



Improvement of methodological approaches to financial analysis of fixed assets of the enterprise

Mejora de los enfoques metodológicos para el análisis financiero de los activos fijos de la empresa

GOLOVETSKY, Nikolay Y. [1](#); IVANOVA, Elena V. [2](#); GALIY, Elena A. [3](#); VYPRYAZHKINA, Irina B. [4](#) & LEBEDEVA, Olga Y. [5](#)

Received: 20/02/2019 • Approved: 25/09/2019 • Published 07/10/2019

Contents

[1. Introduction](#)

[2. Methods](#)

[3. Results](#)

[4. Discussion](#)

[5. Conclusion](#)

[Bibliographic references](#)

ABSTRACT:

The article is devoted to the development of approaches to improving the financial analysis of fixed assets of the enterprise. The study has allowed to conclude that it is inappropriate to include the cost of repairs in the cost of fixed assets, since the number of current and overhaul repairs directly depends on the quality of fixed assets. The study of the structure and analysis of financial sources for renewal of fixed assets has allowed to identify alternative renewal options.

Keywords: financial analysis, leasing, depreciation, fixed assets

RESUMEN:

El artículo está dedicado al desarrollo de enfoques para mejorar el análisis financiero de los activos fijos de la empresa. El estudio ha permitido concluir que es inapropiado incluir el costo de las reparaciones en el costo de los activos fijos, ya que el número de reparaciones actuales y de revisión depende directamente de la calidad de los activos fijos. El estudio de la estructura y el análisis de las fuentes financieras para la renovación de activos fijos ha permitido identificar opciones alternativas de renovación.

Palabras clave: análisis financiero, leasing, depreciación, activos fijos

1. Introduction

Improvement of the material and technical base is one of the main conditions for the progressive development of any society. As such, increasingly more attention at the present stage of economic development is paid to studying the factors leading to the preservation of a significant part of the obsolete and physically worn out tools among the existing work equipment.

One of the key challenges the economy faces is the efficient use and restoration of fixed assets. The solution to this problem is hampered by the crisis of payments, the catastrophic shortage of working capital, and the lack of investment. Besides, it must be noted that the domestic and foreign markets offer a sufficient amount of machinery and equipment vital for enterprises, but they lack funds to acquire them.

A decrease in the amount of funds allocated for the renewal of fixed assets during the years of economic reforms must be noted. This led to a limitation of their purposeful influence on the overall reproduction of material and technical resources. This necessitates the development of a financial management strategy, which can ensure their actual renewal and efficient operation.

O.V. Butorina (2016), G.M. Kalashnikova(2018), N.S. Mikhailenko(2015), L.S. Mokina(2018), A.M. Morozova(2015), E.V. Nikulina(2016), and others studied the problems of improving approaches to the financial analysis of fixed assets of the enterprise. Despite the considerable attention of scientists to the issues of financial analysis of fixed assets, there are not enough works in the scientific literature devoted to the study of the role of fixed assets in the system of the enterprise financing, optimization of their structure, and evaluation of efficiency.

Most researchers focus their attention on the issues of evaluating the structure of fixed assets in the enterprise, its impact on the equity efficiency, and the financial condition of the enterprise in general. Issues of disclosure of the concept of fixed assets, development of methods for optimizing the structure of fixed assets, and evaluation of the efficiency of their generation and use remain debatable.

2. Methods

The methodological basis of the study includes the systematic approach, methods of scientific abstraction, analysis and synthesis, the dialectical method of knowledge of economic phenomena, and provisions of fixed assets management. The article used the following methods to solve individual problems: theoretical generalization, logical method, methods of scientific abstraction, associations and analogies to study and summarize the methodological foundations of the management of fixed assets, and the methods of system analysis, generalization, and comparison to study methodological approaches and methods for diagnosing the efficiency of fixed assets management.

The information base of the study includes laws and regulations, statistical materials of state authorities and local governments, as well as scientific publications of domestic and foreign scientists on the problems of evaluating the efficiency of fixed assets in the enterprise under modern conditions (Kolupaev et al., 2017; Markova et al., 2018; Saadulaeva et al., 2018).

The plans of the study include the development of approaches to managing fixed assets in the enterprise and substantiating methodological approaches to the financial analysis of fixed assets of the enterprise. Besides, there is a task to justify approaches to assessing the factors of financial development of the enterprise and determine and formulate the main areas of increasing the efficiency of using fixed assets in the enterprise.

3. Results

A study of various definitions of fixed assets of the enterprise allows to note that fixed production assets constitute a part of fixed assets of the enterprise, which is materially reflected in the work equipment, retains its shape for a long time, transfers part of its value to the value of products, and is reimbursed only after multiple production cycles.

The article examines the impact of fixed assets on profitability through the indicators of capital productivity and turnover, because they provide reliable data on the efficiency of the existing fixed assets and normalized working capital, which reflect the state of financial management of fixed assets. It must be noted that the existing system for finding the profitability index predetermines the following pattern: the profitability level depends on the production growth and changes in the size of fixed assets and normalized working capital.

At the same time, an increase in the value of fixed assets reduces the profitability level. However, this leads to incorrect conclusions and does not reflect the real picture of the fixed assets use in the enterprise. The introduction of new technology, advanced equipment, and use of high-quality materials and raw materials are the main points in improving production efficiency.

In turn, this has a positive effect on the level of profitability, and therefore a change in the amount of profit and fixed assets cannot be considered the only factor influencing the level of profitability. These quantitative indicators have their qualitative reflection as profits per ruble of marketable output, capital productivity, and turnover. The capital productivity, turnover, and profit per ruble of marketable output directly affect the profitability and reflect the real picture of the fixed assets efficiency, which leads to an increase in the profitability level.

The formula for calculating the profitability factor, where the value of the sales volume is

replaced by the marketable output, is as follows:

$$K = \frac{P}{F+E} = \frac{\frac{P}{N}}{\frac{F}{N} + \frac{E}{N}} \quad (1)$$

where K is the profitability factor, P is the balance profit, F is the fixed assets, E is the normalized working capital, and N is the marketable output.

Formula 1 allows to measure the effect of qualitative factors on the profitability level using the method of chain substitutions. The calculation results reveal the profitability level changed in the case of a change in profit by one ruble of marketable output by 4.72 %, a decrease in the capital productivity ratio for fixed assets by 2.79 %, and an increase in the turnover ratio of normalized working capital by 0.4 %, which totals to 7.11 %.

The analysis of changes in the profitability level depending on the volume of fixed assets, as well as indicators of their efficient use results in two characteristics of the influence of factors. The authors believe that the calculation of the factors of capital productivity, turnover and profit per ruble of marketable output allows to determine more reliable impact on the profitability level. These factors reflect the inefficient use of fixed assets. As a result, the profitability level depends primarily on the value of capital productivity by 30-40 %, on the speed of the working capital circulation, and on the amount of profit per ruble of marketable output by 50-60 %.

It is advisable to note that the financial management of fixed assets should be aimed at their more efficient use. In order to improve it, the authors explored the organization of accounting for fixed assets and proposed measures for its improvement. One of the objectives of improving the organization of management of fixed assets is to improve the financial mechanism for transferring the cost of production equipment and mechanisms to the value of the output.

The study allowed to analyze the existing and working methods of depreciation deductions by the example of the main production facility, the initial cost of which was 46,000 rubles (Table 1).

Table 1
Comparative data for calculating the depreciation deductions by various methods, rub.

Year	Methods for calculating depreciation									
	Current		Accelerated		Linear		Cumulative		Combined	
	Standard	Amount	Standard	Amount	Standard	Amount	Standard	Amount	Standard	Amount
1st	15	4,990	15	6,900	12.5	5,750	8/36	10,220	25	11,500
2nd	15	5,810	30	13,800	12.5	5,750	7/36	8,940	25	8,630
3rd	15	4,990	20	9,200	12.5	5,750	6/36	7,670	25	6,470
4th	15	4,270	15	6,900	12.5	5,750	5/36	6,390	25	4,850
Sum	-	20,060	-	36,800	-	23,000	-	33,220	-	31,450
5th	15	3,670	10	4,600	12.5	5,750	4/36	5,110	25	3,630
6th	15	3,140	5	2,300	12.5	5,750	3/36	3,830	25	3,640
7th	15	2,700	5	2,300	12.5	5,750	2/36	2,560	25	3,640
8th	15	2,320	-	-	12.5	5,750	1/36	1,280	25	3,640
Sum	-	11,830	-	9,200	-	23,000	-	12,780	-	14,550

Total	-	31,890	-	46,000	-	46,000	-	46,000	-	46,000
-------	---	--------	---	--------	---	--------	---	--------	---	--------

The above comparative data reflect the inconsistency of the current method, since the depreciation fund for the whole service life is formed only by 69.32 %, which does not even ensure simple reproduction of fixed assets. From this position, it is more advisable to use the linear method, which ensures the uniform creation of the fund and turnover costs. 72.2 % of the initial cost is included in the depreciation fund in the first four years of operation in the cumulative method, 50 %- in the linear method, 68.4 %- in the combined method, and only 43.6 %- in the current method in the Russian Federation.

The cumulative and combined methods allow to use depreciation deductions for capital investments in larger volumes as soon as in the end of the first half of the useful life of fixed assets in contrast to the linear method, and, especially, to the current method. According to the current tax legislation, it is recommended to use the cumulative method only for the active part of the second and third groups of fixed assets at the enterprise's discretion. The economy of the Russian Federation is not yet ready for its widespread use, since the use of the cumulative method is accompanied by a significant increase in production costs and rising prices. As for the fixed assets of the first group, the authors believe that it is advisable to use the linear method, because their moral wear and tear is less noticeable than in the second and third groups.

In order to increase the efficiency of fixed assets, the authors propose a methodical approach to calculating depreciation deductions depending on the output. The basic formula for this approach when calculating depreciation for a specific type of equipment is as follows:

$$A = K \cdot S \cdot \frac{F}{P}, \quad (2)$$

where A is the depreciation deductions, rub., K is the coefficient of the annual depreciation rate, S is the initial cost, rub., F is the actual output, units, and P is the rated capacity, units.

According to the proposed approach, depreciation will be deducted from the fixed assets in proportion to the output on each piece of equipment. If the equipment performs the rated capacity set by the manufacturer, then, respectively, the depreciation is deducted at the rate of 100 % of the determined depreciation rate. If the equipment does not operate at its full capacity, then the depreciation is reduced by the coefficient of underperformance of certain capacity.

This method of determining the depreciation of fixed assets will be an incentive for enterprises to produce products of higher quality. The company will earn more profits and thus pay more taxes to the state. This will allow to avoid equipment downtime and calculate the cost of production more accurately. This method will allow the enterprise to calculate the equipment depreciation faster and more accurately and accumulate funds for replacing the existing equipment with newer units.

In order to understand the reproduction function of depreciation and its role in the reproduction process, the authors offer enterprises to open a Depreciation account in a bank. The purpose of creating this account is to deduct the share of depreciation directly to the Depreciation account, and the balance is transferred to the current account of the enterprise. Only the funds from the sales proceeds can be credited to the Depreciation account. By creating this account, the enterprises will be motivated to produce competitive products, the sale of which will accumulate funds on the Depreciation account. As such, the introduction of this account will allow to create a valid monetary fund, which will be used only for repairs and acquisition of fixed assets.

4. Discussion

The reliability of the presented approaches to improving the financial analysis of fixed assets of the enterprise is confirmed by the fact that they are monetary. At the same time, the disadvantage of the current depreciation system is that the accrued depreciation is only accounted through increasing the expenses of the enterprise and the depreciation of fixed assets in the amount of accrued depreciation (Anasenko et al., 2018; Kosevich et al., 2016; Zavalko et al., 2018). The funds on the proposed account are credited from each commodity operation, i.e. if the products of the enterprise are sold, then the amount of depreciation

deductions on the Depreciation account is credited. This account is a deposit.

One of the key areas of improving the financial management of fixed assets is to increase the workload of enterprises with raw materials. Integrated formations based on industrial enterprises with the participation of banking structures can be created in order to load enterprises and increase the efficiency of fixed assets. The authors believe that it is advisable to grant soft loans for the purchase of raw materials to enterprises.

At the same time, the financial analysis has revealed that the difficult situation at enterprises results in the low professional qualification of most managers. The management structure can be reorganized to implement efficient financial management of the enterprise. A specific feature of this management structure is to include a financial manager and a marketing manager, who will directly manage cash, plan the capital structure in the enterprise and activities in the financial market, search for alternative sources of the production financing, and study alternative sources of renewal of fixed assets.

5. Conclusion

The study related to the improvement of methodological approaches to the financial analysis of fixed assets of the enterprise has allowed to conclude that it is inappropriate to include repair costs in the cost of fixed assets, since the number of current and overhaul repairs directly depends on the quality of fixed assets. As a rule, such costs are one-time, they do not change a consumer value but only keep them in order. In the opinion of the authors, these costs should be attributed to production costs, and the costs for reconstruction and modernization should be attributed to an increase in the book value of fixed assets.

The study of the structure and analysis of financial sources of fixed assets renewal has allowed to identify alternative renewal options, including loans and leasing. The study has revealed that leasing is the most promising financial tool of renewal and has significant advantages over the loan.

The analysis of the application of reduction factors to the depreciation deductions in the existing approaches has revealed that the profits of enterprises were artificially increased. At the same time, reproduction of fixed assets through depreciation deductions is significantly inhibited. The analysis of the methods for calculating depreciation deductions has revealed that the current method of depreciation has negative impact on the financial condition of the company. It does not even ensure a simple process for the reproduction of fixed assets.

Bibliographic references

- Anasenko, E.V., Melnichenko, N.F., Novak, L.V., Zholudeva, V.V., Lebedev, K.A. (2018). Improvement of managerial decisions' quality in the context of strategic development of the enterprise. *International Journal of Pure and Applied Mathematics*, 119(16b), 3851-3855.
- Butorina, O.V. (2016). Analizstrukturnykhizmeneniy v ekonomikeregiona [Analysis of structural changes in the regional economy]. *Bulletin of the Perm National Research Polytechnic University. Socioeconomic sciences*, 4, 194-208.
- Kalashnikov, G.M., Balian, E.V., Matrosov, M.E. (2018). Analizekonomicheskogopotentsialaorganizatsii [Analysis of the economic potential of the organization]. *Scientific review: theory and practice*, 3, 93-100.
- Kolupaev, R.V., Fadeeva, O.M., Ardashev, A.I., Novikov, R.A., Lebedev, K.A. (2017). Improving methodical approaches to estimating financial safety of the enterprise. *Espacios*, 38(29), 23-40. Retrieved from: <https://www.revistaespacios.com/a17v38n29/17382916.html>
- Kosevich, A.V., Matyunina, O.E., Zhakevich, A.G., Zavalko, N.A., Lebedev, K.A. (2016). Methodology to estimate the financial market condition. *Journal of Advanced Research in Law and Economics*, 7(7), 1749-1753.
- Markova, O.V., Kozhina, V.O., Novak, L.V., Shpilkina, T.A., Lebedev, K.A. (2018). Methodical approaches to strategic capabilities' management at the enterprise. *International Journal of Pure and Applied Mathematics*, 119(19b), 3857-3861.
- Mikhaylenko, N.S. (2015). Formirovaniyeinvestitsionnogopotentsiala v protsessemmodernizatsiirossiyskikhpromyshlennykhpredpriyatiy [Shaping the investment potential during modernization of Russian industrial enterprises]. *Economy and management*, 5(115), 88-91.
- Mokina, L.S. (2018).

Analiz osnovnykh proizvodstvennykh fondov khozyaystvuyushchego subyekta: otsenka effektivnosti i problemy ispolzovaniya [Analysis of the fixed assets of an economic entity: evaluation of the efficiency and problems of use]. *Journal of management research*, 4(1), 77-88.

Morozova, A.M. (2015). Analiticheskaya otsenka proizvodstvennogo potentsiala predpriyatiy [Analytical assessment of the production potential of enterprises]. *Economics, management and investment*, 4(10), 1.

Nikulina, E.V., Nesterova, N.S. (2016).

Aktualizatsiya metodicheskoy bazy otsenki ekonomicheskoy effektivnosti deyatel'nost' predpriyatiy [Actualization of the methodological base for assessing the economic efficiency of enterprises]. *Regional economics. South of Russia*, 3(13), 123-128.

Saadulaeva, T.A., Lebedeva, O.E., Pinkovskaya, G.V., Shaimardanova, L.K., Gorshkova, L.V. (2018). Statistical approaches to the assessment of qualitative parameters of services market. *International Journal of Pure and Applied Mathematics*, 119(16b), 3839-3843.

Zavalko, N.A., Kozhina, V.O., Kovaleva, O.P., Kolupaev, R.V., Lebedeva, O.Ye. (2018). System approach to diagnostics and early prevention of a financial crisis at an enterprise. *Journal of Applied Economic Sciences*, 13(1(55)), 84-88.

1. Financial University under the Government of the Russian Federation, Moscow, 125993, Russia. E-mail: golovetsky.n@mail.ru

2. The Russian Academy of National Economy and Public Service under the President of the Russian Federation, Krasnogorsk, 143402, Russia

3. The Russian Academy of National Economy and Public Service under the President of the Russian Federation, Krasnogorsk, 143402, Russia

4. The Russian Academy of National Economy and Public Service under the President of the Russian Federation, Krasnogorsk, 143402, Russia

5. Institute for Tourism and Hospitality, Moscow, 125438, Russia

Revista ESPACIOS. ISSN 0798 1015
Vol. 40 (Nº 34) Year 2019

[\[Index\]](#)

[In case you find any errors on this site, please send e-mail to [webmaster](#)]