

PAPER • OPEN ACCESS

Financial leasing for the extractive industry: status and trends

To cite this article: Nataliya Vnukova *et al* 2022 *IOP Conf. Ser.: Earth Environ. Sci.* **970** 012036

View the [article online](#) for updates and enhancements.

You may also like

- [Development of Leasing Operations as a Tool to Fund Innovative Activities in Housing and Public Utilities](#)
L G Nikityuk, O G Tymchuk and G G Evseeva
- [The leasing development tools in the construction industry of the Russian Federation](#)
Y N Barykina and A G Chernykh
- [Simulation-dynamic model for calculating the equipment leasing](#)
A A Boyko, V V Kukartsev, V S Tynchenko et al.



*Benefit from connecting
with your community*

ECS Membership = Connection

ECS membership connects you to the electrochemical community:

- Facilitate your research and discovery through ECS meetings which convene scientists from around the world;
- Access professional support through your lifetime career;
- Open up mentorship opportunities across the stages of your career;
- Build relationships that nurture partnership, teamwork—and success!

Join ECS! **Visit electrochem.org/join**



Financial leasing for the extractive industry: status and trends

Nataliya Vnukova¹, Tetiana Tokhtamysh^{2,3}, Kateryna Hranko² and Sergii Sokol²

¹Simon Kuznets Kharkiv National University of Economics, Science Ave., 9a, Kharkiv, 61166, Ukraine

²Kharkiv National University of Civil Engineering and Architecture, Sumska Str., 40, Kharkiv, 61002, Ukraine

³Corresponding author: tunechka10@gmail.com

Abstract. The article proves the necessity and expediency of using financial leasing by extractive industry enterprises to minimize the cost of purchasing, using, maintaining equipment and maintaining production capacity. Foreign and domestic financial leasing practices analyzed and their direct impact on the development of the country's economy is determined. Financial leasing will become more accessible and understandable for enterprises of different sectors of the economy after the entry into force of the Law of Ukraine "On Financial Leasing". The analysis of the value of the concluded financial leasing agreements by sectors of the economy carried out and their basic tendencies defined. It is determined that the volume of concluded financial leasing agreements by extractive industry enterprises has a small share in comparison with other branches of economy. The analysis of the effectiveness of structural changes confirm the low demand for financial leasing by extractive industry enterprises. It is determined that the use of financial leasing by extractive industry enterprises will expand existing production, introduce the latest technologies, minimize costs for the purchase, use, maintenance and upgrade of equipment and means of production.

1. Introduction

The foreign direct investment are the driving force of the country's economic development. In addition to partially solving the problem of technological renewal of fixed assets of extractive industries, foreign direct investment includes the potential to increase exports of products and services, opportunities to import technology, practical skills, management skills which contributes to market mechanisms and integration of the Ukrainian economy into the world economy [1]. According to the State Statistics Service of Ukraine [2], the volume of capital investment in the extractive industry in 2020 decreased by almost 2 times compared to 2019.

Sufficient investment creates opportunities for innovation that is a major factor in the success of extractive industries and affects the level of development of the country. Innovations in Ukraine carried out not enough effectively. Obstacles of financial, political, legal nature that appear on the way to innovation considered to be restraining factors [3].

Innovative processes in industry throughout the period of Ukraine's independence have been in a state of steady stagnation, although, according to statistical information, the dynamics of these processes is unstable and quite diverse [4]. An effective tool for economic reforms and a mechanism that creates the conditions for the resumption of production on a qualitative basis and economic growth in the long run is the modernization of the industrial sector in general and the extractive industry [3].

The most common source of additional financial resources became bank lending. However, banks are



wary of lending to industrial enterprises, including the extractive industry. This is due to high credit risk, insufficient number of solvent consumers and overdue loans of previous periods. The terms for which banks attract deposits do not correspond to the amount of funds needed to provide long-term loans [5].

An alternative way to attracting financial resources could be a financial leasing. Enterprises are increasingly using financial leasing services compared to other sources of financing. Significant depreciation of fixed assets in the extractive industry enterprises requires re-equipment. Most Ukrainian industrial enterprises are unable to attract sufficient resources to finance the renewal of fixed assets. Bank loans used to meet transaction demands, and investment loans are limited in high value and have a high degree of risk. Given the lack of investment resources, for the effective implementation of the renewal of fixed assets in the extractive industry, it is advisable to use financial leasing, which can significantly intensify the process of technological re-equipment of production in market conditions. The use of this service will help enterprises to strengthen their competitive position in the market.

According to foreign and domestic practice, financial leasing is one of the main ways to update the material and technical base of extractive industries and promotes the sale of quality products using modern equipment and innovative technologies. A comparative analysis of the financial leasing markets in Ukraine, the United Kingdom, Germany, France and the United States shows their direct impact on the development of the country's economy and related strategically important markets.

According to USAID Financial Sector Transformation Project experts, the dynamics of increasing financing by leasing companies in Ukraine is almost twice that of the world. According to the analysis submitted by the World Leasing Yearbook 2019, the volume of leasing in the TOP-50 countries increased by 16%, and global leasing transactions amounted to 1.3 trillion US dollars. According to the European Commission data, financial leasing is an important source of financing for 48% of small and medium-sized businesses in the EU [6]. The growing attention to leasing financing by many businesses makes it necessary and relevant to further study the current state and main trends in the financial leasing market in Ukraine.

The purpose of the article consist of scientifically substantiate the theoretical provisions and practical recommendations for the use of financial leasing by extractive industry enterprises to finance the development of their activities, as well as to study the state and trends of this type of financial service.

To achieve this goal it is necessary to solve the following tasks:

- to highlight the advantages and disadvantages of financial leasing;
- to analyze the dynamics of the value of concluded financial leasing agreements by sectors of the economy;
- to determine the impact of the dynamics of the value of concluded financial leasing agreements in each industry on the overall structural changes in the economy.

2. Methods

The development of economic sectors on the way of their constant evolution and transformation directly related to their structure and the dynamics of changes. The priority of choosing one or another indicator of structural changes based on comparative calculations of the cost structure of concluded financial leasing agreements by branches of economy. This comparison is determined taking into account the dynamics of changes in the value of concluded financial leasing agreements. The peculiarity of the linear coefficient of intensity of structural changes is its sensitivity, i.e. the impact of the dynamics of the value of concluded financial leasing agreements in each branches on the overall structural changes in the economy.

3. Results and discussion

New rules for the provision of financial leasing services defined in the Law of Ukraine "On Financial Leasing" [7], which meet international legal standards in this area.

According to this Law [7], financial leasing is a type of legal relationship under which the lessor undertakes in accordance with the financial leasing agreement for the term and for a fee specified in

such agreement, to transfer to the lessee in possession and use as an object of financial leasing:

- property owned by the lessor and acquired without prior agreement with the lessee;
- or property specially purchased by the lessor from the seller (supplier) in accordance with the specifications and conditions established by the lessee, which provides for the presence of at least one of the features of financial leasing established by this law [7].

Leasing is considered as financial if all risks and rewards (benefits) related to the use and possession of the object of financial leasing are transferred to the lessee, provided that at least one of the following features (conditions) is met:

- the object of financial leasing is transferred for a period during which at least 75% of its original value is depreciated, and the lessee is obliged on the basis of a financial leasing agreement or other agreement specified in the financial leasing agreement to purchase the object during the term of the financial leasing agreement with the subsequent transfer of ownership from the lessor to the lessee at the price and on the terms provided by such financial leasing agreement or other agreement specified in the financial leasing agreement;
- the amount of lease payments at the time of concluding the financial leasing agreement is equal to the original value of the object of financial leasing or exceeds it;
- the book (residual) value of the object of financial leasing at the time of expiration of the financial leasing agreement provided by such agreement is not more than 25% of the initial value (price) of such object of financial leasing as of the beginning of the financial leasing agreement;
- the object of financial leasing, made to order of the lessee, after the expiration of the financial leasing agreement cannot be used by persons other than the lessee, given its technological and qualitative characteristics [7].

The lessee will have the right to acquire ownership of the object of financial leasing provided that the lessee properly, fully and unconditionally fulfills its obligations under the financial leasing agreement, including the payment of lease and other payments, as well as penalties (fines, penalties), if otherwise not provided by the agreement [7].

Due to the significant degree of depreciation of fixed assets and production assets of extractive industry enterprises, as well as the lack of sources of funding their renewal, financial leasing can be a tool for developing and upgrading the infrastructure of these enterprises.

To expand existing production or introduce new technologies, the company must solve the problem of finding sources of financing capital investments. In addition to attracting a bank loan and receiving government subsidies, one of the ways to obtain investment funds to upgrade equipment and means of production is financial leasing. In the conditions of insufficiency of attraction of necessary volume of financial resources by extractive industry enterprises, the key task becomes minimization of expenses for acquisition, use, and service of the equipment and support of production capacities of the company.

The task is solved with the help of financial leasing, which allows you to get financing for specific equipment, rather than the available amount of own funds and assets. Unlike a bank loan, financial leasing does not affect the financial condition and does not change the structure of assets and capital, as well as promotes short-term loans.

According to Appendix 7 to the Regulation on Determination by Ukrainian banks of the amount of credit risk on active banking operations "Explanation for determining the model for calculating the integral indicator of the debtor – a legal entity" [8] enterprises are tested for their reliability and solvency. This requires enterprises to provide guarantees and confirm their ability to meet their financial obligations on time at significant interest rates.

Using financial leasing, extractive industry enterprises receive the following benefits:

- expansion of production capacity in conditions of limited financial resources;
- innovative upgrade of production equipment with minimal operating costs;
- acceleration of payback of technologies due to active wear of equipment;
- individual approach to drawing up the schedule of repayment of payments under the financial leasing agreement;

- invariability of lease payments throughout the term of the financial leasing agreement;
- payment of lease payments after commissioning of the equipment;
- use of the received equipment allows long-term forecasting of future cash flows;
- reduction of the amount of corporate income tax due to the inclusion of all payments under the lease agreement (except for the payment of part of the value of the leased object) in the cost;
- acquisition of ownership of the object of the leasing agreement or its redemption at residual value;
- strengthening the competitiveness of the enterprises, improving the quality of services provided, improving production efficiency.

However, the use of financial leasing also has certain disadvantages:

- a significant amount of advance payment, not less than 30% of the total cost of equipment;
- a long time before the possibility of using the equipment, due to the complex procedure of organizing the implementation of the subject of the lease agreement.

Today, financial leasing services provided by 463 financial companies and 110 legal entities-lessors. Other financial services provided by another 154 legal entities-lessors [9].

Over the last decade, the financial leasing market in Ukraine has been constantly fluctuating. Table 1 and table 2 show the distribution of the value of financial leasing agreements by industry in 2008-2013 and 2014-2019, respectively.

From table 1, table 2 can be traced several stages of changes in the value of concluded financial leasing agreements. In 2008-2009, the global financial and economic crisis had a significant impact on the activities of leasing companies, which had a negative impact on the political situation in the countries, complicated access to credit resources, and significantly worsened the solvency of the enterprises. In 2011, the activity of corporate clients began to grow, which revived the financial leasing market not only in Ukraine but all over the world. Since 2012, the value of concluded contracts has decreased 3 times. Over the last 5 years, no significant fluctuations have been felt, and at the end of 2019 there is a slight positive trend (the volume of concluded contracts increased to UAH 29 billion).

According to table 1 and table 2, financial leasing services mostly used by such sectors of the economy as transport, construction, agriculture and services. The largest volume of concluded contracts in all sectors was observed in 2011 and amounted to UAH 125096.4 million, i.e. compared to 2008 it increased 4.5 times. However, in 2012 there was a significant decrease in the indicator by 3 times. This has affected all sectors of the economy. Since 2013, there has been a tendency to gradually reduce the volume of concluded financial leasing agreements in most industries. The smallest consumers of financial leasing services are light and chemical industries and mechanical engineering.

Table 1. Cost of concluded financial leasing agreements by sectors of the economy in 2008-2013, UAH million [9].

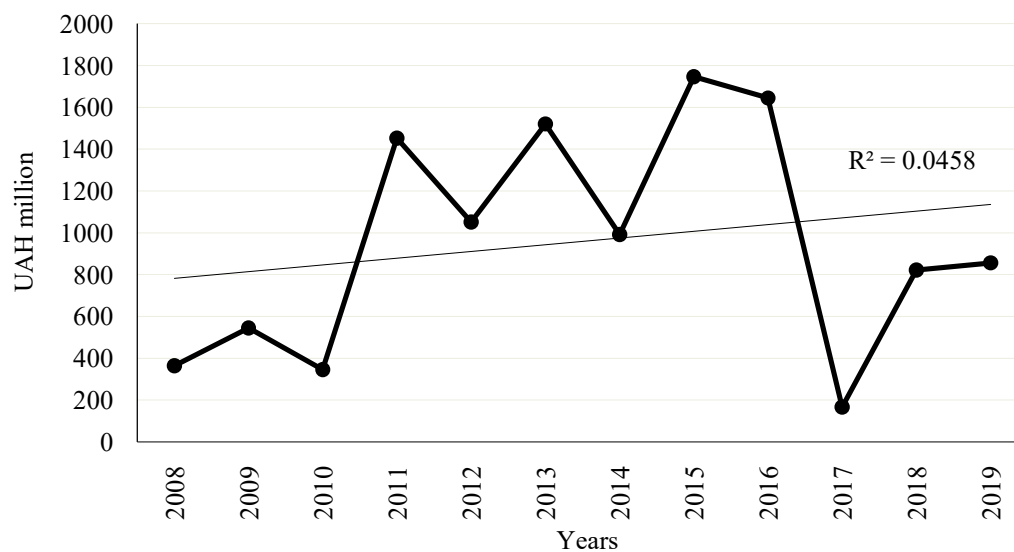
| Industry | Years | | | | | |
|-------------------------|---------|---------|---------|----------|---------|---------|
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
| Construction | 4333.9 | 2959.8 | 2520.4 | 10119.6 | 2077.9 | 1869 |
| Mining | 363.9 | 545 | 345.9 | 1452.7 | 1051.8 | 1520.6 |
| Light industry | 143.3 | 127.5 | 81.7 | 384 | 70.3 | 134.1 |
| Machinery manufacturing | 26.5 | 93.6 | 148.1 | 1081.9 | 210.7 | 219.9 |
| Steel | 166 | 126.1 | 336.6 | 589.3 | 132.4 | 43.6 |
| Agriculture | 2281.5 | 3153.8 | 3966.2 | 17232.6 | 7905.5 | 9416.3 |
| Services sector | 2215.6 | 1644 | 1526.4 | 6631.8 | 2000.9 | 1350.2 |
| Transport | 14628.9 | 16095.2 | 18123.3 | 74434.6 | 24128.4 | 48158.6 |
| Food industry | 558.3 | 482.2 | 415.9 | 1665.9 | 430 | 517.3 |
| Chemical | 355.1 | 141 | 87.7 | 366.8 | 83.8 | 70.7 |
| Other | 2903.4 | 1871.8 | 3011.9 | 11137.2 | 3453.2 | 3827.5 |
| Total | 27976.4 | 27240 | 30564.1 | 125096.4 | 41544.9 | 67127.8 |

Table 2. Cost of concluded financial leasing agreements by sectors of the economy in 2014-2019, UAH million [9].

| Industry | Years | | | | | |
|-------------------------|---------|---------|---------|---------|---------|---------|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Construction | 1975.6 | 1531.2 | 928.3 | 1049.5 | 1198.7 | 1206.6 |
| Mining | 992.3 | 1746.9 | 1645 | 167.1 | 822.4 | 856.3 |
| Light industry | 129.3 | 43.1 | 26.7 | 8.3 | 5.7 | 10 |
| Machinery manufacturing | 273.4 | 326.5 | 292.3 | 262.7 | 245.9 | 256.5 |
| Steel | 220 | 121.5 | 82.1 | 476 | 1017 | 557.2 |
| Agriculture | 11233.1 | 6636.4 | 5654 | 5503.4 | 5320.2 | 5812 |
| Services sector | 1194.6 | 984.6 | 1206.4 | 1349.2 | 1661.3 | 1935.2 |
| Transport | 36642.1 | 8252.8 | 7886.4 | 7220.4 | 6925.7 | 6536.3 |
| Food industry | 906.6 | 534.1 | 428 | 303.3 | 617.1 | 1155.8 |
| Chemical | 72.1 | 271.2 | 127 | 117.6 | 155.1 | 132.4 |
| Other | 4933.5 | 5899.4 | 4901.4 | 6300.9 | 7244.3 | 10540 |
| Total | 58572.6 | 26347.7 | 23177.6 | 22758.4 | 25213.4 | 28998.3 |

The active period of concluding financial leasing agreements in the extractive industry falls on 2011-2013, but the maximum amount of borrowed funds is observed in 2015-2016 and amounts to UAH 3.4 billion in total. In 2018-2019, the situation stabilized, but did not reach its maximum level.

Figure 1 shows the dynamics of the value of financial leasing agreements of the extractive industry for 2008-2019.

**Figure 1.** Dynamics of the value of financial leasing agreements of the extractive industry for 2008-2019.

As seen from figure 1, the dynamics of the value of agreements, although fluctuating, but tends to increase moderately during the analyzed period. Significant value reductions occur in 2010, 2014 and 2017. This is due to economic and political factors that have destructively affected business processes not only in Ukraine but also around the world.

In 2020, the regulator in the financial leasing market changed, which became the National Bank of Ukraine (NBU). Accordingly, the "Ukrainian Association of Lessors" guided by the new rules and requirements for Ukrainian lessors.

According to the NBU, in 2020 the portfolio of leasing agreements on the Ukrainian market increased by 36% and reached UAH 52.947 million. The share of leasing and financial companies in the portfolio is 79%, the portfolio of these market participants increased by 45%. The share of banks

in the portfolio was 21%, and the total volume of their portfolio increased by 10% [9].

At the beginning of 2021, the volume of the financial leasing market in Ukraine amounted to UAH 32.764 million. This indicates a decrease in market volume by 3.8% compared to 2019. The dynamics of leasing services provided by leasing and financial companies was growing. This indicates the potential for growth under favorable conditions, in particular after the entry into force of the Law of Ukraine "On Financial Leasing". In 2020, agreements for a period of 3 to 5 years were most often conclude. The share of such transactions was 37% of their total value. The share of medium-term agreements (valid for 2 to 3 years) was 26%, and short-term agreements (1 to 2 years) - 23% [10].

Ukraine's economy characterized by imbalances and heterogeneous development of certain sectors of the economy. These disparities are cause by varying degrees of state support for certain industries, investment and innovation attractiveness of enterprises and capital intensity of production. Multilevel economic system requires the formation of a sufficient range of methods for assessing changes in the structure of national production. It is possible to achieve this goal by calculating the linear coefficient of structural changes.

Structural changes in the economy is a change in the state of interdependent elements of the economic system at different levels of its functioning, accompanied by qualitative changes in their relationship and characterized by fluctuations in the proportion of their ratio, expressed in quantitative characteristics, which may be due to endogenous and exogenous factors [11].

The linear coefficient of "absolute" structural changes is the first indicator of the integral group in the total spectrum of the methodology of analysis of structural changes; it called the most generalizing indicator of their absolute value. This coefficient is the sum of the increase in relative share for the module, divided by the number of structural parts, and reflects the average change in relative share for the entire period for all components of the population [11]. This figure calculated by the formula:

$$\bar{l}_d = \frac{\sum |d_{j1} - d_{j0}|}{m} \quad (1)$$

where d_{j1} , d_{j0} are the shares of the distribution of the feature j for the current and base periods; m is the number of constituents.

Using the formula (1) in table 3, the linear coefficient of intensity of structural changes in the value of concluded financial leasing agreements by sectors of the economy calculated.

Table 3. Calculation of the linear coefficient of intensity of structural changes in the value of financial leasing agreements by sectors of the economy.

| Industry | The cost of contracts, UAH million | | Structure, % | | Absolute deviation, % |
|---|------------------------------------|---------|--------------|-------|-----------------------|
| | 2008 | 2019 | 2008 | 2019 | |
| Construction | 4333.9 | 1206.6 | 15.5 | 4.2 | 11.33 |
| Mining | 363.9 | 856.3 | 1.3 | 3.0 | 1.65 |
| Light industry | 143.3 | 10.0 | 0.5 | 0.0 | 0.48 |
| Machinery manufacturing | 26.5 | 256.5 | 0.1 | 0.9 | 0.79 |
| Steel | 166 | 557.2 | 0.6 | 1.9 | 1.33 |
| Agriculture | 2281.5 | 5812 | 8.2 | 20.0 | 11.89 |
| Services sector | 2215.6 | 1935.2 | 7.9 | 6.7 | 1.25 |
| Transport | 14628.9 | 6536.3 | 52.3 | 22.5 | 29.75 |
| Food industry | 558.3 | 1155.8 | 2.0 | 4.0 | 1.99 |
| Chemical | 355.1 | 132.4 | 1.3 | 0.5 | 0.81 |
| Other | 2903.4 | 10540 | 10.4 | 36.3 | 25.97 |
| Total | 27976.4 | 28998.3 | 100.0 | 100.0 | 87.23 |
| The linear coefficient of intensity of structural changes | | | | | 7.93 |

In the structure of concluded financial leasing agreements by sectors of the economy in 2019 compared to 2008 there were significant changes (7.93%). The largest change in the structure of concluded agreements traced in transport (29.75%), agriculture (11.89%) and construction (11.33%),

which caused a significant impact on overall structural changes. In the extractive industry, structural changes amounted to 1.65%, which indicates a small amount of financial leasing used to finance the acquisition and renovation of fixed assets and equipment. The analysis of the effectiveness of structural changes confirmed the low demand for financial leasing by extractive industry enterprises.

The entry into force of the Law of Ukraine "On Financial Leasing" will attract funds for technical and technological modernization (modernization of material and technical base) of extractive industry enterprises by equipping them with modern high-performance and reliable equipment. This will allow creating and implementing fundamentally new, non-traditional means and technologies of mining.

4. Conclusions

The article states that in conditions of insufficient attraction of the required amount of financial resources by the extractive industry enterprises, the key task is to minimize the cost of acquisition, use, maintenance of equipment and maintenance of production facilities. The study of the theoretical foundations of financial leasing allowed formulating its feasibility and the need for the extractive industry enterprises. The analysis of foreign and domestic practice of financial leasing emphasized its direct impact on the development of the country's economy.

The analysis of the value of concluded financial leasing agreements by sectors of the economy for 2008-2019 showed that the financial leasing services used by such sectors of the economy as transport, construction, agriculture and services. Since 2013, there has been a tendency to gradually reduce the volume of concluded financial leasing agreements in most industries. The smallest consumers of financial leasing services are light and chemical industries and mechanical engineering. Analysis of the dynamics of the value of concluded financial leasing agreements showed that it tends to increase moderately during 2008-2019. At the beginning of 2021 the volume of the financial leasing market of Ukraine amounted to about UAH 33 billion.

To compare the dynamics of changes in the structure of the value of concluded financial leasing agreements by sectors of the economy, a linear coefficient of the intensity of structural changes used. Its feature is to determine the impact of the dynamics of the value of concluded financial leasing agreements in each sector on the overall structural changes in the economy.

Calculations have shown that in the structure of concluded financial leasing agreements by sectors of the economy in 2019 compared to 2008 there were significant changes (7.93%). In the extractive industry, structural changes amounted to 1.65%, which indicates a small amount of financial leasing used to finance the acquisition and renewal of fixed assets and equipment. The analysis of the effectiveness of structural changes confirmed the low demand for financial leasing by extractive industry enterprises.

Summing up the study, one can say that the introduction of financial leasing services by extractive industry enterprises requires further development and expansion. The use of financial leasing by extractive industry enterprises will expand existing production, introduce the latest technologies, and minimize costs for the purchase, use, maintenance and upgrade of equipment and means of production.

References

- [1] Huk O V and Korzhov Ye O 2021 Foreign direct investment: current trends. *II Int. Scient. Pract. Conf. "Business, Innovation, Management: Problems and Prospects"* (April 22, 2021, Kyiv) pp 210–11
- [2] Capital Investment by the Type of Economic Activity, 2020. Available from: <http://www.ukrstat.gov.ua>
- [3] Drachuk Yu Z, Koshechkova I M and Trushkina N V 2015 Trends and patterns of investing in the innovative development of the domestic mining industry *J. Upravlinnia ekonomikoïu: teoriia ta praktyka* **4** pp 14–30
- [4] Fedulova L I 2013 Innovative vector of industrial development of Ukraine *J. Ekonomika Ukrainy* **4** pp 15–23

- [5] Pukala R, Vnukova N, Tokhtamysh T, Yaholnytskyi O and Hranko K Evaluation of the creditworthiness of extractive industry companies *II Int. Conf. Essays of Mining Science and Practice* (April 22-24, 2020, Dnipro) **168**. DOI: 10.1051/e3sconf/202016800035
- [6] Pidsumky 2018 roku lizynhodavtsiv – uchasnykiv Asotsiatsii, 2019. Available from: <http://uul.com.ua>
- [7] Zakon Ukrainy № 1201-IX, 2021. Pro finansovyi lizynh. Available from: <https://zakon.rada.gov.ua>
- [8] Pro zatverdzhennia Polozhennia pro vyznachennia bankamy Ukrainy rozmiru kredytnoho ryzyku za aktyvnymy bankivskymy operatsiiamy: Postanova Pravlinnia Natsionalnoho banku Ukrainy №351 vid 30.06.2016 r., 2016. Available from: <https://zakon.rada.gov.ua>
- [9] Informatsiia pro stan i rozvytok finansovykh kompanii ta lizynhodavtsiv, 2020. Available from: <https://www.nfp.gov.ua>
- [10] Portfel lizynhovyykh uhod zris na 36% za 2020 rik: rezultaty roboty rynku za danymy NBU, 2020. Available from: <http://surl.li/rbqi>
- [11] Romanova T V 2016 Integral indicators for estimating structural changes in the economy. *Ekonomika ta Upravlinnia Natsionalnym Hospodarstvom* **6** pp 20–7