IMPROVEMENT OF STRATEGIES AND PROCESSES FOR MANAGING ENTERPRISE COSTS UNDER CONDITIONS OF UNCERTAINTY

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Abstract. The paper examines the existing strategy and suggests ways to optimize it without changing the main direction of cost management for an enterprise. The purpose of the study is to summarize the theoretical foundations, research and substantiate effective approaches to strategic cost management on the example of an enterprise (financial institution) to identify optimal strategies and create recommendations for maximizing the financial efficiency and competitiveness of the institution in an unstable environment. The object of this study is the costs of an enterprise, and the subject of the study is the process of strategic management of enterprise costs on the example of PJSC Privat Bank. The study examined the structure of cost formation in the activities of financial institutions in various categories, including Ukrainian banks, and considered various cost management strategies. As a result, it has been found that the bank's strategy in the formation and allocation of costs affects its key indicators, profits, return on assets, asset liquidity ratios and competitiveness. Considering global trends and the results of foreign companies, a forecast was made to optimize PrivatBank's advertising and marketing expenses. One of the main objectives of the study is cost optimization, which implies minimization and redistribution of costs rather than their increase. The paper examines the existing strategy and suggests ways to optimize it without changing the main direction of cost management for the enterprise. The purpose of the study is to summarize the theoretical foundations, research and substantiate

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effective approaches to strategic cost management on the example of an enterprise (financial institution) in order to identify optimal strategies and create recommendations for maximizing the financial efficiency and competitiveness of the institution in an unstable environment. The object of this study is the costs of an enterprise, and the subject of the study is the process of strategic management of enterprise costs on the example of PJSC Privat Bank. The study examined the structure of cost formation in the activities of financial institutions in various categories, including Ukrainian banks, and considered various cost management strategies. As a result, it has been found that the bank's strategy in the formation and allocation of costs determines its key indicators, including profits, return on assets, asset liquidity ratios and competitiveness. The idea of minimizing the use of electricity by optimizing the operation of terminals and ATMs is analyzed. Considering global trends and the results of foreign companies, a forecast was made to optimize PrivatBank's advertising and marketing costs. One of the main objectives of the study is to optimize costs, which means minimizing and redistributing costs rather than increasing them. An analysis and improvement of strategic cost management on the example of a financial institution is relevant and helps to reduce the negative consequences of unforeseen situations and newly created risks, and, accordingly, the costs that may be associated with them. Improvements in combination with the existing strategy will ensure the company's high performance and maintain its leadership position in the era of innovation and technological progress.

1. Introduction

Society in the 21st century is characterized by an extremely fast pace of life, as evidenced by the dynamics of changes in technology development, fashion trends, cultural values, the requirements of modern society, business and entrepreneurship. In today's competitive business environment, effective cost management is critical to the sustainability and success of any business. In the context of the war, Ukraine's economy has been under considerable stress, reflected in rising inflation and affecting both manufacturing companies and financial institutions. Against the backdrop of constant change, the banking industry is facing increased competition, which requires continuous improvement of strategies and cost management

processes in an uncertain environment. Military actions provoke the use of reserves and cause additional costs for businesses and institutions, so optimizing cost management strategies is becoming an urgent issue.

Due to constant changes in the economic environment, including changes in the pricing policy of suppliers, rising energy prices and changes in consumer demand, businesses must constantly adapt to new conditions. In this context, a well-chosen cost management strategy becomes an important factor in the success of an enterprise, as it allows to effectively analyze, control and look for ways to optimize costs to maintain competitive advantages, ensure a stable financial position and maintain a position in the ratings.

The study of this problem on the example of a particular financial institution will allow identifying the most effective cost management strategies and developing recommendations for their improvement. A comparative analysis with the financial performance of competitors will help to identify the advantages and disadvantages of existing cost management strategies and determine the best recommendations for the further development of the institution.

Improving cost management strategies will lead to minimization and redistribution of costs into more profitable categories, which will allow a financial institution to manage resources more efficiently, invest in the development of new products and services, improve technology platforms and enhance customer service [1, 2]. Cost optimization through strategic management opens up a number of opportunities for financial institutions that are necessary to continue doing business under martial law. In particular, a well-thought-out strategy provides opportunities to free up resources for investing in new technologies, developing products and services, ensuring stability and growth of profitability, and, importantly, supporting employees in a crisis situation.

2. Analysis of existing cost management strategies in PrivatBank

Considering the strategies of cost formation and management of PrivatBank in previous years, it can be concluded that the bank combines a promising and anti-crisis direction. Despite the increase in costs, the bank continues to develop in the context of crisis policy and responds quickly to changes in the environment, which allows it to maintain its leading position

in the Ukrainian market and progress in the development and introduction of new banking services.

One of the strategic objectives of PrivatBank's interest rate risk management policy is to minimize and prevent possible financial losses that may arise from changes in interest rates. Due to changes in interest rates on its assets and liabilities, especially because of granting fixed interest rate loans for amounts and terms that differ from those of fixed interest rate liabilities, the bank is exposed to the risk of financial losses. To make a relevant assessment of this risk, PrivatBank performs stress testing based on the analysis of sensitivity of net interest income to changes in interest rates under the scenarios envisaged.

An important strategic task in managing the bank's expenses is to determine liquidity risk. PrivatBank is in a situation where the liquidity ratio is higher than the regulatory level, and tries to minimize this risk by maintaining a sufficient amount of high-quality liquid assets and limiting the concentration of borrowed funds. The Bank actively develops sources of funding, mainly through corporate and individual customers. Liquidity risk is controlled by compliance with regulatory standards for LCR and NSFR, setting limits and requirements for liquidity levels. A funding plan has been developed to maintain the indicators in crisis situations, which includes a list of possible causes and measures to eliminate these phenomena [3].

The Bank also determines the compliance risk, i.e. the likelihood of losses, sanctions, additional losses or reputational damage because of non-compliance with the requirements of legislation, regulations, market standards, fair competition rules, corporate ethics rules, conflicts of interest or violations of the Bank's internal documents.

The strategic objectives of PrivatBank's compliance risk management policy are to ensure an effective risk management system, which includes timely identification, measurement, monitoring, control, reporting and recommendations for risk mitigation. To achieve this goal, a compliance risk management system is created to prevent critical risk levels from being reached and to minimize its consequences, which, in turn, helps to avoid additional costs.

Reputational risk has an impact not only on the bank's direct operations, but also on increased costs. In other words, this risk implies the possibility of losses, additional losses or disruption of planned revenues as a result

of negative perception of PrivatBank's image and market position by customers, counterparties, shareholders, supervisory and regulatory authorities – all groups of stakeholders [4].

The strategic objectives of PrivatBank's reputation risk management policy are to implement an effective risk management system. Reputation risk assessment is carried out in accordance with the reputation risk management policy and other internal documents of the bank [5].

In the course of the Bank's activities, operational risk arises, i.e. there is a certain probability of losses or additional operating losses, failure to receive planned income as a result of deficiencies or errors in internal processes, intentional or unintentional actions of the Bank's employees or other people, failures in the Bank's information systems or the impact of external factors. Operational risk includes legal risk but excludes reputational risk and strategic risk. PrivatBank uses a balanced approach to operational risk management.

To ensure comprehensive and effective management of operational, legal and information risks, as well as implementation and operation of internal control and information security management systems, PrivatBank established the Operational and Information Security Risk Management Committee [6, 7].

Considering the formation of expenses in the reports and focusing on the bank's strategy, we can conclude that the bank combines both traditional costing methods and uses some borrowed from other foreign companies, such as direct cost and target cost in the context of digitalization of banking in Ukraine. All expenses are reported in monetary terms only, i.e. in millions of hryvnias, as PrivatBank is a financial institution and has the relevant specifics.

Let's look at the macroeconomic indicators that influenced the formation of cost items and cost management strategies at PrivatBank. In 2022, GDP declined by 30.4%, which exceeded the expected figures according to previous macroeconomic forecasts. In 2023, the forecasts for high security risks, reduced harvests, problems in the energy infrastructure and the costs required to restore it, real GDP growth is expected to be insignificant. At the outbreak of a large-scale war, the National Bank of Ukraine fixed the official hryvnia exchange rate to keep business and household expectations under control and kept the key policy rate unchanged at 10%. The fixed exchange

rate and the NBU's foreign exchange interventions played a key role in ensuring macro- financial stability in the banking market. Nevertheless, as time passed and the economy adapted to the war, and as citizens and businesses returned to economic stability and continued to operate in times of uncertainty, in June the NBU resumed active monetary policy and raised the key policy rate by 15 percentage points, bringing the target to 25%. These actions were necessary to protect hryvnia incomes and savings of citizens, increase the attractiveness of hryvnia assets, reduce pressure on the foreign exchange market, and, as a result, increase the NBU's ability to ensure exchange rate stability and curb inflation during the war [8].

Despite this growth in assets of Ukraine's leading banks, led by PrivatBank, net loans declined due to limited demand and increased credit risk costs, which meant an increase in non-performing loans. Due to significant provisioning and provisioning releases, banks were able to earn quarterly and annual profits, which allowed them to work on increasing interest and fee and commission income [9].

Considering the above macroeconomic indicators, a PESTLE analysis of PrivatBank was prepared, which considers the impact of political, economic, social, technological, legal and environmental factors on the bank's strategy and cost management.

To analyze the internal and external factors that influence the formation of the bank's cost strategy, an analysis of strengths, weaknesses, opportunities and threats to the operations of PJSC Privat Bank was carried out. Each factor was assessed for its significance and a total score was calculated.

The SWOT analysis shows that the strengths indicator has the highest score, but threats and weaknesses have higher scores than opportunities. This indicates that despite its top position and high performance, the bank is going through difficult times and should be prepared for challenges that entail additional costs. In the cost management strategy, this is described as making provisions for emergencies.

3. Efficiency and effectiveness of implemented cost management strategies in PrivatBank: positive and negative aspects

PrivatBank is a member of the Power Banking system, which allows banks to maintain their financial activities and continuous service delivery. Overall, having analyzed the data for 3 years of the bank's activity, we see

that despite the significant impact of the war and the crisis, the Privat Bank system remains operationally stable and liquid, while the bank's profits are the highest among the participants of the banking services market in Ukraine.

Considering the positive aspects of the cost management strategy, we can note the high level of financial risk management and the creation of the necessary reserves for emergency situations. As part of the financial risk mitigation program, the bank calculated the possible impact of exchange rate changes on income and expenses, respectively (Table 1) [3].

The table shows that the biggest impact on the bank's profits will be caused by changes in the US dollar and euro positions, as they will determine the hryvnia exchange rate, which is currently artificially maintained by the National Bank of Ukraine.

Table 1

Effects of possible changes in exchange rates against the Bank's functional currency

Event.	Effect on profit or loss or loss (before (before taxation) in millions of UAH	Impact on equity in UAH million
US dollar strengthened by 20%	-5 533	-5 533
Weakening of the US dollar by 5%	1 383	1 383
Euro strengthened by 10%	-75	-75
Euro depreciation by 5%	38	38
Strengthening of other currencies		
by 5%	-5	-5
Weakening of other currencies by		
5%	5	5

We can also note a significant decrease in staff salaries and wages, which was driven by a reduction in the number of employees from 2020 to 2022. This effect can be attributed to the digitalization of banking and, accordingly, the introduction of bots and automated application support, which reduced the need for the number of employees despite the opening of new branches. The number of new vacancies in the bank is also decreasing year on year in line with cost reductions. The combination of prospective and anti-crisis directions allows the bank to successfully combine cost formation

and management strategies, which allows it to develop in the face of crisis policy and respond quickly to changes in the environment. An important positive aspect of the bank's cost management strategy is interest rate risk management and monitoring and control of interest rate risk through GAP analysis.

GAP analysis allows the bank to assess the level of open interest rate risk by comparing potential changes in interest rates with the assets and liabilities of the balance sheet. This allows the bank's managers to make informed decisions on the use of financial instruments to protect against interest rate risk and maintain the stability of financial indicators [30].

It is also worth noting that despite the challenging times, the bank's cost management strategy allowed it to remain in a leadership position during the COVID-19 pandemic and the full-scale invasion. The bank has demonstrated its ability to remain a leader and effectively manage risks even in the most volatile of environments.

One of the bank's key achievements was the resolution of reputational, interest rate and operational risks, which was made possible by a comprehensive decision- making system and a well-designed risk management strategy. The bank has prepared an action plan to deal with potential crisis situations and created reserves that allowed it to respond effectively to any challenges and maintain financial stability. PrivatBank actively uses a system of risk monitoring and analysis that allows it to identify potential threats in a timely manner and take the necessary measures to prevent or mitigate their consequences. In addition, emergency action plans have been developed and implemented for each of the critical situations that may arise during the bank's operations.

Considering the negative aspects of the strategy, it can be assumed that when operating in an uncertain environment, it is difficult to estimate the number of provisions that will be required in the future and in the event of unforeseen situations. Therefore, despite the bank's success and sound policy, there are risks of increased costs in the coming years. The bank's strategy considers this possibility but does not propose ways to solve this problem and optimize costs. There is also a decline in staff motivation, which calls into question the quality and effectiveness of staff incentive programs and their costs. The SWOT analysis shows that there is a high staff turnover and low interest of the bank's employees in the development of the

corporation as such, which calls into question the correctness of the methods of reducing labor costs. Reducing the number of staff and replacing part of the support team with artificial intelligence and an automated response, although it reduces costs, is also marked by a rather controversial quality, which negatively affects customer satisfaction and affects the number of service users.

There is an increase in expenses in the categories of commission and administrative expenses, which indicates the intensive development and active operation of the bank. The increase in commission expenses may indicate an increase in the volume of financial transactions and the expansion of the range of services provided by the bank to its customers, such as the creation of a new service – "Envelope". Although the introduction of new services is a positive aspect for the bank, additional costs may weaken the bank's financial stability and competitiveness.

In general, we can note a decrease in interest expense, but an increase in other categories. This observation indicates a redistribution of expenses across different items in the bank's management activities in the crisis. In the light of inflation and the constant rise in the cost of resources, the bank will have to face additional costs for equipment, energy and utility bills. Unfortunately, it is impossible to reduce this category of expenses without implementing additional measures and creating a separate strategy for improving and reallocating costs at PrivatBank.

Thus, it can be noted that the strategic cost management system of PJSC Privat Bank shows high efficiency results, which allows the bank to develop actively despite competition, high inflation, high cost of resources and political instability. At the same time, the system has several significant drawbacks that need to be improved in the future, against the background of constant modernization and optimization of global technologies, in particular in the banking and fintech industry.

4. Developing strategic areas of cost management

The last three years of the bank's operations have been quite challenging and stressful, due to the development of the COVID-19 pandemic and the full-scale invasion of Ukraine. Nevertheless, the bank has been implementing an effective cost management strategy, which has enabled it to maintain its leadership position in banking. The increase in expenses was

due to the necessary investments to support staff families during martial law and the purchase of equipment to keep branches open during power outages. The bank was also able to reduce labor costs by introducing robotic and automated processes, such as chatbots and artificial intelligence for phone authentication, into its technical support capabilities.

Given the available data for the last three years, we can forecast a further reduction in the number of employees and, accordingly, in labor costs.

Table 2

Projected number of bank employees due to the introduction of digitalization and AI

Year	2020	2021	2022	2023	2024
Number of employees (thousand people)	22	20,5	18,7	16,9	15,27326

These calculations were made in view of the current trends of reducing the number of bank staff and investing in the development of artificial intelligence systems in the future, taking into account that despite the inevitable digitalization, some of the staff will be reduced, but the bank will open new vacancies.

Global trends show that more and more companies are introducing artificial intelligence into their operations, which can help to significantly reduce costs and optimize complex processes. In this regard, this strategy is quite logical, but not fully effective. Many PrivatBank clients have faced a situation where artificial intelligence incorrectly identified their identity by voice input and blocked access to their accounts. It is believed that the automated system is reliable and provides the highest possible level of security and fraud prevention, which should increase customer confidence. Instead, cases of malfunctioning AI systems and resulting customer dissatisfaction are on the rise, with videos circulating on social media showing more and more customers and businesses choosing to move their accounts to other banks and not doing business with PrivatBank.

Given PrivatBank's role, market share and influence on the Ukrainian banking system, it is not likely that this strategy will lead to a significant loss of the bank's position. At the same time, there is a certain reputational risk, which may be reflected in the attitudes of foreign partners and investors towards cooperation with PrivatBank and Ukrainian banking in general.

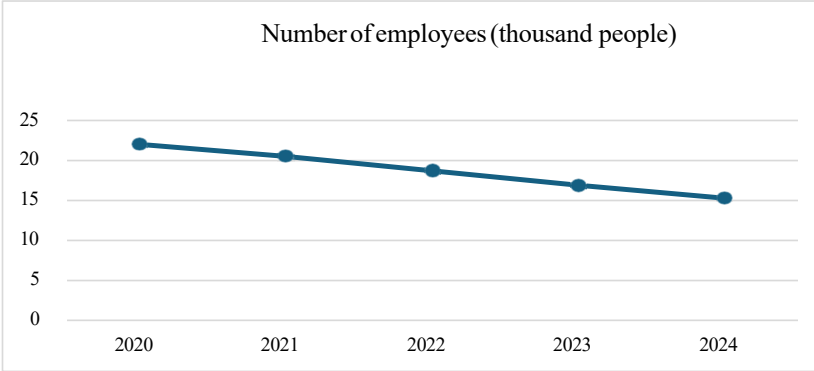

Figure 1. Trends in the number of employees in the context of remuneration

On the other hand, it is impossible not to note the positive aspects that PrivatBank will receive in the future in cooperation with developers of artificial intelligence programs for banking. This process can help reduce some of the costs of securitization, as this process will be controlled automatically by a specially developed program. Of course, it is important to take into account the costs of developing and updating this software, which may initially exceed the norm and negatively affect financial performance. However, looking at this strategy in the long term, artificial intelligence will become an indispensable tool for working with large amounts of data, risk assessment and business process optimization. This implementation is relevant for the banking sector, where accurate and fast analysis of a large amount of information is critical for efficient operation.

Artificial intelligence will help to monitor the economic situation of clients, analyze their investment strategies, credit history and financial accounts with unprecedented speed and accuracy. The use of machine learning and big data analytics algorithms allows automating decision-making processes, identifying risks, and predicting further developments. Today, it is thanks to this that fintech companies can respond quickly to changes in the market, adapt quickly to new conditions and provide personalized services to their customers. The use of artificial intelligence in the fintech sector simplifies decision-making processes, reduces risks

and increases the efficiency of companies. Thus, it provides a basis for investment in the development and improvement of optimal AI software at PrivatBank [10].

In light of the events of the full-scale war and the pandemic, the bank insurance industry is facing new challenges that require rapid adaptation and revision of approaches. According to insurance market representatives, these challenges include the loss of staff and customers due to migration, the rising cost of attracting new customers, and the need for accelerated digitalization of services [11].

These circumstances can be viewed as both challenges and opportunities for PrivatBank in the insurance business. Accelerated digitalization requires increasing the level of protection against fraud and working to improve customer convenience. In terms of promising technologies in the insurance sector, the key areas of investment should be artificial intelligence, personalization of services, development of mobile applications, use of blockchain and smart contracts, and enhancing data security against hacker attacks. The use of artificial intelligence can significantly speed up and clarify the process of determining the cost of property insurance. The way this system works is as follows: the bank receives a description and photos of the client's property, after which the system automatically calculates the cost of insuring their car, house and other valuable items. It is worth noting that artificial intelligence can conduct analytics based on customer transactions, which will allow the bank to simplify the process of lending to customers and create a special offer that is formed according to the customer's financial behavior [12].

You can also consider the option of optimizing advertising and marketing costs, taking an example from the British neobank Monzo, which uses artificial intelligence to conduct advertising campaigns for its products. The algorithm of this scheme is quite simple, but cost-effective – models have been created that can analyze a customer's history and, based on this, identify the categories of customers who are most likely to take advantage of additional offers, for example, to accept the bank's offer to open a savings account. If the first stage is successful, the system identifies specific customers who will receive clearly defined advertising messages, which will help maximize the effectiveness of the campaign. In the 21st century, people are so accustomed to information noise and many SMS messages,

reminders and emails that mass communication no longer yields results and is not an effective method of promoting services. Therefore, for effective promotion, it is important to use personalized communication, which can be easily organized by AI. Most of Monzo's advertising campaigns have shown a more than 2-fold increase in efficiency [13].

Thus, considering global trends and the results of foreign companies, it is possible to build a forecast for optimizing PrivatBank's advertising and marketing costs.

It was assumed that there is a correlation between the bank's advertising and online marketing costs, and that by improving the efficiency and optimization of advertising campaigns, costs can be reduced. Below in Fig. 2 below shows the assumptions for cost reduction depending on efficiency.

Table 3

Optimization of marketing costs in the case of different efficiency of AI

Advertising and marketing	2020	2021	2022	2023	2024
Efficiency of 10%	0,11	0,151	0,081	0,0729	0,06561
Efficiency of 25%	0,11	0,151	0,081	0,06075	0,045563
Efficiency of 45%	0,11	0,151	0,081	0,04455	0,024503

This strategy may be quite successful for PrivatBank, but it is necessary to take into account the need for upfront investment in the development and implementation of these AI programs. The calculations were based only on the assumption that advertising costs would be reduced if the idea was successful, without taking into account the investment in the development and purchase of the relevant AI, as this would be a separate item on the company's balance sheet and included in the improvement of technical support and investments, not in advertising and marketing costs.

In other words, it is possible to consider investing in technical support, which will allow the bank to significantly reduce costs through comprehensive optimization of many cost-effective processes and ensure that it maintains its top position and positive ratings. These implementations may also have a positive impact on the sentiments of foreign investors, who will see PrivatBank's commitment to innovation and technological solutions, which will encourage them to invest in the bank's development and create new partnerships. This cooperation will allow the bank to increase its revenues and, accordingly, will be reflected in the bank's profit.

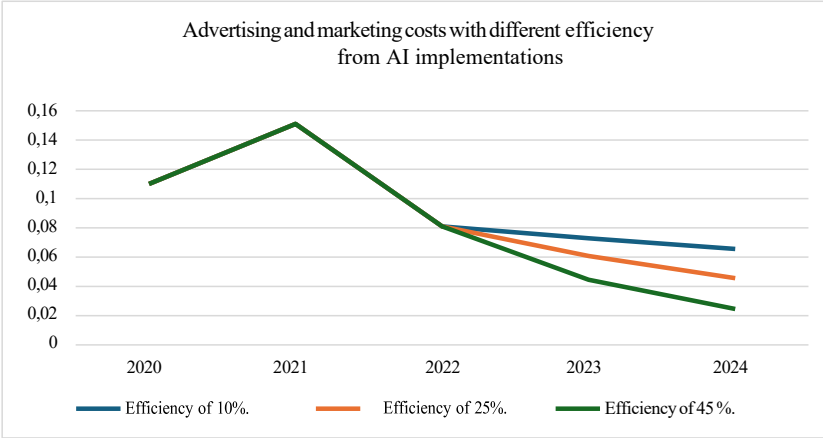

Figure 2. Bank expenses depending on the effectiveness of AI implementation in advertising

When considering PrivatBank's cost optimization strategy, attention should be paid to the electricity cost item. Due to electricity shortages, even with the stable operation of the power grid and the support of DTEK employees, the issue of electricity costs is very acute. Rising inflation in Ukraine is driving up energy prices, which leads to higher electricity tariffs and increased costs for businesses and enterprises. Therefore, it is important to find a way to minimize the costs of this item, which is possible by minimizing electricity consumption during times of low demand for the bank's services.

The activities of all bank departments are complex, so the option of reducing electricity costs should not affect their operations. There is a possibility of creating a situation where limiting the use of electronic devices or lighting in the premises to save energy will lead to a decrease in the productivity of employees in the departments, as work processes are heavily dependent on electronic systems and require a high level of lighting. It is also worth noting that there may be difficulties in conducting operations due to restrictions on the use of electronic devices that are essential for processing financial transactions, accounting and customer service.

Thus, this strategy excludes the reduction of electricity consumption in the activities of bank employees and work with clients. The focus of the idea is to minimize the use of electricity by the bank's devices, i.e. ATMs and self-service terminals. By reducing the amount of electricity used by these devices during their off- hours (i.e. when none of the bank's customers use the ATM/terminal), electricity costs can be reduced.

To minimize costs by reducing the use of electricity by terminals and ATMs, it is necessary to consider the option of implementing specially developed software to automate the switching off or switching to energy-saving mode of these devices when they are not used by the bank's customers.

Usually, when using terminals or ATMs, the screens displaying various options and user actions are highlighted. After the customer finishes using the device, the screens do not switch off and the ATM continues to operate offline. After 24 February 2022, a curfew was imposed in almost all regions of Ukraine, except for the Zakarpattia region, which affected customer activity when using payment terminals. ATMs and terminals located on the street or in public places could be used at any time, around the clock. The introduction of the curfew has reduced user activity, as people cannot move around the city at night, which means that terminals cannot be used at night. Meanwhile, ATM screens continue to work and light up around the clock, even though there is no activity at night. Thus, the large amount of electricity consumed by ATMs to illuminate the screen is wasted, leading to the idea of optimizing the operation of these devices and minimizing costs that are not beneficial to the bank's operations.

To minimize the cost of powering ATMs, it is necessary to introduce a system that will automatically switch off ATM screens when they are not in use and are in standby mode. There are several options for implementing this idea, including the development of software that automatically switches off ATMs and terminals during the night or when there is no user activity. Another possible option is to use technology to automatically switch off the backlighting of screens and put terminals into hibernation mode. It is also possible to install motion sensors so that when the user approaches the terminal, the screen automatically turns on and applications are launched. This option is more convenient in terms of creating a user-friendly interface, but more costly to implement. Therefore, for the first stage of minimization, you can consider switching off the screens and stopping the operation

of the terminals when they are not in use and using the user to manually switch on the device by pressing a button or inserting a card into the ATM. If this strategy is successful, the installation of motion detectors could be considered as a second step. To reduce electricity, use in branches, you can consider installing high-quality energy-saving lamps, which will reduce the amount of electricity used without compromising on the quality of lighting or disrupting employees' work routines.

A similar method of cost optimization can be applied by switching off illuminated signs outside of the opening hours of PrivatBank branches. This solution can be an important measure to reduce energy consumption, as customers will not be able to use the bank's services during non-business hours anyway, and therefore the illuminated sign will not have any marketing effect for banking. The solution is to install automatic timers that can control the switching off illuminated signs during certain periods of time, including during night or non-working hours of each branch. To implement such an idea, it is necessary to first analyze the working schedule and opening hours of the bank's branches. Based on this analysis, you can develop a schedule for automatically switching off the signage lighting, which will consider the opening and closing times of the branches. After the analysis is complete, you need to install the appropriate equipment, i.e. timers or special programs that will control the process of switching the signs off and on. Such equipment can be connected to the branch lighting system and set to automatically switch off the signage lighting at set periods of time. In this way, PrivatBank will be able to reduce electricity costs by reducing its consumption.

Table 4

Estimated utility costs for the implementation of the proposed solutions

Year	2020	2021	2022	2023	2024	2025	2026
Expenditures on utilities and business needs (UAH billion)	0,557	0,622	0,572	0,60632	0,58813	0,55872	0,52799

The above initiatives will help the bank not only to reduce electricity consumption but also to reduce carbon dioxide emissions into the

atmosphere, because with the reduction of electricity use, the amount of electricity for the enterprise decreases and, accordingly, if you reduce the amount of electricity that is generated by coal, fuel or gas (especially if we consider cases of power outages and electricity generation using generators), it will be possible to reduce the amount of CO2 emissions into the atmosphere, which can increase investor confidence, etc. In this context, it is worth considering reducing the impact of reputational risk by implementing environmental initiatives. Such initiatives are key for the bank not only from an environmental but also from an economic point of view. Reducing energy consumption and carbon dioxide emissions will help create an environmentally balanced business that meets modern global standards and at the same time helps save resources. The saved resources, including money, can be used for other development areas, including the introduction of the latest technologies, improving customer service and investing in optimizing the software using artificial intelligence and introducing artificial intelligence into the marketing of PJSC Privat Bank, which will reduce the company's costs in the long term [14].

These environmental initiatives can also be viewed as an opportunity to reduce the cost of press releases and interviews with bank representatives, as such initiatives increase not only the level of trust of investors and foreign partners, but also of the bank's individual and corporate clients, as they demonstrate a commitment to sustainable development and responsible attitude to the environment. Today, eco- business, environmental issues and compliance with ISO standards are gaining momentum as the problem is becoming more acute in the world amid global warming, holes in the ozone layer and high levels of air pollution. Therefore, for businesses that support and implement environmental initiatives, the factor of the bank's support for sustainable development goals and partial transition to green energy may be important. Thus, such consideration of environmental aspects in the bank's strategic decisions will help maintain its reputation and positive image among clients and consumers of financial services. It is worth noting that the implementation of environmental initiatives will allow the bank to solve the problem of reputational risk associated with unwanted emissions into the atmosphere, which will positively affect the bank's competitiveness and give it an advantage among competitors. In the context of reducing costs through environmentally friendly methods, it is also possible to

consider installing solar panels in the screens of ATMs and terminals, which can minimize the bank's electricity costs in the summer. Such a solution can minimize costs, as the energy accumulated by the ATMs during idle times can be used by the ATM when the customer uses it. This technology is based on the use of sunlight as a renewable energy source [15].

During the summer, solar panels installed in the screens of ATMs and terminals can effectively store energy from solar radiation. During inactive use of the ATMs, i.e. when there are no customers and the screens are switched off and inactive, the solar panels will automatically charge the batteries, which can then be used to power the ATMs during active use. Thus, the energy generated by solar panels will be used directly to power the ATMs, reducing the cost of electricity from standard sources. This is an innovative solution that will not only reduce the bank's operating costs but also improve its environmental footprint by helping to reduce environmental pollution and CO2 emissions.

Although the use of solar panels to power ATMs and terminals is a promising solution in terms of reducing energy costs and supporting the Green Deal, it also carries certain risks that may, on the contrary, cause additional costs and disruptions to the bank's operations. We can highlight the risk of weather conditions, security in times of instability, and the cost of installing such devices.

When considering the risk of weather conditions such as cloud cover or rain, it is important to understand that they can affect the efficiency of solar panels and reduce their electricity production. During cloud cover periods, the sun's rays are blocked by clouds, which leads to a decrease in the amount of sunlight reaching the panels. This leads to a decrease in the electrical potential of the panels and, consequently, a reduction in electricity production. During rain, raindrops can reflect some of the sunlight and cause contamination on the surface of the panels, which can lead to a decrease in their efficiency. As a result, when weather conditions deteriorate, insufficient solar exposure is created, which can reduce electricity production and lead to insufficient power supply to ATMs and terminals, especially in the absence of alternative energy sources. Thus, we can see that using solar panels alone to power the terminals is currently not possible.

Also, solar panels, like any other technical equipment, are at risk of vandalism and theft. As Ukraine is in a state of economic instability and

high anxiety among the population, especially during rocket attacks, unscrupulous people and thieves can use the state of panic to steal expensive bank equipment for resale. In other words, panels may be stolen due to their high cost and popularity on the black market. At the same time, vandals may try to destroy or damage the panels physically, for example, by breaking glass or damaging the chips inside the machines. Illegal interference can lead to serious damage or loss of equipment, which, on the contrary, will cause additional costs for the bank to replace or restore the equipment instead of minimizing costs. One option for protecting the panels could be to install a video surveillance system and alarm system that automatically alerts the bank to unwanted activity near the solar terminals. But such a monitoring and protection system also creates the risk of additional costs.

It is worth considering the cost of installing and maintaining solar panels, which consists of several components. First, you need to purchase the solar panels themselves, which can be quite expensive, especially when it comes to a large number of systems to cover the needs of a wide range of terminals and ATMs. The cost of panels can vary depending on their type, quality and efficiency. The cost of fitting and installing them to the terminals must be taken into account, which means additional costs for the work of technicians who can install these smaller panels correctly. This may include the costs of installation work, electrical work, cabling and grid connection. Specialized solar installers are often required to install solar systems, which can also increase costs. In addition, the panels need to be designed for the bank's needs, namely, to be of a shape and size suitable for use with terminals, which raises the issue of cooperation with the companies that manufacture the panels. Once installed, solar panels need to be maintained regularly to ensure their efficient operation. This includes periodically cleaning the panels from dust or other contaminants, checking and maintaining electrical components, and possible repairs in case of malfunctions. So, it is obvious that such maintenance and repair costs also need to be taken into account when assessing the overall cost of implementing solar panels.

As the world is now focused on preserving the environment and large companies are implementing many different measures to achieve carbon neutrality and reduce emissions and environmental damage in general, there are many companies and start- ups that are developing effective solutions to minimize energy consumption while also reducing costs and increasing

overall energy efficiency. In this context, we can consider collaborating with both foreign companies and Ukrainian green projects to create a unique product that will maximize the energy efficiency of PrivatBank, while minimizing the cost of electricity and other resources.

An example of such a collaboration is the cooperation with Ubess, which has offices in both Europe and Ukraine. Ubess creates customized turnkey energy storage solutions. The company develops special Energy Hubs that can be connected to both solar panels and power generators as needed. Energy Hub is an innovative solution that will allow PrivatBank to significantly reduce its energy costs and make its operations more efficient. By combining advanced LTO and LFP lithium-ion batteries, the Energy Hub can operate for up to 30,000 charge-discharge cycles and has a lifespan of up to 20 years. This solution does not require any intermediate devices for connecting to energy sources, which simplifies integration and reduces the cost of additional equipment during project implementation. The Energy Hub has several operating modes to meet a variety of needs, from generating revenue through frequency control and energy arbitrage to reducing peak loads and serving as a reliable backup power source. By directly connecting the panels to the hub without any additional inverters or optimizers, the Energy Hub simplifies setup and includes advanced features such as specialized inverter installations, advanced battery management systems and advanced fire suppression mechanisms to improve safety and efficiency. This is why this solution will allow PrivatBank to optimize its energy consumption and significantly reduce its energy costs, which will help it maintain its leadership position in the market [16]. In addition, to reduce utility bills, a strategy to minimize heating costs can be implemented by switching off the heating when employees finish their working day and then restarting the heating processes before the start of the new working day. To implement such a strategy, there are certain key aspects that will determine the success of this implementation. First, you need to install an automatic heating control system that will be programmed to switch off and on according to the employees' working hours. It is important to carefully analyze the work schedules of the branches to determine the optimal time to switch the heating on and off.

Once the strategy has been implemented, it is necessary to conduct communication activities with employees to explain how the new technology

works and its benefits. Monitoring energy consumption and analyzing the reduction in heating costs is an integral part of this implementation, as possible adjustments to the heating system schedule may be necessary.

The installation of an automated system will involve additional costs, but the result will be immediately noticeable and will reduce utility bills within 1-2 years. Under the best-case scenario, costs will decrease within a year, and under the realistic scenario, the project will show efficiency in minimizing costs within 2 years.

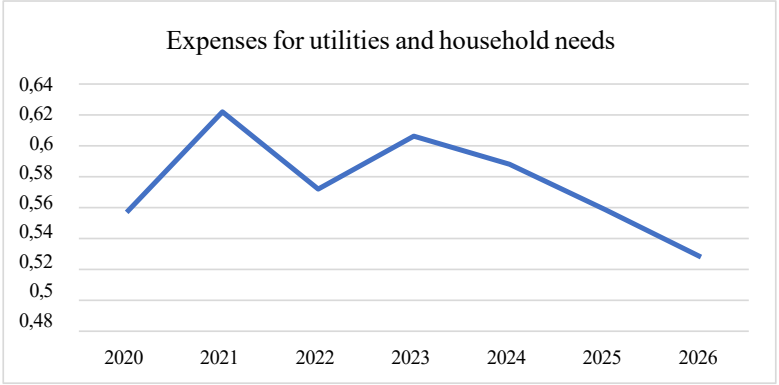

Figure 3. Reducing utility costs by optimizing heating and power supply systems

5. Comparison of recommendations with existing strategies of PJSC PrivatBank

Having reviewed the existing strategies of PrivatBank and identified their advantages and disadvantages, it is possible to draw a certain correlation with the shortcomings of the bank's cost management system and the proposed improvements. It is worth noting that the bank's cost management system needs to be improved and some changes in cost reallocation are introduced, rather than a radical overhaul. This comment is since despite the existing shortcomings that do not allow reducing the bank's expenses at the current stage, the strategic management system allows the bank to maintain its leading positions and demonstrates high efficiency and effectiveness.

This approach allows the bank to maintain stability and competitiveness in the market, avoiding radical changes that could affect its financial stability and reputation. Thus, we see that the bank should focus on identifying specific aspects of the cost management system that need to be improved and making the necessary adjustments to optimize financial processes and ensure sustainable growth in the future.

Compared to other banks, such as Oschadbank or Universal Bank, PrivatBank has higher stress resistance, profitability and asset liquidity. Oschadbank was chosen for comparison as it is a direct competitor of PrivatBank with the number 2 position in the NBU rating, although it has a much smaller market share. Universal Bank is ranked significantly lower than Oschadbank and Privat Bank, but is one of the favorites among consumers, which creates a strong consumer following. This popularity influences the transition of some of Privat Bank's clients, in particular after situations with the blocking of clients' accounts, to Monobank, which is a product of Universal Bank. These indicators reflect the high level of efficiency of financial resources management and high quality of customer service in unstable and disturbing times.

Table 5

Performance of Ukrainian banks by ranking Ministry of Finance for 4 quarters of 2023

Bank.	Stress resistance	Profitability	Liquidity
Privat Bank	3,45	5	5
Oschadbank	2,73	2,67	4
Universal Bank	2,91	4	4

Stress resilience is a key element of any bank's success, and higher stress resilience ratios indicate that PrivatBank has a well-deserved reputation for meeting its obligations to customers reliably and on time, in all situations. Liquidity indicates that PrivatBank has sufficient cash resources and the ability to quickly convert its assets into cash to meet any obligations to customers, and high profitability indicates the success of its financial operations and risk management (Figure 4).

One of the above-mentioned shortcomings in cost management by PrivatBank was the reduction of labor costs by introducing artificial

intelligence and technological bots. This solution was unsuccessful due to the inability of AI to meet the needs of customers at the same level as a customer support employee. To improve the state of such implementation, it was proposed to create a specially designed software system that would transfer the client from communicating with a bot to communicating with a human, i.e. a support agent, in case of unpleasant situations.

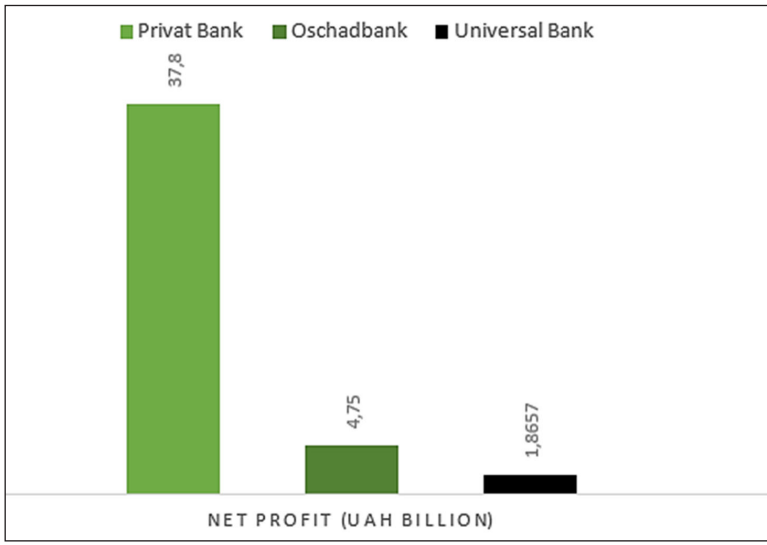

Figure 4. Comparison of net profit leading Ukrainian banks as of 2023

It is also important to focus not on replacing support agents with artificial intelligence, but instead on introducing it to speed up other areas of the bank's operations, such as creating individual insurance programs, developing new innovative marketing campaigns, and personalized advertising of the bank's services. Such use of AI systems can be more effective, as a potential customer does not directly encounter live communication when consuming advertising content or reading and searching for information about a certain type of service that can be provided by. Therefore, by implementing an AI system that creates and sends personalized content and individual offers based on it, customers will have a more positive attitude towards the bank's

service. Instead, when a user receives a response from a robot or a chatbot that does not understand the essence of their problem or complaint, the customer has a negative perception of the service and thinks about finding alternative solutions or switching to another bank.

In the context of cost reduction, looking at the graph in Figure 4, we see that based on the experience of foreign companies, the preliminary forecast for the introduction of AI in advertising and marketing is positive and will help to significantly increase the effectiveness of campaigns while reducing costs. The only negative aspect of this proposal is the preliminary costs of purchasing and developing a technology that will meet all quality standards and provide a decent level of customer service.

Now it is worth considering the second drawback that the current cost strategy does not address, namely the rising costs of equipment and utilities, in particular heating and electricity. Since the situation is not favorable for forecasting a reduction in inflation to an acceptable level, alternative methods of reducing (or at least keeping at the current level) these cost items should be considered. To address this issue, a two- stage strategy to reduce electricity costs was developed with a focus on the European Green Deal. This strategy allows the bank not only to reduce electricity costs but also to reduce reputational risk by becoming one of the companies that consciously strives for sustainable development and environmental support.

The first stage of this strategy is to introduce an automated mode for switching off the backlighting of terminal and ATM screens and the illumination of signage at branches after hours. This will help minimize energy costs by 10-15%, as terminals and ATMs are not used at night, as the curfew restricts customers' movement on city streets. This stage is aimed at reducing costs, so the savings can be invested in the development of the second stage or the implementation of a program to introduce AI into advertising and customer insurance processes.

The implementation of the second stage of such a system will be more costly and require investments, but if successfully implemented, it will allow the bank to achieve high energy savings, which will minimize utility costs. Possible collaborations with companies aimed at creating innovative solutions will allow the bank to improve its reputation among foreign investors and partners and make the bank more attractive. Based on the results of the PEST analysis, we can conclude that such implementation

will significantly affect PrivatBank's position in the international market, as political instability in the country significantly reduces investor sentiment towards PrivatBank.

Similarly, a proposal for heating automation can be included in the bank's overall cost management strategy, which can also have a positive impact on the bank's desire to reduce costs. Automation of heating will allow the bank to effectively manage energy consumption, considering various factors such as weather conditions, working hours and staff comfort requirements. By installing an automatic heating control system, the bank can rationalize its energy use, which will help prevent excessive heating of the premises during off-hours or when the premises are not in use. This will not only save on heating costs but also help reduce the bank's energy dependence and carbon footprint.

Thus, it can be concluded that after analyzing the existing cost management strategies at PrivatBank, it is necessary to note the high performance and efficiency of the strategies, which nevertheless require improvements for the further successful functioning and development of the bank. When considering cost optimization and minimization, several ideas have been proposed that are directly related to addressing the existing shortcomings of the cost management strategy, without changing the overall process. Each of the proposed strategies should help the bank to reduce costs and ensure the introduction of innovations in the cost management system.

7. Conclusions

The study of strategic cost management on the example of a banking institution has helped to identify the most effective principles and methods of cost optimization aimed at improving the efficiency of banking activities. The analysis of practical examples of the use of cost management strategies on the example of Privat Bank confirmed their impact on achieving competitive advantages and ensuring a stable financial position, as its cost management strategy in a crisis allowed it to remain a leader among the top banks in Ukraine with a market share of 22.4% by net assets. Thus, a systematic approach to strategic cost management based on data analysis, planning and control is an effective tool for optimizing a bank's financial performance. An important component of successful cost management in a

bank is maintaining a high level of risk management and strategic planning aimed at rational use of resources and implementation of innovative approaches to development. Further research in this area was aimed at studying specific aspects of cost management in the banking sector, considering internal and external factors affecting the financial performance of PrivatBank.

The existing cost management strategy of PrivatBank PJSC for 2022-2023 showed a high level of efficiency, which was reflected in the economic stability during martial law, thanks to the use of accumulated reserves. Privat Bank has managed to address reputational, interest rate and operational risks through systematic decision- making and strategic risk management. Preliminary planning of actions in potential crisis situations and formation of reserves ensured an effective response to new challenges, which ensured the preservation of the bank's high ratings. Reallocation of expenses to support employees' families and purchase of necessary technical equipment allowed PrivatBank to continue operations during power outages, which strengthened customer confidence in the bank. The introduction of artificial intelligence in customer support services allowed PrivatBank to cut labor costs and reduce the number of employees, while negatively affecting the attitude of some retail and corporate customers to the bank.

To remedy this situation and improve the shortcomings of the existing cost management system, a number of solutions of varying complexity were proposed. The introduction of optimized energy management systems for terminals and ATMs, as well as automated heating control in branches, will allow PrivatBank to not only reduce energy costs but also move towards the European Green Deal, reducing the negative impact on the environment. In the context of cost management, such changes are key, as the savings on electricity costs will allow the bank to generate new reserve funds to invest in improving artificial intelligence technologies and expanding the risk management department. To reduce the costs associated with reputational risks, an analysis of foreign banks, their implementations and results was carried out. Based on this study, a proposal was made to introduce artificial intelligence not in customer support services, but in the process of generating personalized offers and advertising generated depending on the

client's transaction history, which should provide up to 10-20% efficiency and reduce the bank's PR and advertising costs.

Thus, the existing strategy was studied and ways to optimize it were proposed without changing the main direction of cost management for PJSC Privat Bank. The improvements, combined with the existing strategy, will ensure the company's high performance and maintain its leadership position in the era of innovation and technological progress.

References:

1. Koba O.V., Myronova Y.Y. Enterprise costs and their classification for the needs of management and economic analysis. *Accounting, analysis and audit*. 2016. No. 4. P. 99-103.

2. Chorna M.V., Smirnova P.V., Bugrimenko R.M. Cost management: a textbook. 2017. 166 p.

3. Annual report of Joint Stock Company Commercial Bank "Privatbank" 2022. Privat Bank: website. 2022. URL: https://static.privatbank.ua/files/dod1_01052023_2022.pdf (accessed 22.03.2024).

4. Zanora V.O., Enterprise management: planning of technological costs, risk management, motivation, management decision-making. Kyiv: Igor Sikorsky Kyiv Polytechnic Institute, Polytechnic Publishing House, 2017. 224 p.

5. Accounting in the cost management system. *Effective economy.* 2018. № 7.

6. Development Strategy of JSC CB "PrivatBank" until 2024. PrivatBank. URL: https://static.privatbank.ua/files/02022022_strategy_summary_2024.pdf (accessed 22.03.2024).

7. Minimum capital requirements for operational risk. National Bank of Ukraine. 2019. URL: https://bank.gov.ua/admin_uploads/article/Operational_risk_2019-10_pr.pdf?v=7 (accessed 22.03.2024).

8. Macroeconomic indicators. National Bank of Ukraine. URL: https://bank.gov.ua/ua/statistic/macro-indicators (accessed 22.03.2024).

9. National Bank of Ukraine. Banks have maintained customer confidence, high operational efficiency and profitability in the face of prolonged war – Banking Sector Review. National Bank of Ukraine. URL: https://bank.gov.ua/ua/news/all/banki-v-umovah-trivaloyi-viyni-zberegli-doviru-kliyentiv-visoku-operatsiynu-efektivnist-ta-pributkovist--oglyad-bankivskogo-sektoru (accessed 22.03.2024).

10. How AI and Open Banking have influenced the development of fintech in Ukraine – analytics. PaySpace Magazine. URL: https://psm7.com/uk/fintech/kak-ii-i-open-banking-povliyali-na-razvitie-fintexa-v-ukraine-analitika.html (accessed 22.03.2024).

11. Artificial intelligence and other challenges: how digital banking is transforming in Ukraine – Fintech Insider Fintech Insider – Be the first to know. URL: https://fintechinsider.com.ua/shtuchnyj-intelekt-ta-inshi-vyklyky-yak-czyfrovyj-banking-transformuyetsya-v-ukrayini/ (accessed 22.03.2024).

12. Artificial intelligence instead of bank employees. What can customers expect in the near future? LIGA. URL: https://www.liga.net/ua/economics/opinion/iskusstvennyy-intellekt-vmesto-bankovskih-rabotnikov-chego-ojidat-klientam (accessed 22.03.2024).

13. AI in banking and finance. Stripe, Monzo, and Grab | Firmbee. Firmbee. URL: https://firmbee.com/ai-in-banking-and-finance#thirdparagraph (accessed 22.03.2024).

14. European Green Deal. Ecoaction. URL: https://ecoaction.org.ua/ievropejskyj-zelenyj-kurs.html (accessed 22.03.2024).

15. Promising technologies of photovoltaic solar energy. Razumkov Centre. URL: https://razumkov.org.ua/statti/perspektyvni-tekhnologii-fotoelektrychnoi-soniachnoi-energetyky (accessed 22.03.2024).

16. UBESS – Energy Storage Hubs for Brighter Future. UBESS. URL: https://ubess.com/ (accessed 22.03.2024).

17. Financial results of Universal Bank. Ministry of Finance – all about finance: news, exchange rates, banks. URL: https://minfin.com.ua/ua/company/universal-bank/rating/ (accessed 22.03.2024).

18. Financial results of Privatbank. Ministry of Finance – all about finance: news, exchange rates, banks. URL: https://minfin.com.ua/ua/company/privatbank/rating/ (accessed 22.03.2024).

19. Financial results of Oschadbank. Ministry of Finance – all about finance: news, exchange rates, banks. URL: https://minfin.com.ua/ua/company/oschadbank/rating/ (accessed 22.03.2024).