

Mariya Shygun
Nataliya Mychak

RATIO ANALYSIS FOR OPERATIONS WITH NON-CURRENT ASSETS HELD FOR SALE

Abstract

The article is devoted to the study of the main methodical principles of analysis operations with non-current assets held for sale, in particular the analysis of their flow, as a direction for improving the management of non-current assets held for sale and the level of economic performance of enterprises, through the example of oil and gas industry companies in the Republic of Poland. The article emphasizes the lack of researches in analysis of operations with non-current assets held for sale. The main stages of analysis of operations with non-current assets held for sale are determined by the authors. Non-current assets held for sale flow coefficients are presented in the part of calculating acquisition, retirement and growth coefficients. Conditions for calculating flow coefficients are determined. In order to provide reliable analytical data for the decision-making purposes regarding non-current assets held for sale are proposed the dates for calculating the coefficients flow. Points of time which require calculation of analytical indicators regarding condition and flow of non-current assets held for sale are showed. Dynamics of non-current assets held for sale flow coefficients are highlighted. Development of non-current assets held for sale flow analysis methods will allow improving and controlling not only the results of investment activity, but also the main performance indicators of the entire financial and economic activity of enterprises in terms of non-current assets held for sale impact on it in order to optimize enterprise management, formulate a strategy of further development and formulate clearer plans and forecasts.

Keywords: non-current assets, non-current assets held for sale, methods of analysis, ratio analysis.

ANALIZA WSPÓŁCZYNNIKÓW TRANSAKЦИИ Z AKTYWÓW TRWAŁYCH PRZEZNACZONYCH DO SPRZEDAŻY

Streszczenie

W artykule zaprezentowano analizę współczynników dotyczących zmian aktywów trwałych przeznaczonych do sprzedaży (z ang. NCAHS) w zakresie ich nabycia, wycofania z eksploatacji oraz wzrostu wartości. Określono zasady obliczania wykonywanych w opracowaniu współczynników zmian stanu środków trwałych przeznaczonych do sprzedaży. Dla zapewnienia wiarygodności danych analitycznych w procesach podejmowania decyzji dotyczących aktywów trwałych przeznaczonych do sprzedaży proponuje się terminy obliczenia analizowanych współczynni-



ków. Wskazano momenty, w których winna nastąpić kalkulacja wskaźników analitycznych dotyczących stanu i zmian aktywów trwałych przeznaczonych do sprzedaży. Podkreślono znaczenie dynamiki zmian stanu NCAHS. Opracowanie metod analizy przepływu aktywów trwałych przeznaczonych do sprzedaży pozwoli na poprawę i kontrolę nie tylko wyników działalności inwestycyjnej, ale także wskaźników efektywności całej działalności finansowej i gospodarczej przedsiębiorstw w zakresie wpływu na nią aktywów trwałych przeznaczonych do sprzedaży, formułowania strategii dalszego rozwoju oraz precyzyjnych planów i prognoz.

Słowa kluczowe: aktywa trwałe, aktywa trwałe przeznaczone do sprzedaży, metody analizy, analiza współczynników.

Introduction

Non-current assets held for sale (NCAHS) constitute an important source of expansion of enterprise's highly liquid resources that provide an adequate level of paying capacity, provide the basis for introducing investment measures to expand the material base and improving profitability indicators. NCAHS are an important indicator in financial statements because they can affect the financial position and liquidity of companies. Detailed analysis of non-current assets held for sale using a ratio system allows to determine such an impact. However, the ratio analysis for NCAHS operations is not developed, so the methods for the ratio analysis of NCAHS requires extensive research and development. Need to develop methodical approaches to NCAHS ratio analysis is conditioned by the need to create a reliable foundation for maintaining appropriate level of business activity of the enterprise and ensuring adoption of operational and investment decisions as significant factors in the future increase of the activity's profitability level.

Practice of accounting and financial statements of the Poland shows availability of relevant experience in implementation of various types of operations with NCAHS and provides an appropriate informational basis for its study and use for the purposes of developing accounting and analytical support for managing NCAHS in enterprises. Introduction of the newest approaches towards managing NCAHS based on perfect accounting and analytical support at enterprises will promote increasing the level of economic indicators of their activity, improving their financial situation, investment attractiveness and investor confidence.

For the purpose of creating perfect methodical principles for ratio analysis of NCAHS operations, special attention should be paid to methods of analysis of the composition, structure, flow and turnover of such assets.

At the present stage, analysis for operations with NCAHS and their components is not sufficiently researched by authors. Instead, considerable attention is paid to the practical use of methodical principles of the analysis for operations with non-current assets, which is the research subject of Ukrainian scien-

tists. In particular, analysis of the availability, condition, flow and efficiency of intangible assets use is the focus of scientific research of T. Polyova¹, V. Rozheliyk², A. Cherep³, Y. Chub⁴; analysis of the structure and efficiency of non-current assets use and, in particular, fixed assets, is presented in the works of S. Khalatur⁵, M. Paliukh⁶, I. Kul'ko-Labintseva⁷. Features of enterprise's fixed assets analysis were researched by N. Selivanova⁸. Impact of inflation on fixed assets analysis is highlighted in the works of R. Kaluba⁹. Researches of non-current assets analysis were conducted by such Polish authors like M. Nawaiseh¹⁰, who analyzed non-current assets depreciation, W. Gabrusewicz¹¹, who analyzed property structure.

¹ Polyova T.V., Dubovets M.M., Analysis of the efficiency of the use of intangible assets through the example of «Savinsky Sugar Plant» OJSC, Economic strategy and prospects of trade and services industries development, 2010, Issue. 1, PP. 91–96.

² Rozheliyk V.M., Denchuk P.N., System of intangible assets' condition and use indicators, Scientific notes: a collection of scientific works of the Department of Economic Analysis of the Ternopil National Economic University, Ternopil, 2006, Issue. 15, PP. 49–51.

³ Cherep A.V., Puhalska A.P., Analysis of the availability and efficiency of the use of intangible assets by the machine-building enterprises of the Zaporizhzhya region, International collection of scientific works, 2011, № 2 (19). – PP. 468–477.

⁴ Chub Y.V., Analysis of the availability and use of intangible assets, Economic analysis: a collection of scientific works, Ternopil National Economic University, 2014, Vol. 15, № 3, PP. 225–229.

⁵ Khalatur S.M., Bilous G.V., Analysis of the efficiency of using non-current assets of an agricultural enterprise, Materials of the IV International scientific-practical conference «Formation of an effective model of enterprise development in a market economy», November 24–25, 2016, Zhytomyr, 2016, 505 p., PP. 233–235.

⁶ Paliukh M.S., Matviychuk L.O., Assessment of the condition and use of fixed assets in the agrarian sector of the economy, Sustainable development of economy, 2015, № 2, PP. 208–214.

⁷ Kul'ko-Labintseva I.V., Analysis of the structure of fixed assets of «Motor Sich» PJSC, Country and regions. Economics and entrepreneurship, 2014, № 2, PP. 102–105.

⁸ Selivanova N.M., Tkachenko Y.V., Popko Y.O., Features of the methods for conducting analysis of fixed assets of the enterprise, Materials of the VII International scientific and practical Internet conference «Problems of the market and development of regions of Ukraine in the XXI century», December 5–9, 2016, Odessa: Odessa National Polytechnic University, 2016, 142 p., PP. 98–102.

⁹ Kalubi R.D.M., Impact of inflation on capital assets analysis, International scientific and research journal, 2017, № 3 (57), P. 2, PP. 74–80.

¹⁰ Mohammad Ebrahim Nawaiseh. Impairment Analysis of Non-current Assets under DCF Based-test in the Jordanian Industrial Shareholding Companies, British Journal of Economics, Management & Trade, 2015, № 7 (1), PP. 10–22.

¹¹ Gabrusewicz Wiktor, Analiza struktury aktywów (majątku), Analiza-prognoza finansowa. Niezbędnik analityka, 2018, <https://analizy-prognozy.pl/analizy-prognozy-finansowe/analiza/wskaznikowa/struktury/majatku/> [27.09.2019].

Cieśla A.¹², M. Kraszewska-Szuba¹³, A. Lazarowicz¹⁴ researched fixed assets sale. However, nowadays researches` attention is mainly paid to scientific developments in the area of non-current assets analysis, whereas the issue of NCAHS analysis in terms of studying its components is not sufficiently detailed and requires a comprehensive research.

The goal of the research is to develop methodical principles of ratio analysis for operations with NCAHS in order to determine their impact on financial position of companies.

1. The main stages of analysis for operations with NCAHS

Fixed assets, which constitute material and technical basis of any enterprise`s activities, represent a considerable part within non-current assets. At the same time, in the events of their inefficient use within the limits of operational activity, enterprise`s management may consider fixed assets as a source of generating positive cash flows as a result of their sale and creation of additional source for financing activities.

In order to ensure effective decision-making for operations with NCAHS, we recommend to analyze the condition of such assets with using proper indicators for several stages (Table 1).

¹²Agata Cieśla. Rozliczenie sprzedaży środka trwałego, Gazeta Podatkowa nr 103 (1353) z dnia 27.12.2016, 2016, <https://www.gofin.pl/podatki/17,2,61,161094,rozliczenie-sprzedazy-srodka-trwalego.html> [27.09.2019].

¹³ Magdalena Kraszewska-Szuba. Jak księgować i rozliczyć sprzedaż środka trwałego, Rachunkowość, 2017, <http://www.rp.pl/Rachunkowosc/312139978-Jak-ksiegowac-i-rozliczyc-sprzedaz-srodka-trwalego.html> [27.09.2019].

¹⁴ Andrzej Lazarowicz. Sprzedaż środka trwałego a wycofanie majątku na cele prywatne, Poradnik Przedsiębiorcy, 2018, <https://poradnikprzedsiębiorcy.pl/-dokumentowanie-sprzedazy-srodkow-trwalych> [27.09.2019].

Table 1. Stages of analysis for operations with NCAHS.

Stages of analysis for operations with NCAHS	Directions of analysis for operations with NCAHS	Suggested indicators characterized NCAHS condition and flow	Economic effect for decision- making purposes
I. Structural-dynamic analysis	<ul style="list-style-type: none"> • Studying NCAHS composition and structure (determining basic balance ratios of NCAHS in general and their components, taking into account their amount and value); • Studying NCAHS dynamics and flow 	Structure ratios: <ul style="list-style-type: none"> • NCAHS share in balance sheet assets; • Share of fixed assets held for sale in NCAHS; • Share of intangible assets held for sale in NCAHS; • Share of other non-current tangible assets held for sale in NCAHS; • Share of long-term biological assets held for sale in NCAHS; • Composition ratio; • Flow ratio (reclassification; growth; retirement; mobility; reverse reclassification) 	Ensuring internal control over the availability of NCAHS at the end of the reporting period as well as the completeness of implementation of NCAHS sales contracts. Comparison of indicators in the course of time allows to determine the change of fixed assets condition with due consideration of recognizing them as NCAHS Increase of investment activity efficiency and rational use of funds
II. Financial performance indicators analysis	Calculation of NCAHS analytical indicators: <ul style="list-style-type: none"> • liquidity, • profitability, • business activity 	<ul style="list-style-type: none"> • Profitability of NCAHS sales; • NCAHS turnover ratio 	Provides assessment of enterprise's activity efficiency with due consideration of operations with NCAHS and their impact on performance indicators
III. Factor analysis	Assessment of factors' impact on final activity indicators: Profitability of NCAHS sales NCAHS turnover ratio		Determination of the impact of factors (sales of NCAHS profitability, NCAHS turnover) on performance indicators
IV. Comparative analysis	Comparison of reporting, previous, planned and actual years' data, comparison of enterprise's data with industry average data or similar indicators of competitors activity		Allows determining tactical and strategic objectives of business entity in conditions of competition

Source: developed by authors.

According to the Table 1, structural-dynamic analysis and analysis of financial performance indicators is based on the application of the ratio analysis for operations with NCAHS, which involves the calculation of the structure ratio, composition ratio, flow ratio, profitability and NCAHS turnover ratio. The factor analysis of NCAHS is performed on the basis of ratio calculated in order to identify the factors' impact on performance indicators. The comparative analysis of NCAHS allows to compare the sales results of different companies or industries, the values of the calculated ratios in order to find ways to improve the performance of the companies. Factor and comparative analysis can be performed using the existing methods.

2. Analysis of indicators for operations with NCAHS.

Ratio analysis for operations with NCAHS needs developments, as it remains undeveloped today. Suggested ratios that we recommend to calculate when conducting a ratio analysis for operations with NCAHS are below, in particular:

- structure ratio, which determines the ratio of NCAHS and the cumulative value of the total assets or individual components of the NCAHS in the value of all the NCAHS:

$$R_{str} = \frac{FAHS}{NCAHS} \quad (1.1)$$

where:

FAHS - fixed assets held for sale;

NCAHS - non-current assets held for sale;

$$R_{str} = \frac{NCAHS}{Total\ assets} \quad (1.2)$$

where: total assets – all the assets presented in the Statement of financial position.

- composition ratio, which shows the share by dividing the amount of the values of NCAHS components by their total number:

$$R_{com} = \frac{NCAHS1+NCAHS2+NCAHS3}{Number\ of\ NCAHS} \quad (2)$$

- reclassification ratio, which shows the proportion of reclassified assets in NCAHS value in the beginning of the year:

$$R_{reclas} = \frac{NCAHS_{reclas}}{NCAHS_{beg}} \quad (3)$$

where:

R_{reclas} - reclassification ratio;

$NCAHS_{reclas}$ - value of non-current assets which were recognized as held for sale during the year;

$NCAHS_{beg}$ - value of non-current assets held for sale in the beginning of the year;

- growth ratio, which shows the dynamics of NCAHS flow - changes in the composition of NCAHS available for a certain period due to the recognition of some assets as NCAHS and sale of others:

$$R_{grow} = \frac{NCAHS_{be} + NCAHS_{reclas} - NCAHS_{sold}}{NCAHS_{beg}} \quad (4)$$

where:

$NCAHS_{sold}$ - value of non-current assets which were sold during a year.

- retirement ratio, which shows the proportion of sold assets in NCAHS value in the end of the year:

$$R_{ret} = \frac{NCAHS_{sold}}{NCAHS_{end}} \quad (5)$$

where:

R_{ret} - retirement ratio;

$NCAHS_{sold}$ - value of non-current assets sold during the year;

$NCAHS_{end}$ - non-current assets held for sale in the end of the year.

- share of sales in retirement, which shows how many non-current assets were sold during the reported year in comparison with the total value of retired assets:

$$S_{sales\ in\ ret} = \frac{NCAHS_{sold}}{NCA_{ret}} \quad (6)$$

where:

$S_{sales\ in\ ret}$ - share of sales in retirement;

NCA_{ret} - non-current assets that have been retired in all kinds of ways during the year.

- ratio of NCAHS impact on non-current assets changes, which determines the change in non-current assets value for the year under the effect the NCAHS recognition, and not other operations with them:

$$R_{impact} = \frac{NCAHS_{reclas}}{NCA_{beg} - NCAHS_{reclas}} \quad (7)$$

where:

NCA_{beg} - non-current assets as of the beginning of the year.

- reverse reclassification ratio, which shows how much NCAHS were returned as a result of a sale operation's non-execution:

$$R_{rev.reclas} = \frac{NCAHS_{return}}{NCAHS_{beg}} \quad (8)$$

where:

$R_{rev.reclas}$ - reverse reclassification ratio;

$NCAHS_{return}$ - non-current assets withdrawn from the list of held for sale assets.

- mobility ratio, which shows the ratio of current (NCAHS) and non-current (NCA) assets at the reporting date and means the sale of unused assets:

$$R_{mob} = \frac{NCAHS_{beg}}{NCA_{beg}} \quad (9)$$

where:

R_{mob} – mobility ratio.

- turnover ratio, which shows how much revenue equals 1 zloty of value of NCAHS sold:

$$R_{turn} = \frac{NP_{sale\ NCA}}{NCAHS_{aver.sold}} \quad (10)$$

where:

$NP_{sale\ NCA}$ – net proceeds from the sale of non-current assets;

$NCAHS_{aver.sold}$ – average NCAHS sold during the year.

- duration of the NCAHS turnover, which determines the period (number of days) for which the NCAHS will be sold:

$$D_{turn} = \frac{360}{R_{turnover}} \quad (11)$$

3. Dates for ratios calculating.

In order to provide reliable analytical data for the decision-making purposes regarding NCAHS the given ratios should be calculated as of the relevant dates in the operations with NCAHS (Table 2).

Table 2. Proposed dates in time to calculate the ratios for operations with NCAHS.

No	Ratios	Date of classification as NCAHS	Date of NCAHS sale	Date of NCAHS reverse classification	Date of balance	Optimal indicator value and comments
1	Structure ratio (R_{str})	+/-	+/-	+/-	+/+	It depends on the value of the property potential from which NCAHS are allocated for sale. The higher the ratio value, the greater the value of non-current assets that are recognized for sale. $R_{str} = 1$, if only one of species is in the NCAHS (formula 1.1). $R_{str} \neq 1$, since the only NCAHS does not summarize the Statement of financial position (formula 1.2). $R_{str} = 0$, if there is no NCAHS. $1 \geq R_{str} \geq 0$ (formula 1.1)
2	Composition ratio (R_{com})	+	+	+	+	There is no normative value

№	Ratios	Date of classification as NCAHS	Date of NCAHS sale	Date of NCAHS reverse classification	Date of balance	Optimal indicator value and comments
3	Reclassification ratio (R_{reclas})	+	-	-	+	<p>NCAHS may not be in the Statement of financial position in the beginning of the year due to their retirement during the past reporting year.</p> <p>$1 > R_{reclas} > 0$ $R_{reclas} = 0$, if $NCAHS_{beg} = 0$ $R_{reclas} = 1$, if $NCAHS_{beg} = NCAHS_{reclas}$ and sales did not happen during the year $R_{reclas} > 1$, if $NCAHS_{reclas} > NCAHS_{beg}$.</p> <p>Strategically important indicator in the activity of the enterprise. The ratio is not calculated in the absence of NCAHS.</p>
4	Growth ratio (R_{growth})	+	+	-	+	<p>$NCAHS_{reclas} > NCAHS_{sold} \rightarrow R_{growth} > 0$, if $NCAHS_{beg} > 0$; $R_{growth} = 0$, if $NCAHS_{beg} = 0$. R_{growth} can have values more or less than 1. Less than 1, if $NCAHS_{end} < NCAHS_{beg}$ and vice versa</p>
5	Retirement ratio (R_{ret})	-	-	-	+	<p>NCAHS may not be in the Statement of financial position in the end of the year, but may appear during the next year. If NCAHS weren't sold, the indicator won't matter.</p> <p>$1 > R_{ret} > 0$, if $NCAHS_{end} > 0$ and $NCAHS_{sold} < NCAHS_{end}$; $R_{ret} = 0$, if $NCAHS_{end} = 0$. $R_{ret} > 1$, if $NCAHS_{sold} > NCAHS_{end}$, this means that during the reporting year were sold a significant proportion of the NCAHS recognized both in the previous year and in the current year</p>
6	Share of sales in retirement ($S_{sales\ in\ ret}$)	-	+	-	+	<p>$1 > S_{sales\ in\ ret} > 0$</p> <p>If this indicator equals 1, it means that there was no other kind of retirement except for sales during the year. If $S_{sales\ in\ ret} = 0$, then no disposals of non-current assets occurred at all, because if there was at least a sale, then the figure would be equal 1.</p>

No	Ratios	Date of classification as NCAHS	Date of NCAHS sale	Date of NCAHS reverse classification	Date of balance	Optimal indicator value and comments
7	Ratio of NCAHS impact on non-current assets changes (R_{impact})	+	-	-	+	The indicator should be calculated at the end of the year and the reclassification date, taking into account the value of NCAHS that will be recognized during the year, in the value of non-current assets at the beginning of the year (NCA_{beg}), since NCAHS was still part of NCA, and at the end of the year the indicator is no longer included the value of NCAHS recognized for the year ($NCA_{\text{beg}} - NCAHS_{\text{reclas}}$)
8	Reverse re-classification ratio ($R_{\text{rev. reclas}}$)	-	-	+	+	$R_{\text{rev. reclas}} > 0$, if there were no $NCAHS_{\text{beg}}$, but its return take place as it may be those assets that were recognized during the current year and without its sale. If $NCAHS_{\text{return}} = 0$, then the ratio is not calculated
9	Mobility ratio (R_{mob})	-	-	-	+	$1 > R_{\text{mob}} > 0$, $R_{\text{mob}} = 0$, if NCAHS are absent. There is no normative value
10	Turnover ratio (R_{turn})	-	-	-	+	The balance sheet date can be the end of the quarter, half year, nine months and year. There is no optimal value. The positive trend is increasing value of the ratio
11	Duration of the NCAHS turnover (D_{turn})	-	-	-	+	The balance sheet date can be the end of the quarter, half year, nine months and year. There is no optimal value. The positive trend is decreasing in duration of the turnover (turnover acceleration - sale)

Source: the authors.

The ratio analysis can be carry out according to the financial statements, in particular, such forms as the Statement of financial position, Statement of profit or loss and other comprehensive income, Statement of cash flows, and Notes to the annual financial statements, which form the basis of the information support of the analysis for operations with NCAHS.

4. The practical approbation of the proposed methods of ratio analysis.

The practical approbation of the proposed methods of ratio analysis based on the actual reporting data of Polish companies of oil and gas industry for the period 2007-2018, in particular, PKN Orlen (<https://www.orlen.pl/>) and PGNiG Group (<http://en.pgnig.pl/>) is given below (Table 3).

Table 3. Calculation of ratios for operations with NCAHS for the companies of oil and gas industry.

Years	R _{str} (1.2)	R _{com}	R _{reclas}	R _{growth}	R _{ret}	R _{sales in ret}	R _{impact}	R _{rev.reclas}	R _{mob}	R _{turn}	D _{turn}
1	2	3	4	5	6	7	8	9	10	11	12
PKN Orlen											
2007	0,41	0,06	0,332	0,183	6,297	0,987	0,013	0	0,041	0,52	692
2008	0,11	0,09	0,337	0,274	3,884	0,323	0,003	0,069	0,0075	1,13	318,5
2009	0,07	0,05	0	0,625	0,6	0,047	0	0,039	0,0019	34,49	10
2010	0,08	0,06	0,294	1,294	0	0	0,0003	0	0,0011	0	0
2011	0,05	0,05	0,24	0,685	0,81	0,028	0,0004	0	0,0015	12,39	29
2012	0,13	0,32	1,4	2,265	0,061	0,002	0,0015	0,421	0,0011	6,88	52
2013	0,03	0,13	0	0,232	3,31	0,219	0	0	0,0026	3,094	116
2014	0,07	0,17	1,667	2,267	0,176	0,002	0,0009	0,333	0,00059	44,44	8
2015	0,2	0,46	2,5	2,853	0,227	0,018	0,0038	0	0,0015	5,24	69
2016	0,11	0,39	0,412	0,629	1,246	0,049	0,0016	0	0,0039	1,72	209
2017	0,12	0,36	0,23	1,229	0	0	0,00051	0	0,0022	0	0
2018	0,27	0,49	2	2,69	0,114	0,045	0,0052	0,0031	0,0025	7,58	47,5
PGNiG Group											
2007	0,002	0,08	0,333	0	0,023	0,0007	0,000026	0	0	66,19	5
2008	0,003	0,07	0,556	2,252	0	0	0,000029	0,022	0,000024	105,3	3
2009	0,005	0,09	0,644	1,475	0,322	0,0006	0,000046	0,0000	0,00004	53,2	7
2010	0,012	0,09	0,641	2,786	0	0	0,00011	0,067	0,00006	19,57	18
2011	0,02	0,13	0,7	2,171	0,161	0,006	0,00024	0,028	0,00016	24,03	15
2012	0,22	0,66	0,935	12	0,019	0,105	0,00345	0	0,00031	109,47	3
2013	0,19	0,03	0	0,815	0,227	0,027	0	0,027	0,00319	10	36
2014	0,3	0,71	0,503	1,67	0,102	0,25	0,00224	0	0,0026	1,3	277
2015	0,33	0,78	0,189	1,116	0,085	0,025	0,00092	0,068	0,0043	4,05	89
2016	0,11	0,02	0,211	0,348	2,088	0,167	0,00036	0	0,0049	0,86	419
2017	0,14	0,023	0,212	1,158	0,076	0,007	0,00042	0	0,0017	0,83	434
2018	0	0	0,065	0,697	0,5	0,062	0,000092	0	0,00203	0,68	529

Source: Calculated by authors on basis of data PKN Orlen, PGNiG Group [<https://www.orlen.pl/>; <http://en.pgnig.pl/>].

The analysis of the calculated ratios according to Table 3 shows that the share of NCAHS in total assets of both companies is rather small, so the change in amount of NCAHS as a whole does not have a significant impact on the liquidity of the Statement of financial position. If the share of NCAHS were significant in the Statement of financial position, such an impact would have a clearer expression.

Conducted analysis shows that the growth of NCAHS for the PKN Orlen and PGNiG Group during period 2007-2018 was positive and formed under the effect the share of NCAHS recognized and NCAHS sold during the year. The positive growth indicates a significant composition of the NCAHS and sales in excess of one year or sales in the next reporting year.

Increasing of ratio of reclassification, retirement and sales in retirement in the end of the year for PKN Orlen and PGNiG Group means an increase share of reclassified and sold NCAHS for the reporting year.

Increasing value of the turnover ratio of PKN Orlen and PGNiG Group shows a turnover acceleration as the number of days required to make a single turnover is diminished (reclassification – sale) and indicates that companies need less resources to maintain their current level of business activity. Increasing value of this ratio over the period 2007-2018 is positive, as it shows the work of PKN Orlen and PGNiG Group concerning improving the management policy of NCAHS, cash received from sale of NCAHS, receivables for the NCAHS dispatched, that reflects positively on the stability of the financial position.

Decreasing value of the turnover ratio of PKN Orlen and PGNiG Group over the period 2007-2018 indicates an increasing need in financial resources, despite the high level of liquidity, which is not yet a guarantee of high solvency, as it is associated with an increase in receivables from sales of non-current assets, which slows down the turnover of NCAHS, therefore, in order to increase the turnover of NCAHS, it is necessary to accelerate the repayment of such debt in companies.

5. NCAHS components.

According to Table 4, the NCAHS includes financial assets – investments and shares, which are the most liquid NCAHS components.

Table 4. The share of NCAHS components in the value of NCAHS for oil and gas companies, %.

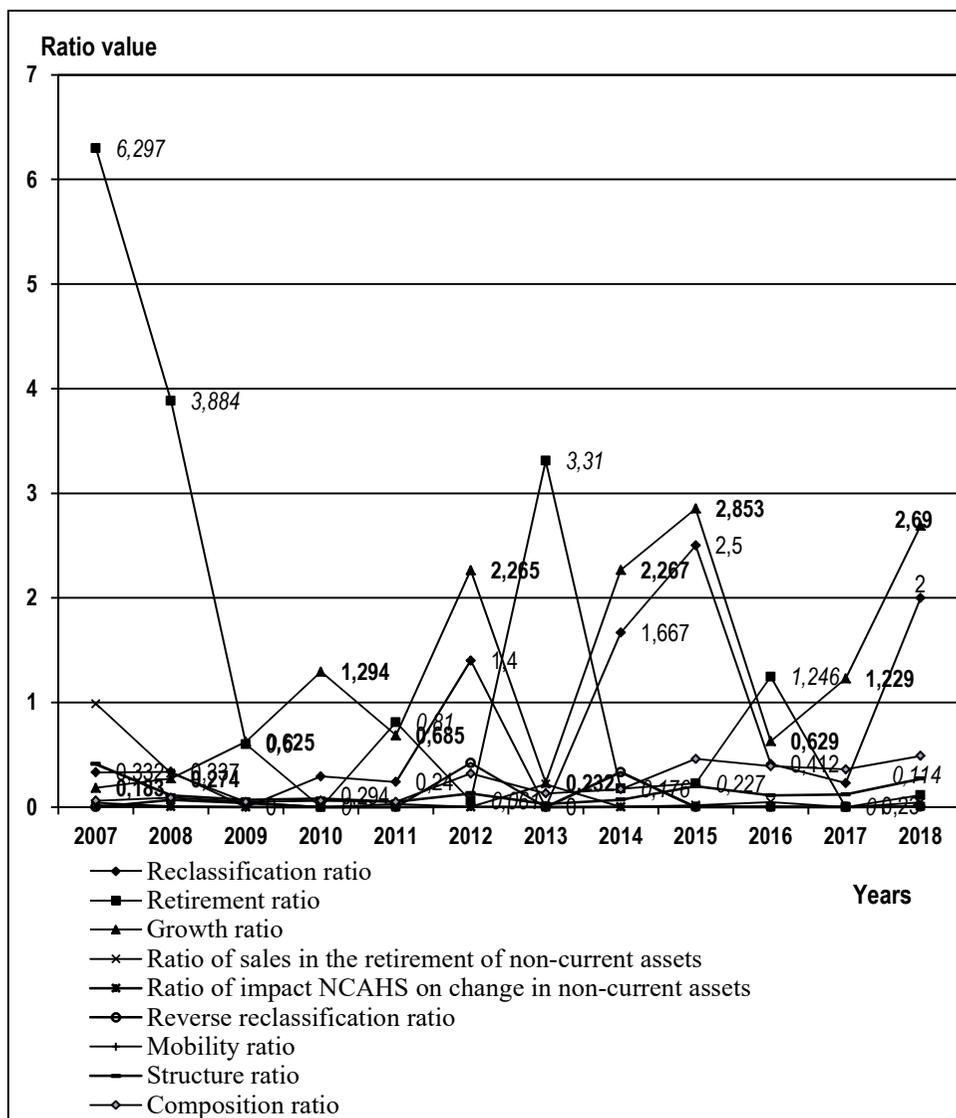
Years	NCAHS components								
	The right to energy	Property, machinery, equipment	Buildings and constructions	Other non-current assets (goodwill, investments in associates and joint ventures, loans)	Assets of subsidiaries	Shares	Other non-current assets	Land rights and use	Vehicles
1	2	3	4	5	6	7	8	9	10
PKN Orlen									
2007	0	9,64	-	0	0	90,36	0	-	-
2008	0	0	-	0	0	23,86	76,14	-	-
2009	0	0	-	0	0	52,96	47,04	-	-
2010	0	0	-	69,68	0	8,14	22,19	-	-
2011	0	0	-	94,99	0	5,01	0	-	-
2012	69,23	0	-	29,23	0	1,54	0	-	-
2013	0	0	-	73,33	20	6,67	0	-	-
2014	0	50,88	-	26,65	14,71	0	7,77	-	-
2015	36,98	33,52	-	20,81	0	0	8,69	-	-
2016	0	36,06	-	31	0	9,37	23,57	-	-
2017	0	31,87	-	40,8	0	6,44	20,89	-	-
2018	22,33	17,64	-	30,41	5,37	0	24,25	-	-
PGNiG Group									
2007	-	0,67	29,02	-	0	0	0	70,31	0
2008	-	0	38,26	-	0	0	0	33,6	28,15
2009	-	0	63,44	-	0	0	0	36,56	0
2010	-	0	49,14	-	0	0	0	50,86	0
2011	-	0	56,69	-	0	0	0	43,31	0
2012	-	0	0	-	84,26	4,63	11,11	0	0
2013	-	0	0	-	0	98,52	1,47	0	0
2014	-	0	0	-	0,68	0	99,32	0	0
2015	-	0	0	-	1,83	0	98,17	0	0
2016	-	0	0	-	0	5,26	94,74	0	0
2017	-	0	60,61	-	0	4,55	34,85	0	0
2018	-	0	0	-	0	0	0	0	0

Source: Composed by authors on basis of data PKN Orlen, PGNiG Group [<https://www.orklen.pl/>; <http://en.pgnig.pl/>].

6. Dynamics of ratios for operations with NCAHS.

The results of the ratios calculation for PKN Orlen and PGNiG Group are presented graphically (Fig. 1, 2).

Figure 1. Dynamics of ratios of NCAHS availability, flow and turnover at PKN Orlen (Poland) during 2007–2018.

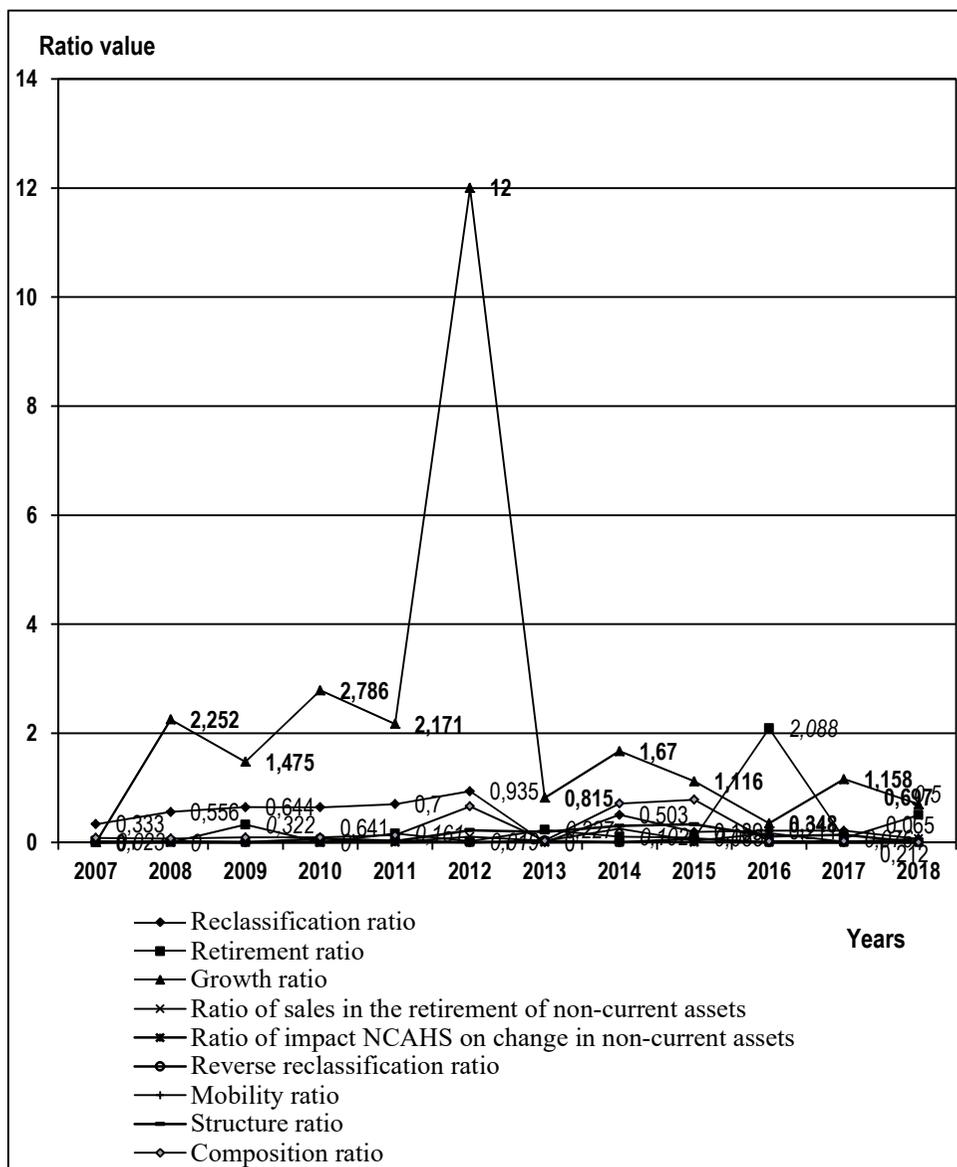


Source: Calculated by authors on basis of data PKN Orlen¹⁵ [<https://www.ornen.pl/>].

¹⁵ <https://www.ornen.pl/> [27.09.2019].

Dynamics of ratios value of NCAHS availability, flow and turnover at PGNiG Group company in y 2007–2018 is presented on the following figure (Fig. 2).

Figure 2. Dynamics of ratios of NCAHS availability, flow and turnover at PGNiG Group (Poland) during 2007–2018.



Source: Calculated by authors on basis of data PGNiG Group¹⁶ [<https://en.pgnig.pl/>].

¹⁶ <http://en.pgnig.pl/> [27.09.2019].

According to Figures 1, 2 the values of composition, structure, flow and turnover ratios of NCAHS for PKN Orlen and PGNiG Group are characterized by significant dynamics and reflect a high degree of attraction of non-current assets in the processes of expansion of financing activities at PKN Orlen and PGNiG Group.

Conclusions

The ratio analysis implemented at PKN Orlen and PGNiG Group makes it possible to carry out a comparative analysis of NCAHS quality – to evaluate the composition, structure, flow, turnover of NCAHS – in order to identify the impact of operations with NCAHS on the financial condition of Polish companies, in particular, on their liquidity. Increasing value of NCAHS growth ratio for the Polish companies due to the accumulation of the value of NCAHS reclassified at the end of the year makes a slight positive impact on the balance sheet liquidity. Furthermore, an increasing value of NCAHS growth ratio makes a negative impact as a significant part of NCAHS at the end of the year may lead to the extension of the term of NCAHS sale or the refusal to sell due to the independent external factors of the company, and this may raise doubts of creditors, investors and suppliers about future cooperation.

In order to preserve the normal level of major operations with NCAHS at PKN Orlen and PGNiG Group, a uniform level of reclassification and sale of NCAHS should be maintained, which will reflect positively on the liquidity condition, and significant NCAHS balances shouldn't be allowed, which may be a result of insufficient control of the execution status of NCAHS sales contracts.

To ensure the reliability of ratio analysis results for the operations with NCAHS, we recommend to calculate ratios at the following dates during the reporting period: the date of recognition of the NCAHS, the date of sale, reverse reclassification date, the balance sheet date provided that at the beginning and end of the year of recognition or selling NCAHS, the company already held assets for sale on the balance sheet. Due to the absence of the NCAHS in the balance sheet at the beginning or the end of the reporting year, R_{reclas} and R_{ret} may be absent, so for the objective analysis of the NCAHS flow it is necessary to consider the ratios in the aggregate, since if there are carried out operations for recognition of the NCAHS during the year but if there are no NCAHS at the balance sheet date, R_{reclas} is not calculated at the end of the year, and calculating it without calculating R_{ret} may indicate that there were no reclassifications in the reporting period that actually took place. Accordingly, the absence of NCAHS at the balance sheet date may nullify the analytical value of ratios even if there are reclassifications during the reporting period.

Methods of ratio analysis for operations with NCAHS proposed in this article is important as a tool for ensuring an effective management of these types of assets in order to successfully operate companies and achieve their strategic goals.

Conclusions

The article is devoted to the study of the main methodical principles of analysis for operations with non-current assets held for sale, in particular, the ratio analysis, as a direction for improving the management of non-current assets held for sale and the level of economic performance of enterprises, through the example of oil and gas industry companies in the Poland. The article emphasizes the lack of researches in analysis for operations with non-current assets held for sale. The main stages of analysis for operations with non-current assets held for sale are determined by the authors. Ratios of availability, flow and turnover of non-current assets held for sale are presented in the part of calculating composition, structure, reclassification, retirement, growth, reverse reclassification, turnover and mobility ratios. Conditions for calculating all the ratios are determined. The dates for calculating the ratios are proposed in order to provide reliable analytical data for the decision-making purposes regarding non-current assets held for sale. Points of time to calculate the ratios for operations with non-current assets held for sale regarding their availability, flow and turnover are showed. Dynamics of ratios for operations with non-current assets held for sale are highlighted. Development of ratio analysis methods for operations with non-current assets held for sale will allow improving and controlling not only the results of investment activity, but also the main performance indicators of the entire financial and economic activity of enterprises in terms of impact of non-current assets held for sale on them in order to optimize enterprise management, formulate a strategy of further development and make clearer plans and forecasts.

Bibliography

1. Cieśla A., *Rozliczenie sprzedaży środka trwałego*, Gazeta Podatkowa nr 103 (1353) z dnia 27.12.2016, 2016, <https://www.gofin.pl/podatki/17,2,61,161094,rozliczenie-sprzedazy-srodka-trwalego.html>.
2. Cherep A., Puhalska A., *Analysis of the availability and efficiency of the use of intangible assets by the machine-building enterprises of the Zaporizhzhya region*, International collection of scientific works, 2011, № 2 (19).
3. Chub Y., *Analysis of the availability and use of intangible assets*, Economic analysis: a collection of scientific works, Ternopil National Economic University, 2014, Vol. 15, № 3.
4. Gabrusewicz W., *Analiza struktury aktywów (majątku)*, Analiza-prognoza finansowa. Niezbędnik analityka, 2018, <https://analizy-prognozy.pl/analizy-prognozy-finansowe/analiza/wskaznikowa/struktury/majatku/>.
5. Kalubi R., *Impact of inflation on capital assets analysis*, International scientific and research journal, 2017, № 3 (57).

6. Khalatur S., Bilous G., *Analysis of the efficiency of using non-current assets of an agricultural enterprise*, Materials of the IV International scientific-practical conference «Formation of an effective model of enterprise development in a market economy», November 24-25, 2016, Zhytomyr.
7. Kraszewska-Szuba M. *Jak księgować i rozliczyć sprzedaż środka trwałego*, Rachunkowość, 2017, <http://www.rp.pl/Rachunkowosc/312139978-Jak-ksiegowac-i-rozliczyc-sprzedaz-srodka-trwalego.html>.
8. Kul'ko-Labintseva I., *Analysis of the structure of fixed assets of «Motor Sich» PJSC*, Country and regions. Economics and entrepreneurship, 2014, № 2.
9. Lazarowicz A. *Sprzedaż środka trwałego a wycofanie majątku na cele prywatne*, Poradnik Przedsiębiorcy, 2018, <https://poradnikprzedsiebiorcy.pl/-dokumentowanie-sprzedazy-srodkow-trwalych>.
10. Nawaiseh M., *Impairment Analysis of Non-current Assets under DCF Based-test in the Jordanian Industrial Shareholding Companies*, British Journal of Economics, Management & Trade, 2015, № 7 (1).
11. Paliukh M., Matviychuk L., *Assessment of the condition and use of fixed assets in the agrarian sector of the economy*, Sustainable development of economy, 2015, № 2.
12. PKN Orlen, <https://www.ornlen.pl/> [27.09.2019].
13. PGNiG Group, <http://en.pgnig.pl/> [27.09.2019].
14. Polyova T., Dubovets M., *Analysis of the efficiency of the use of intangible assets through the example of «Savinsky Sugar Plant» OJSC*, Economic strategy and prospects of trade and services industries development, 2010, Issue. 1.
15. Rozheliuk V., Denchuk P., *System of intangible assets` condition and use indicators*, Scientific notes: a collection of scientific works of the Department of Economic Analysis of the Ternopil National Economic University, Ternopil, 2006, Issue 15.
16. Selivanova N., Tkachenko Y., Popko Y., *Features of the methods for conducting analysis of fixed assets of the enterprise*, Materials of the VII International scientific and practical Internet conference «Problems of the market and development of regions of Ukraine in the XXI century», December 5–9, 2016, Odessa: Odessa National Polytechnic University, 2016.

Information about the authors

ScD in Economics Professor Mariya Shygun
Head of Accounting and Taxation Department
Kyiv National Economic University named after Vadym Hetman
Ukraine
shygun@ukr.net

PhD student Nataliya Mychak
Accounting and Taxation Department
Kyiv National Economic University named after Vadym Hetman
Ukraine
natali.mychak@gmail.com