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Oil and Gas Companies in the Russian Federation

Empresas de petróleo y gas de la Federación de Rusia

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ABSTRACT

The purpose of our research is to develop a model for testing for the impairment of oil and gas company assets. The subject of the research is the set of theoretical and practical aspects of accounting for the recoverability of assets. The object is one of the largest Russian oil companies, Rosneft engaged in the production and processing of oil, as well as the sale of petroleum products. Based on the results of this work, we propose a model for assessing the recoverability of assets based on the calculation of the value from the use of those assets.

Keywords: Financial reporting, impairment, key audit matters, oil and gas companies, recoverability of the non-current assets.

RESUMEN

El propósito de nuestra investigación es desarrollar un modelo para probar el deterioro de los activos de las compañías de petróleo y gas. El tema de la investigación es el conjunto de aspectos teóricos y prácticos de la contabilización de la recuperación de activos. El objeto es una de las mayores compañías petroleras rusas, Rosneft dedicada a la producción y procesamiento de petróleo, así como a la venta de productos derivados del petróleo. Con base en los resultados de este trabajo, proponemos un modelo para evaluar la recuperación de activos basado en el cálculo del valor por uso de esos activos.

Palabras clave: Asuntos clave de auditoría, compañías de petróleo y gas, deterioro, informes financieros, recuperación de activos no corrientes.

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INTRODUCTION

The issue of asset impairment is particularly relevant for companies in the oil and gas industry. Such enterprises make large investments in fixed assets and other non-current assets due to the specifics of their activities. Many authors have studied the issues of impairment of asset. So Ruan (Ruan:2020, pp.238-268) emphasizes that, an impairment policy (prohibiting write-ups) reduces the value of abandonment options, which are particularly important for weak firms. Dudycz&Prażników (Dudycz&Prażników:2020), André et al. (André et al.: 2018, pp.707-725), Quaranta et al. (Quaranta et al.: 2019, pp.311-330) examine the implications of the implementation of the mark-to-model fair value measures for asset impairment tests on the relevance and reliability of information presented in financial reports. Al Dulamy et al. (Al Dulamy et al.: 2020, pp.1-14), Bolos et al. (Bolos et al.:2009) identified the nature of the concept of impairment of assets and the indicators of impairment of fixed assets. A number of articles explore questions of evolution of the effect of non-current fixed assets on profitability and asset management efficiency (Lubyanaya et al.: 2016, pp.7745-7753; Nobes&Stadler: 2018, pp.1981-2005). The purpose of this article is to present the set of theoretical and practical aspects of accounting for the recoverability of assets.

It is the capital ratio of the enterprise with non-current assets that allows it to build the process of creating value in the industry: both during exploration and production, and transportation, processing and marketing, the company needs production capacity (Vetoshkina et al.: 2016, pp.5603-5606). From year to year, auditors of major gas and oil companies highlight the issue of asset recoverability as a key audit matter (Stein: 2019, pp.207-234;Yankovskaya et al.: 2019, pp.24-28). This is due to the materiality of the line property, plant and equipment and the high level of the subjectivity of management's assumptions, judgments, and estimates used in the impairment analysis. Besides, the combination of factors such as the recent years' volatility of oil prices and the ruble exchange rate, as well as changes in the level of inflation and the cost of borrowed funds.

One of the most relevant issues in the specifics of accounting for oil and gas companies is the problem of asset recoverability (Astrakhantseva et al.: 2015, pp.258-262; Markaryan&Snetkova: 2015, pp.375-378; Nagumanova et al.: 2019, pp.1082-1088). This issue requires special attention and is often identified by auditors as a key audit matter. Besides, in the conditions of instability of the Russian economy, a significant decrease in prices for energy resources and changes in demand for them may lead to the depreciation of an oil and gas company's assets (Sabitova&Shavaleyeva: 2015, pp.423-428;Kulikova et al.: 2016, pp.96-102). The use of the developed model is recommended both for oil and gas companies. It will allow them to assess the recoverability of assets fairly if there is evidence of impairment. The model is also useful for practicing auditors of such companies to help them identify incorrect management assumptions regarding the impairment of assets (Ding & He: 2009, pp.3459-3464; Kulikova&Gafieva: 2014, pp.38-40; Shaari et al.: 2017, pp.224-240).

Thus, in this study, we examine the key factors that bring to attention the possibility of signs of asset impairment, determine the structure of the procedure for checking assets for recoverability resulting in the recommended model for testing for asset impairment taking into account the specifics of oil and gas companies.

METHODOLOGY

According to the requirements of IAS 36, when assessing the evidence of possible impairment of assets, an organization should consider at least the following signs (3, paragraph 12):

1. External sources of information:

- Signs indicating the more than expected decline of value;
- Significant adverse changes occurred or expected for the company's business;

- Market interest rates increased significantly that will lead to an increase in the discount rate used in calculating the value in use of the asset;

- The book value of the company's net assets exceeds its market capitalization.

2. Internal sources of information:

- Signs of obsolescence or physical damage to the asset;

- Occurred or expected significant adverse changes in the intensity and manner of use of the asset;

- Data from reports prepared for internal use indicating a decrease in the economic efficiency of the asset.

Following paragraph 14 of IAS 36, internal reporting indicators that show possible impairment of an asset include the following facts:

- Cash flows required for the acquisition and operation of the asset are significantly higher than planned;

- Actual net cash flows from the use of the asset are significantly lower than planned;

- Net cash flows from the asset decreased significantly;

- Total current period and future budget data for the asset show operating losses or net cash outflows.

There is no need to conduct an impairment test if there is no indication of possible impairment. Thus, company management should initially carry out the analysis of the availability of such features. For companies in the oil and gas sector of the economy, it is very important to detect signs of impairment in time, and the auditors of such companies should pay special attention to evaluating the management assumptions used in this analysis (Shahwan&Roudaki: 2016, pp.49-54).

If there is evidence of impairment, the assets should be tested for impairment. The process of testing assets for impairment can be divided into five key stages.

1. Allocation of cash-generating units (CGUs). Determining the groups of fixed assets for which the cash flow is calculated.

2. Determination of the carrying value of the CGUs included in the generating unit.

3. Cash flow generation: cash inflows from asset operation and cash outflows required to generate financial inflows.

4. Determination of the discount rate and discounting cash flows. It is calculated based on the weighted average cost of capital (WACC) model. The cost of the generating unit is calculated in the post-forecast period, the current value of future cash flows is calculated, as well as their total value.

5. Comparison of the carrying amount with the recoverable amount.

In our opinion, when determining the method of calculating the recoverable amount, the extractive industry companies should use the value-in-use method, since the calculation of the cost of sales involves the use of less reliable estimates and data.

It is most appropriate for companies in the oil and gas industry to consider assets by groups of producing fields with a common term of depletion of reserves because the identification of assets related to a specific field is difficult due to the territorial community of fields inherent in Russian oil companies.

To determine net cash flow, oil and gas companies are encouraged to use the following calculation method:

$$\text{NCF} = \text{Revenue} - \text{Expenses} - \text{Tax on Oil Production} - \text{Capital Expenditures} \quad (1)$$

For companies in the oil and gas industry, one of the largest items of expenditure that form the cost of production is the cost of the tax on the extraction of minerals. When calculating the recoverable amount, it is proposed to use the assumption that all oil produced within the given period will be sold in the corresponding period. It will allow not to take into account the remaining met in the company's reserves.

The amount of capital expenditures (CAPEX) is also one of the key indicators characterizing the state of assets of an enterprise in the extractive industry. It should be noted that as oil prices rise, companies may be tempted to use equipment in a way that makes it wear and tear to extract more raw materials. However, taking into consideration the age of many assets, oil and gas companies need to ensure that they have sufficient

funds to carry out high-quality infrastructure repairs. Since the increasing level of activity causes the equipment to wear out, unplanned failures will cause damage to the company.

Using the proposed model, we tested the impairment of non-current assets of Rosneft based on the published consolidated financial statements, which are freely available.

RESULTS

In its 2018 financial statements, Rosneft disclosed information about the volume of proved reserves, as well as the validity of oil production licenses. According to the published information, the volume of proven reserves at the end of 2018 is 44,358 million barrels, production for 2018 was 1,896 million barrels. The expiration dates of existing licenses for the development and production of hydrocarbons for the company, in general, are in the range from 2019 to 2202, while the terms of licenses for the most significant fields expire between 2038 and 2150.

To construct an impairment model, we will use the conditional assumption that oil production will be continuing for 25 years at a gradually decreasing rate. When using the proposed model, companies are recommended to apply the production data for the year obtained as a result of specialists' independent assessment.

Russian oil companies produce oil of various brands (Urals, Siberian Light, REBCO, and others). For the purpose of constructing an impairment model, the price of Urals crude oil will be used. It is calculated based on the price of Brent crude oil. According to the forecasts of the Government of the Russian Federation published in the Main Parameters of the Scenarios of Social and Economic Development of the Russian Federation until 2036, the dynamics of prices for Urals oil and the change in the dollar exchange rate will look as follows:

Item	2019-2024	2025-2030	2031-2036
Dollar exchange rate, rubles per USD r	65,1	70,7	74,1
Urals oil price, USD per barrel	57,7	52,2	55,5

Table 1. Forecast values of the dollar exchange rate and the price of Urals oil

It should be noted that Urals oil is a mixture of heavy oil of the Urals and the Volga Region and light West Siberian oil of the Siberian Region. It is high-sulfur oil. Urals futures are traded on the Moscow Exchange and the Saint Petersburg International Mercantile Exchange (SPIMEX). The price of Urals oil significantly affects the quotes of the Russian ruble against the USD. In March-April 2020, we observe an unstable situation in the oil market, when the cost of oil is catastrophically low. This situation is due to the serious impact of imponderable non-economic factors. Thus, in mid-April 2019, Urals crude oil was trading at the level of 28-29 USD per barrel. However, many analysts believe that the oil market will recover and the "bottom" has already been reached. This research does not pretend to be a macroeconomic forecast. In this regard, the calculations were made based on the above scenarios of social and economic development of the Russian Federation until 2036.

DISCUSSION

To calculate the revenue of the post-forecast period, we propose to take the values closest to the post-forecast period: 74.1 rubles per USD and 55.5 USD per barrel of Urals oil.

The weighted average cost of capital of Rosneft according to the website of the analytical agency BKS Express is 14.71%.

For example, the forecast value of expenditures, met and capital expenditures was calculated in proportion to the volume of production. Thus, in 2018, according to the reporting data, expenditures on met were 2,258 million rubles; capital expenditures were 936 million rubles; operating expenses (not including met and expenses not related to oil production) were 2,978 million rubles. When applying the proposed model, companies are recommended to use data on capital expenditures following the developed budgets, rather than recalculate them proportionally.

The initial data for calculating the recoverable amount of assets are presented in Table 2.

Item	Data
Volume of proved reserves, mln br.	44 358
Oil production for 2018, mln br.	1 896
Year of inventory depletion	2043
Operating expenses for the year 2018, billion rubles. Met for 2018, RUB billion	2 978
Oil and gas production tax	2 258
Capital expenditures for 2018, RUB billion	936
WACC	14,71%

Table 2. Initial data for calculating the recoverable amount of assets

Thus, the impairment calculation for Rosneft for December 31, 2018, is as follows:

Year	Oil production, mln br.	Price USD per barrel	Revenue, bill. rub.	Expensesbill.rub.	Oil and gas production tax, bill. rub.	Capital expenditures, bill. rub.	NCF, bill. rub.	Rate of Discount	Discounted NCF, bill. rub.
2019	1 896	57,7	7 122	2 978	2258	936	950	0,872	828
2020	1 896	57,7	7 122	2 978	2258	936	950	0,760	722
2021	1 896	57,7	7 122	2 978	2258	936	950	0,663	629
2022	1 896	57,7	7 122	2 978	2258	936	950	0,578	549
2023	1 896	57,7	7 122	2 978	2258	936	950	0,503	478
2024	1 862	57,7	6 994	2 925	2218	919	933	0,439	409
2025	1 862	52,2	6 872	2 925	2218	919	810	0,383	310
2026	1 862	52,2	6 872	2 925	2218	919	810	0,334	270

2027	1 862	52,2	6 872	2 925	2218	919	810	0,291	236
2028	1 862	52,2	6 872	2 925	2218	919	810	0,254	205
2029	1 810	52,2	6 680	2 843	2156	894	788	0,221	174
2030	1 810	52,2	6 680	2 843	2156	894	788	0,193	152
2031	1 810	55,5	7 444	2 843	2156	894	1 552	0,168	261
2032	1 760	55,5	7 238	2 764	2096	869	1 509	0,146	221
2033	1 760	55,5	7 238	2 764	2096	869	1 509	0,128	193
2034	1 760	55,5	7 238	2 764	2096	869	1 509	0,111	168
2035	1 760	55,5	7 238	2 764	2096	869	1 509	0,097	146
2036	1 710	55,5	7 032	2 686	2036	844	1 466	0,085	124
2037	1 710	55,5	7 032	2 686	2036	844	1 466	0,074	108
2038	1 710	55,5	7 032	2 686	2036	844	1 466	0,064	94
2039	1 680	55,5	6 909	2 639	2001	829	1 440	0,056	81
2040	1 608	55,5	6 613	2 526	1915	794	1 378	0,049	67
2041	1 600	55,5	6 580	2 513	1905	790	1 372	0,043	58
2042	1 580	55,5	6 498	2 482	1882	780	1 354	0,037	50
2043	1 500	55,5	6 169	2 356	1786	741	1 286	0,032	42
Recoverable Value of Fixed Assets, billion rubles								6 576	
Carrying Amount of Fixed Assets, billion rubles								6 591	
Difference between RV&CA, billion rubles								-15	

Table 3. Calculation of asset impairment

CONCLUSION

The use of the proposed impairment model will allow oil and gas companies to generate sufficiently accurate and fair information about the recoverability of their non-current assets if there are signs of impairment of assets. It will also reduce the time spent by auditors to check the recoverability of non-current assets of companies.

However, as shown by the global changes in the economic situation in the first quarter of 2020 caused by the coronavirus pandemic and leading to the stagnation of industry around the world, disagreements about the production volumes of the main players in the oil market, which provoked the collapse of oil prices and the depreciation of the ruble, impose certain restrictions on the use of this method.

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