12.2022
(K_1)	Return on Assets ratio (Gross Profit / Total Assets)	0.986955758	0.558438905
(K_2)	The coefficient of administrative expenses to gross profit	0.631162472	0.544629015
(K_3)	The ratio of operating and administrative expenses	1.054706167	1.05699027
(K_4)	The ratio of net sales revenue to operating expenses	25.85759194	30.32242902
(K_5)	Total assets (balance sheet total)	239,186	494,371
NIS	Net sales revenue	4,063,443	4,819,083
$\Delta NIS(K_1) = 0.558438905 \times 0.631162472 \times 1.054706167 \times 25.85759194 \times 239186 - 4063443 = -1764267.337$			
$\Delta NIS(K_2) = 0.558438905 \times 0.544629015 \times 1.054706167 \times 25.85759194 \times 239186 - 0.558438905 \times 0.631162472 \times 1.054706167 \times 25.85759194 \times 239186 = -315220.923$			
$\Delta NIS(K_3) = 0.558438905 \times 0.544629015 \times 1.05699027 \times 25.85759194 \times 239186 - 0.558438905 \times 0.544629015 \times 1.054706167 \times 25.85759194 \times 239186 = 4296.51196$			
$\Delta NIS(K_4) = 0.558438905 \times 0.544629015 \times 1.05699027 \times 30.32242902 \times 239186 - 0.558438905 \times 0.544629015 \times 1.05699027 \times 25.85759194 \times 239186 = 343311.858$			
$\Delta NIS(K_5) = 4819083 - 0.558438905 \times 0.544629015 \times 1.05699027 \times 30.32242902 \times 239186 = 2487519.89$			
$\Delta NIS = 4819083 - 4063443 = -1764267.337 - 315220.923 + 4296.51196 + 343311.858 + 2487519.89 = 755640$			

DOI: 10.55643/fcaptp.1.54.2024.4229

Ciklum (Ukraine) increased its net revenue from sales in 2021-2022 by 755,640 thousand hryvnias, almost 20%. This growth was driven by the improvement of the company's cost structure and the increase in cost-efficiency (as indicated by the ratios of operating to administrative expenses and the ratio of net revenue from sales to operating expenses), as well as the expansion of total assets. The negative impact on net revenue from sales resulted from a significant decrease in asset profitability and the ratio of administrative expenses to gross profit.

We will also analyze Intellias (Ukraine) (LLC "Institute of Information Technologies "Intellias" (2023), with financial statement data (absolute figures in thousands of hryvnias) presented in Table 13.

Table 13. Financial statement data of Intellias (Ukraine). *(Source: Calculated by the authors based on the financial statements Intellias (Ukraine), 2023)*

Intellias (Ukraine)	31.12.2021	31.12.2022
Net profit (loss)	108,828	213,626
Gross profit (loss)	177,372	168,712
Net sales revenue	2,276,046	4,067,410
Administrative expenses	22,131	20,282
Operating expenses	2,151,856	3, 991,008
Equity capital	389,484	605,087
Borrowed capital (total liabilities)	240,681	813,007
Total assets (balance sheet total)	630,165	1,418, 094

The factor analysis model of net profit for Intellias (Ukraine) is presented in Table 14.

Table 14. Factor analysis of the net profit of Intellias (Ukraine). *(Source: calculated by the authors based on the financial statements (Intellias (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	Intellias (Ukraine)	31.12.2021	31.12.2022
(N_1)	The indicator of the profitability of the realized products by net profit (Net profit / Net sales revenue)	0.047814499	0.052521383
(N_2)	Asset turnover ratio (Net sales revenue / Total assets (balance sheet total)	3.611825474	2.868223122
(N_3)	Multiplicative effect of equity capital (Total assets (balance sheet total) / Total assets (balance sheet total))	1.617948362	2.343620008
(N_4)	Financial stability coefficient (Equity capital / Borrowed capital (total liabilities))	1.618258192	0.744258045
(N_5)	Borrowed capital (total liabilities)	240,681	813,007
NI	Net profit	108,828	213,626
$\Delta NI(N_1) = 0.052521383 \times 3.611825474 \times 1.617948362 \times 1.618258192 \times 240681 - 108828 = 10713.08457$			
$\Delta NI(N_2) = 0.052521383 \times 2.868223122 \times 1.617948362 \times 1.618258192 \times 240681 - 0.052521383 \times 3.611825474 \times 1.617948362 \times 1.618258192 \times 240681 = -24611.10934$			
$\Delta NI(N_3) = 0.052521383 \times 2.868223122 \times 2.343620008 \times 1.618258192 \times 240681 - 0.052521383 \times 2.868223122 \times 1.617948362 \times 1.618258192 \times 240681 = 42577.37328$			
$\Delta NI(N_4) = 0.052521383 \times 2.868223122 \times 2.343620008 \times 0.744258045 \times 240681 - 0.052521383 \times 2.868223122 \times 2.343620008 \times 1.618258192 \times 240681 = -74265.92585$			
$\Delta NI(N_5) = 213626 - 0.052521383 \times 2.868223122 \times 2.343620008 \times 0.744258045 \times 240681 = 150384.5773$			
$\Delta NI = 213626 - 108828 = 10713.08457 - 24611.10934 + 42577.37328 - 74265.92585 + 150384.5773 = 104798$			

Intellias (Ukraine) significantly increased its net profit by almost twice, with a growth of 104,798 thousand hryvnias in 2022. This increase was facilitated by the growth of the multiplicative effect of equity capital, the profitability of the realized products by net profit, and the increase in the volume of borrowed capital. However, asset turnover and the financial stability coefficient decreased. The factor analysis model of net income from sales and the necessary calculations for Intellias (Ukraine) are provided in Table 15.

Table 15. Factor analysis of the net sales revenue of Intellias (Ukraine). *(Source: calculated by the authors based on the financial statements (Intellias (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	Intellias (Ukraine)	31.12.2021	31.12.2022
(K_1)	Return on Assets ratio (Gross Profit / Total Assets)	0.281469139	0.118970957
(K_2)	The coefficient of administrative expenses to gross profit	0.124771666	0.120216701
(K_3)	The ratio of operating and administrative expenses	97.23266007	196.7758604
(K_4)	The ratio of net sales revenue to operating expenses	1.05771297	1.019143535
(K_5)	Total assets (balance sheet total)	630,165	1,418,094
NIS	Net sales revenue	2,276,046	4,067,410
$\Delta NIS(K_1) = 0.118970957 \times 0.124771666 \times 97.23266007 \times 1.05771297 \times 630165 - 2276046 = -1314010.264$			
$\Delta NIS(K_2) = 0.118970957 \times 0.120216701 \times 97.23266007 \times 1.05771297 \times 630165 - 0.118970957 \times 0.124771666 \times 97.23266007 \times 1.05771297 \times 630165 = -35120.47156$			
$\Delta NIS(K_3) = 0.118970957 \times 0.120216701 \times 196.7758604 \times 1.05771297 \times 630165 - 0.118970957 \times 0.120216701 \times 97.23266007 \times 1.05771297 \times 630165 = 948941.5569$			
$\Delta NIS(K_4) = 0.118970957 \times 0.120216701 \times 196.7758604 \times 1.019143535 \times 630165 - 0.118970957 \times 0.120216701 \times 196.7758604 \times 1.05771297 \times 630165 = -68402.99757$			
$\Delta NIS(K_5) = 4067410 - 0.118970957 \times 0.120216701 \times 196.7758604 \times 1.019143535 \times 630165 = 2259956.176$			
$\Delta NIS = 4067410 - 2276046 = -1314010.264 - 35120.47156 + 948941.5569 - 68402.99757 + 2259956.176 = 1791364$			

In 2021-2022, Intellias (Ukraine) increased its net sales revenue by 79% (+1,791,364 thousand hryvnias). This was facilitated by the improvement in cost management (the ratio of operating to administrative expenses) and the overall increase in the company's assets. However, the sales revenue to operating expenses ratio, asset profitability, and the ratio of administrative expenses to gross profit negatively affected the net sales revenue for Intellias (Ukraine).

We will also analyze the company Infopulse (Ukraine). The main financial data for Infopulse (Ukraine) (LLC "Infopulse") (2023) and the calculations of the necessary indicators for 2021-2022 (absolute figures in thousands of hryvnias) are presented in Table 16.

Table 16. Financial statement data of Infopulse (Ukraine). *(Source: calculated by the authors based on the financial statements Infopulse (Ukraine), 2023)*

Infopulse (Ukraine)	31.12.2021	31.12.2022
Net profit (loss)	342,492	512.606
Gross profit (loss)	844,291	923,179
Net sales revenue	2,663,542	3,351,636
Administrative expenses	280,133	440,456
Operating expenses	2,260,560	3,091,553
Equity capital	954,545	954,452
Borrowed capital (total liabilities)	243,590	188,659
Total assets (balance sheet total)	1,198,135	1,143,111

We will construct a factor analysis model of the net profit for Infopulse (Ukraine) (Table 17).

DOI: 10.55643/fcaptp.1.54.2024.4229

Table 17. Factor analysis of the net profit of Infopulse (Ukraine). *(Source: calculated by the authors based on the financial statements Infopulse (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	Infopulse (Ukraine)	31.12.2021	31.12.2022
(N_1)	The indicator of the profitability of the realized products by net profit (Net profit / Net sales revenue)	0.12858517	0.152942026
(N_2)	Asset turnover ratio (Net sales revenue / Total assets (balance sheet total)	2.22307336	2.932030223
(N_3)	Multiplicative effect of equity capital (Total assets (balance sheet total) / Total assets (balance sheet total))	1.255189645	1.197662114
(N_4)	Financial stability coefficient (Equity capital / Borrowed capital (total liabilities))	3.918654296	5.059138446
(N_5)	Borrowed capital (total liabilities)	243,590	188,659
NI	Net profit	342,492	512,606
$\Delta NI(N_1) = 0.152942026 \times 2.22307336 \times 1.255189645 \times 3.918654296 \times 243590 - 342492 = 64875.50961$			
$\Delta NI(N_2) = 0.152942026 \times 2.932030223 \times 1.255189645 \times 3.918654296 \times 243590 - 0.152942026 \times 2.22307336 \times 1.255189645 \times 3.918654296 \times 243590 = 129912.9381$			
$\Delta NI(N_3) = 0.152942026 \times 2.932030223 \times 1.197662114 \times 3.918654296 \times 243590 - 0.152942026 \times 2.932030223 \times 1.255189645 \times 3.918654296 \times 243590 = -24624.5003$			
$\Delta NI(N_4) = 0.152942026 \times 2.932030223 \times 1.197662114 \times 5.059138446 \times 243590 - 0.152942026 \times 2.932030223 \times 1.197662114 \times 3.918654296 \times 243590 = 149203.2565$			
$\Delta NI(N_5) = 512606 - 0.152942026 \times 2.932030223 \times 1.197662114 \times 5.059138446 \times 243590 = -149253.2039$			
$\Delta NI = 512606 - 342492 = 64875.50961 + 129912.9381 - 24624.5003 + 149203.2565 - 149253.2039 = 170114$			

The net profit of the company increased by one and a half times in 2022 (by 170,114 thousand UAH). This increase was attributed to the growth in the profitability of realized products by net profit, the financial stability coefficient, and the asset turnover. Other indicators in the model had a negative impact on the net profit of Infopulse (Ukraine).

The model of factor analysis of net income from sales for Infopulse (Ukraine) is presented in Table 18.

Table 18. Factor analysis of the net sales revenue of Infopulse (Ukraine). *(Source: calculated by the authors based on the financial statements Infopulse (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	Infopulse (Ukraine)	31.12.2021	31.12.2022
(K_1)	Return on Assets ratio (Gross Profit / Total Assets)	0.70467101	0.807602236
(K_2)	The coefficient of administrative expenses to gross profit	0.331796738	0.477107906
(K_3)	The ratio of operating and administrative expenses	8.069595514	7.0189826
(K_4)	The ratio of net sales revenue to operating expenses	1.178266447	1.084126974
(K_5)	Total assets (balance sheet total)	1,198,135	1,143,111
NIS	Net sales revenue	2,663,542	3,351,636
$\Delta NIS(K_1) = 0.807602236 \times 0.331796738 \times 8.069595514 \times 1.178266447 \times 1198135 - 2663542 = 389063.3247$			
$\Delta NIS(K_2) = 0.807602236 \times 0.477107906 \times 8.069595514 \times 1.178266447 \times 1198135 - 0.807602236 \times 0.331796738 \times 8.069595514 \times 1.178266447 \times 1198135 = 1336895.739$			
$\Delta NIS(K_3) = 0.807602236 \times 0.477107906 \times 7.0189826 \times 1.178266447 \times 1198135 - 0.807602236 \times 0.477107906 \times 8.069595514 \times 1.178266447 \times 1198135 = -571486.699$			
$\Delta NIS(K_4) = 0.807602236 \times 0.477107906 \times 7.0189826 \times 1.084126974 \times 1198135 - 0.807602236 \times 0.477107906 \times 7.0189826 \times 1.178266447 \times 1198135 = -305046.3336$			
$\Delta NIS(K_5) = 3351636 - 0.807602236 \times 0.477107906 \times 7.0189826 \times 1.084126974 \times 1198135 = -161332.031$			
$\Delta NIS = 3351636 - 2663542 = 389063.3247 + 1336895.739 - 571486.699 - 305046.3336 - 161332.031 = 688094$			

According to the five-factor model, we can see that the most significant positive impact on Infopulse (Ukraine)'s net sales revenue came from the increase in asset profitability, and the administrative expenses to gross profit ratio. The reduction

in the ratio of operating expenses to administrative expenses, the reduction in the total asset volume and the ratio of net sales revenue to operating expenses had a negative effect on the net sales revenue.

We will analyze Luxoft (Ukraine) last. Financial data and necessary calculations (absolute values in thousands of hryvnias) are provided in Table 19.

Table 19. Financial statement data of Luxoft (Ukraine). *(Source: calculated by the authors based on the financial statements (Luxoft (Ukraine), 2023)*

Luxoft (Ukraine)	31.12.2021	31.12.2022
Net profit (loss)	15,385	38,477
Gross profit (loss)	47,226	50,699
Net sales revenue	239,189	353,621
Administrative expenses	30,637	35,162
Operating expenses	231,036	344,371
Equity capital	196,082	234,237
Borrowed capital (total liabilities)	13,201	19,364
Total assets (balance sheet total)	209,283	253,601

The five-factor model for analyzing the net profit of Luxoft (Ukraine) is presented in Table 20.

Table 20. Factor analysis of the net profit of Luxoft (Ukraine). *(Source: calculated by the authors based on the financial statements (Luxoft (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	Luxoft (Ukraine)	31.12.2021	31.12.2022
(N_1)	The indicator of the profitability of the realized products by net profit (Net profit / Net sales revenue)	0.06432152	0.108808583
(N_2)	Asset turnover ratio (Net sales revenue / Total assets (balance sheet total)	1.142897416	1.394399076
(N_3)	The multiplicative effect of equity capital (Total assets (balance sheet total) / Total assets (balance sheet total))	1.067323875	1.082668408
(N_4)	Financial stability coefficient (Equity capital / Borrowed capital (total liabilities))	14.8535717	12.09651931
(N_5)	Borrowed capital (total liabilities)	13,201	19,364
NI	Net profit	15,385	38,477
$\Delta NI(N_1) = 0.108808583 \times 1.142897416 \times 1.067323875 \times 14.8535717 \times 13201 - 15385 = 10640.81621$			
$\Delta NI(N_2) = 0.108808583 \times 1.394399076 \times 1.067323875 \times 14.8535717 \times 13201 - 0.108808583 \times 1.142897416 \times 1.067323875 \times 14.8535717 \times 13201 = 5727.142145$			
$\Delta NI(N_3) = 0.108808583 \times 1.394399076 \times 1.082668408 \times 14.8535717 \times 13201 - 0.108808583 \times 1.394399076 \times 1.067323875 \times 14.8535717 \times 13201 = 456.5009308$			
$\Delta NI(N_4) = 0.108808583 \times 1.394399076 \times 1.082668408 \times 12.09651931 \times 13201 - 0.108808583 \times 1.394399076 \times 1.082668408 \times 14.8535717 \times 13201 = -5978.573257$			
$\Delta NI(N_5) = 38477 - 0.108808583 \times 1.394399076 \times 1.082668408 \times 12.09651931 \times 13201 = 12246.11397$			
$\Delta NI = 38477 - 15385 = 10640.81621 + 5727.142145 + 456.5009308 - 5978.573257 + 12246.11397 = 23092$			

As evident from the results of the factor analysis, Luxoft (Ukraine) significantly increased its net profit by 2.5 times in 2022 (+23,092 thousand hryvnias). The multiplicative effect of equity capital, asset turnover, profitability of realized products by net profit, and the total liabilities all increased, allowing for an expansion of business activities. However, the only decrease occurred in the coefficient of financial stability.

The factor analysis model for net income from sales of Luxoft (Ukraine) is presented in Table 21.

DOI: 10.55643/fcaptp.1.54.2024.4229

Table 21. Factor analysis of the net sales revenue of Luxoft (Ukraine). *(Source: calculated by the authors based on the financial statements (Luxoft (Ukraine), 2023) using the method of chain substitutions (Mishchuk et al., 2015)*

	Luxoft (Ukraine)	31.12.2021	31.12.2022
(K_1)	Return on Assets ratio (Gross Profit / Total Assets)	0.225656169	0.199916404
(K_2)	The coefficient of administrative expenses to gross profit	0.648731631	0.693544251
(K_3)	The ratio of operating and administrative expenses	7.541077782	9.793839941
(K_4)	The ratio of net sales revenue to operating expenses	1.035288873	1.026860566
(K_5)	Total assets (balance sheet total)	209,283	253,601
NIS	Net sales revenue	239,189	353,621
$\Delta NIS(K_1) = 0.199916404 \times 0.648731631 \times 7.541077782 \times 1.035288873 \times 209283 - 239189 = -27283.404811$			
$\Delta NIS(K_2) = 0.199916404 \times 0.693544251 \times 7.541077782 \times 1.035288873 \times 209283 - 0.199916404 \times 0.648731631 \times 7.541077782 \times 1.035288873 \times 209283 = 14637.86343$			
$\Delta NIS(K_3) = 0.199916404 \times 0.693544251 \times 9.793839941 \times 1.035288873 \times 209283 - 0.199916404 \times 0.693544251 \times 7.541077782 \times 1.035288873 \times 209283 = 67675.80785$			
$\Delta NIS(K_4) = 0.199916404 \times 0.693544251 \times 9.793839941 \times 1.026860566 \times 209283 - 0.199916404 \times 0.693544251 \times 9.793839941 \times 1.035288873 \times 209283 = -2395.244716$			
$\Delta NIS(K_5) = 353621 - 0.199916404 \times 0.693544251 \times 9.793839941 \times 1.026860566 \times 209283 = 61796.97824$			
$\Delta NIS = 353621 - 239189 = -27283.40481 + 14637.86343 + 67675.80785 - 2395.244716 + 61796.97824 = 114432$			

The net income from sales of Luxoft (Ukraine) increased by 114,432 thousand hryvnias (48%) in 2021-2022. The most significant factors contributing to this growth were the increase in the ratio of administrative expenses to gross profit, the ratio of net sales revenue to operating expenses, and the growth in the company's assets. On the other hand, factors such as the profitability of assets and the ratio of net sales revenue to operating expenses had a negative impact on the formation of net sales revenue.

As we can see, despite the challenges of the war and even taking into account inflation (consumer inflation in 2022 was 26.6% according to the National Bank of Ukraine (2023)), the analyzed companies increased their revenue from sales and net income. To maintain such financial performance and efficiency in the long term, leading IT companies need to consider the results of factor analysis and work to improve the indicators included in the models.

It's worth noting that the trials brought by COVID-19 and the full-scale attack by russia on Ukraine forced Ukrainian IT companies to make changes in management and develop new development strategies, which became a key to success even during times of war. The COVID-19 crisis and the experience of operating in the years 2019-2021 to some extent prepared the Ukrainian IT sector to function in times of war.

While the VIX (Volatility Index) and the Economic Policy Uncertainty Index (EPU) – which are markers of economic stability in the global market for Ukrainian companies – increased, they didn't spike as significantly as during the initial stages of the pandemic (McKinsey & Company, 2022). However, the IT industry had to adapt its operational and strategic activities to the new realities of war and the economy.

In our view, to ensure future business efficiency and resilience, it will be necessary to pay attention to the development of long-term company growth strategies. When developing these strategies, it's advisable to consider aspects that enhance the resilience and institutional stability of businesses, as suggested by McKinsey & Company: financial stability (ensuring liquidity, profitability, proper tax and risk management), operational stability (reliable service and supply, ensuring product quality even in adverse external conditions), organizational stability (talent development, staff retraining as needed, strategic planning), reputation stability (alignment and clarity of the company's mission, values, and goals; quality stakeholder communication, brand development), business model stability (innovation, building an ecosystem and forming alliances in business), and digital and technological stability (the ability to adapt to technological changes) (McKinsey & Company (2022)).

In the context of the Ukrainian situation, it's important to focus on additional risks associated with the war and directions for ensuring financial performance and strategic institutional stability. These include the need to ensure the physical safety of personnel and the company's physical assets and to enhance cybersecurity in response to the growing threat of cyberattacks. A key aspect is strengthening the social responsibility of businesses and developing the adaptability of managers at

all levels. They should be oriented towards achieving goals even in crisis conditions, maintaining good team relationships, and adapting to a dynamic and uncertain external environment.

DISCUSSION

To enhance the efficiency of IT company representatives' activities, it is important to utilize the results of factor analysis. The results of calculations based on the proposed factor analysis models confirm their scientific validity and practical value, allowing for an exploration of the factors contributing to the financial performance improvement of leading IT companies in Ukraine. In this study, we took into account expenditure structure, profitability, financial stability indicators, and other factors. Additionally, we examined the challenges and risks associated with the war.

The profitability of IT sector companies has been investigated by A. Polchanov (2023); however, their analysis primarily focused on the structure of financial capital, liquidity, and funding sources, within the period of the study up to 2020. Consequently, the risks associated with a full-scale invasion of russia into Ukraine were practically not considered. Hori-ashchenko Yu. (2023) examined the innovation activity of Ukrainian enterprises based on profitability indicators, but the analysis also covered the period preceding the full-scale war. Pavelyo O. V. (2020) conducted a factor analysis of the financial performance of construction companies using data from one of the industry's enterprises within the years 2015-2018.

The effectiveness of Ukrainian businesses and their preparedness to operate in wartime conditions, drawing from the experience of the COVID-19 pandemic, is analyzed by Obłój K. and Voronovska R. (2023). In our study, we also assert that the previous COVID-19 crisis somewhat prepared the IT industry for sustaining stability and financial performance during times of war.

Nerlinger M. and Utz S. (2022) investigate the impact of the war in Ukraine on the market value of energy companies. Issues related to conducting business in Ukraine during wartime and adapting enterprises to operate in wartime conditions have been explored by Kazak, O., & Sulyma, M. (2023). Kvasnii L. et al. (2023) examined the directions and scenarios for the development of the tourism industry enterprises in Ukraine during both wartime and post-war periods. In our research, we focused on net profit and net sales revenue as indicators of the financial performance of companies representing Ukrainian IT companies, with an emphasis on preserving institutional stability in the economy during times of war.

It's worth noting that, according to research conducted by consulting companies Gartner and Accenture, as well as the experience of operational management in IT companies worldwide, most companies today employ an Employer-centric HR approach. This approach prioritizes employees within the company's operational activities and involves establishing new productivity norms for the workforce. We have described the main challenges faced by Ukrainian companies, including their employees, in wartime conditions. However, our primary focus was on the financial performance indicators of these enterprises.

The proposed factor analysis models for net profit and net revenue from sales presented in this research can also be utilized by other IT companies and enterprises in different sectors of Ukraine's economy.

CONCLUSIONS

War presents significant challenges to Ukrainian IT companies, highlighting the importance of strategic adaptation to ensure their continued operations and financial performance in a rapidly changing external environment. The results of factor analysis of financial performance, based on the construction of multiplicative models for leading Ukrainian IT companies, indicate the significant influence of selected factors on the formation of net profit and net revenue from sales. In particular, the net profit of IT companies is influenced by the profitability of realized products by net profit, asset turnover, the multiplicative effect of equity capital, the financial stability coefficient, and the amount of borrowed capital. The net revenue from sales is influenced by asset profitability, the ratio of administrative expenses to gross profit, the ratio of operating expenses to administrative expenses, the ratio of net revenue from sales to operating expenses, and the total assets amount.

The developed factor analysis models serve as a tool for a comprehensive assessment of financial performance in the IT industry. The practical value of these models lies in identifying the priority factors that determine financial results and can be used by company management to maintain the strategic stability and efficiency of IT companies in Ukraine in the future.

DOI: 10.55643/fcaptp.1.54.2024.4229

Considering the conducted factor analysis of performance, the assessment of the state and risks of IT companies' operations in Ukraine, the relevant directions for enhancing the effectiveness of the IT sector in the face of wartime challenges should include: ensuring the security of business and personnel, developing operational and organizational resilience, optimizing cost structures, and enhancing the competencies of managers at different levels for working in teams under uncertainty and turbulent external conditions.

The challenges and risks of war require IT companies to systematically analyze threats, maintain financial and operational stability, and exhibit a high degree of flexibility in strategic management to ensure stability and efficiency in wartime conditions.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

Conceptualization: *Mariya Rubakha, Lesia Tkachyk*

Data curation: *Lesia Tkachyk, Nazar Demchyshak, Ruslan Yurkiv*

Formal Analysis: *Nazar Demchyshak, Ruslan Yurkiv*

Methodology: *Mariya Rubakha*

Resources: *Iryna Pryimak*

Supervision: *Iryna Pryimak, Ruslan Yurkiv*

Validation: *Nazar Demchyshak*

Investigation: *Mariya Rubakha, Iryna Pryimak*

Visualization: *Nazar Demchyshak*

Project administration: *Nazar Demchyshak*

Writing – review & editing: *Nazar Demchyshak*

Writing – original draft: *Mariya Rubakha, Lesia Tkachyk*

FUNDING

The Authors received no funding for this research.

CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

REFERENCES

1. Alcaide, M., De la Poza, E., & Guadalajara, N. (2019). The impact of corporate social responsibility transparency on the financial performance, brand value, and sustainability level of IT companies. *Corporate Social Responsibility and Environmental Management.* https://doi.org/10.1002/csr.1829
2. Almeida, F., Santos, J.D., & Monteiro, J.A. (2020). The Challenges and Opportunities in the Digitalization of Companies in a Post-COVID-19 World. *IEEE Engineering Management Review*, 48(3), 97-103. https://doi.org/10.1109/EMR.2020.3013206
3. Ciklum (Ukraine) (LLC "Ciklum") (2023). https://ciklum.com.ua/
4. DOU: Developer Community (2023). https://dou.ua/
5. EPAM (Ukraine) LLC "EPAM SYSTEMS" (2023). https://www.epam.com
6. Gartner Research (2022). IT Services Market View, 2021-2022. https://www.gartner.com/en/documents/4019000
7. GlobalLogic (Ukraine) (LLC "GlobalLogic Ukraine" (2023). https://www.globallogic.com/ua/
8. Horiashchenko, Yu. (2023). Assessment of the profitability of innovatively active enterprises of Ukraine. *Economic journal of Lesya Ukrainka Volyn National University, 1(*33), 111–115. https://doi.org/10.29038/2786-4618-2023-01-111-115
9. Infopulse (Ukraine) (LLC "Infopulse") (2023). https://www.infopulse.com/
10. Intellias (Ukraine) (LLC "Institute of Information Technologies "Intellias" (2023). https://www.intellias.ua/
11. IT Ukraine Association (2022) Do IT Like Ukraine. https://itukraine.org.ua
12. Kaura, P., Dharwal, M., Kaur, H., & Kaur, P. (2019). Impact of corporate governance on financial performance of information technology companies. *International Journal of Recent Technology and Engineering, 8(3),* 7460-7464.

https://www.ijrte.org/wp-content/uploads/papers/v8i3/C5603098319.pdf

13. Kazak, O., & Sulyma, M. (2023). Transformatsiia biznesu v Ukraini za rik viiny. *Yevropeiskyi naukovyi zhurnal Ekonomichnykh ta Finansovykh innovatsii, 1*(11), 140-150. https://journal.eae.com.ua/index.php/journal/article/view/190

14. Kraus, N., & Kraus, K. (2021). Digitalization of business processes of enterprises of the ecosystem of Industry 4.0: virtual-real aspect of economic growth reserves. *WSEAS Transactions on Business and Economics*, *18*, 569-580. https://doi.org/10.37394/23207.2021.18.57

15. Kvasnii, L., Moravska, O., Malyk, L., Shulzhyk, Yu., Orlova, O., & Shcherban, O. (2023). Stsenarii rozvytku pidpryiemstv turystychnoi industrii Ukrainy v umovakh voiennoho ta pisliavoiennoho periodiv. *Financial and Credit Activity Problems of Theory and Practice, 2*(49), 313–325. https://doi.org/10.55643/fcaptp.2.49.2023.3999

16. Kvitka, A., Kramarenko, A., Davydov, D., Pasmor, M., & Diachek, O. (2021). Digital business research for small and medium-sized enterprises: The case of Ukraine. *Problems and Perspectives in Management*, 19(1), 177-184. https://doi.org/10.21511/ppm.19(1).2021.15

17. Law of Ukraine (2021). On Stimulating the Development of the Digital Economy in Ukraine» dated July 15, 2021, No. 1667-IX. https://zakon.rada.gov.ua/laws/show/1667-20#Text

18. LLC "Softserve" (2023). https://www.softserveinc.com/uk-ua

19. Luxoft (Ukraine) LLC "Luxoft Ukraine" (2023). https://www.luxoft.com/

20. McKinsey & Company (2022). A defining moment: How Europe's CEOs can build resilience to grow in today's economic maelstrom. https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/a-defining-moment-how-europes-ceos-can-build-resilience-to-grow-in-todays-economic-maelstrom

21. McKinsey & Company (2022). War in Ukraine: Twelve disruptions changing the world. https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/war-in-ukraine-twelve-disruptions-changing-the-world

22. Melnyk, T., & Zavhorodnya, E. (2023). Konkurentni perevahy IT sektoru Ukrainy. *Zovnishnja torgivlja: ekonomika, finansy, pravo*, 1, 42-59. https://doi.org/10.31617/3.2023(126)04

23. Mishchuk, H., Dzhyhar, T., & Shyshkina, O. (2017). *Ekonomichnyi analiz*. Rivne NUVPH. https://kpdi.edu.ua/biblioteka/%D0%95/%D0%95%D0%BA%D0%BE%D0%BD%D0%BE%D0%BC%D1%96%D1%87%D0%BD%D0%B8%D0%B9%20%D0%B0%D0%BD%D0%B0%D0%BB%D1%96%D0%B7%20%D0%9C%D1%96%D1%89%D1%83%D0%BA%20%D0%93.%D0%AE..pdf

24. National Bank of Ukraine (2023). Statistics. https://bank.gov.ua/

25. Nerlinger, M., & Utz, S. (2022). The impact of the Russia-Ukraine conflict on energy firms: A capital market perspective. *Finance Research Letters*, 50. https://doi.org/10.1016/j.frl.2022.103243

26. Obłój, K., & Voronovska, R. (2023). How business pivots during a war: Lessons from Ukrainian companies' responses to crisis. Business Horizons, In Press, Journal Pre-proof. https://doi.org/10.1016/j.bushor.2023.09.001

27. Official website of the State Statistics Service of Ukraine. (2023). https://ukrstat.gov.ua

28. Ovsak, B., Korzh, M., & Ovsak, O. (2023). International Aspects of IT Business Development in Ukraine. *Scientific Bulletin of the National Academy of Statistics, Accounting and Audit, (1-2),* 85-95. https://doi.org/10.31767/nasoa.1-2-2023.09

29. Pavelko, O. (2020). Faktornyi analiz finansovykh rezultativ diialnosti budivelnykh pidpryiemstv: metodyka ta osoblyvosti provedennia. *Visnyk Natsionalnoho universytetu vodnoho hospodarstva ta pryrodokorystuvannia, 1*(89), 168-187. https://doi.org/10.31713/ve1202015

30. Polchanov, A., Vyhovska, N., Ostapchuk, T., & Diachek, S. (2023). Profitability determinants of companies in it industry: case of Ukraine. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu, 2,* 190 – 196. https://doi.org/10.33271/nvngu/2023-2/190

31. Sher, G. (2022). Investing in Ukraine's brains is vital for the country's post-war prosperity. *Atlantic Council.* https://www.atlanticcouncil.org/blogs/ukrainealert/investing-in-ukraines-brains-is-vital-for-the-countrys-post-war-prosperity/

32. Shpak, N., Karpyak, A., Rybytska, O., Gvozd, M., & Sroka, W. (2023). Assessing the business models of Ukrainian IT companies. *Forum Scientiae Oeconomia, 11*(1), 13–48. https://doi.org/10.23762/FSO_VOL11_NO1_2

33. Vikulova, A., & Savchuk, V. (2020). Perspektyvy rozvytku rynku IT-posluh v Ukraini. Prychornomorski ekonomichni studii*, 50.* http://bses.in.ua/journals/2020/51_2020/6.pdf

34. Volkova, N., Volchek, R., Haidaienko, O. et al. (2015). *Ekonomichnyi analiz.* Odesa: ONEU, Rotaprint. http://dspace.oneu.edu.ua/jspui/bitstream/123456789/5717/1/%D0%95%D0%BA%D0%BE%D0%BD%D0%BE%D0%BC%D1%96%D1%87%D0%BD%D0%B8%D0%B9%20%D0%B0%D0%BD%D0%B0%D0%BB%D1%96%D0%B7.pdf

35. Woodman, A. & Hodgson, L. (2022). Ukraine startups remain resolute amid Russian Invasion. *Pitchbook.* https://pitchbook.com/news/articles/ukraine-russia-invasion-startups-vc

36. Zayats, O., Yarema, T., Chornomaz, M. (2023). Notable characteristics of it industry development in Ukraine. *Economy and society,* 53. https://doi.org/10.32782/2524-0072/2023-52-20

DOI: 10.55643/fcaptp.1.54.2024.4229

Рубаха М., Ткачик Л., Приймак І., Демчишак Н., Юрків Р.

ФАКТОРНИЙ АНАЛІЗ ФІНАНСОВОЇ РЕЗУЛЬТАТИВНОСТІ ТА ФОРМУВАННЯ СТРАТЕГІЧНОЇ СТІЙКОСТІ УКРАЇНСЬКИХ ІТ-КОМПАНІЙ В УМОВАХ ВИКЛИКІВ ВІЙНИ

Українські ІТ-компанії, які є важливим сектором національної економіки, сьогодні стикаються з викликами та ризиками, пов'язаними з сучасними воєнними й несприятливими макроекономічними реаліями. Адаптація та зміцнення стратегічної стійкості й фінансової результативності українських ІТ-компаній стають ключовими завданнями в умовах війни. Метою дослідження є проведення факторного аналізу фінансової результативності ІТ-компаній та визначення ключових напрямів забезпечення стратегічної стійкості підприємств цієї галузі в Україні.

У статті проаналізовано основні загрози та проблеми, із якими зіткнулися українські ІТ-компанії; оцінено відповідні заходи, яких вони вживали для стабілізації роботи та забезпечення бізнес-процесів у 2021-2022 роках. Дослідження з використанням методів економічного аналізу на підставі побудови багатофакторних моделей мультиплікативного типу дозволило ідентифікувати фактори впливу на фінансову результативність українських ІТ-компаній у воєнних умовах. Зокрема побудовано п'ятифакторні моделі для аналізу зміни чистого прибутку та чистого доходу від реалізації для 7 провідних компаній галузі в Україні. Ключовими факторами моделей визначено структуру джерел фінансування, оборотність активів, рентабельність, структуру витрат та інші.

Доведено важливість формування стратегічної стійкості для українських ІТ-компаній в умовах воєнних викликів. Стратегічна стійкість бізнесу передбачає здатність компаній адаптуватися до несприятливих змін у зовнішньому середовищі та зберігати конкурентоспроможність. Визначено напрями формування стратегічної стійкості підприємств, зокрема в контексті забезпечення фінансової, операційної, організаційної стійкості, забезпечення фізичної безпеки бізнесу, стабільності бізнес-моделі, протистояння кіберзагрозам та соціальної відповідальності компаній. Аналіз факторів фінансової результативності з використанням методів економічного аналізу разом з оцінкою особливостей реагування компаній ІТ-сектора на виклики війни дасть змогу комплексно оцінити ризики та ухвалювати дієві управлінські рішення менеджменту бізнес-структур.

Ключові слова: факторний аналіз, ІТ-галузь, стратегічна стійкість ІТ-компанії, чистий прибуток, чистий дохід від реалізації, бізнес-моделі, структура витрат, фінансова результативність

JEL Класифікація: F19, C10, L86