

COMPARATIVE ANALYSIS OF KEY PERFORMANCE INDICATORS OF MAJOR BRANDS IN THE ROMANIAN PHARMACEUTICAL INDUSTRY

Adriana IACOB (ZAVINCU), PhD Student
IOSUD-SDSE Valahia University of Targoviste, Romania,
zavincu_adriana@yahoo.com

ABSTRACT: *Due to the growing importance of the emerging market in Romania, the supply chain of pharmaceutical companies is forced to re-evaluate their strategies and improve their production and distribution processes. For this reason, it is important for pharmaceutical companies to define and measure progress towards their goals. Using key performance indicators (KPIs), as measurement tools, and comparative methods, this study aims to investigate the financial performance of major brands in the Romanian pharmaceutical industry. Because each pharmaceutical company has different goals, activities and services, this study identifies areas that are easy to further develop and provides practical suggestions for further improvements over the next few years.*

Keywords: *key indicators; major brands; measurement; performance; pharmaceutical industry Romania*

JEL Classification: *L69, L81, P23*

1. INTRODUCTION

The pharmaceutical industry in Europe is an important sector that promotes employment, competitiveness and economical growth. It revolves around different companies that produce, develop and sell pharmaceuticals and biological products. These products can be supplied in various forms, such as various solutions (for oral, injectable or infusion administration), various ointments (emulsions, creams, ointments or emollients), powders, capsules or tablets, usually through the distribution of wholesalers as well as sales in hospitals, pharmacies and other channels. Since most researchers have not yet focused their interest in this area, we have found it very attractive, so our research has focused on revealing the industry's compliance rules and its impact on the field of health (Nela S, 2015).

2. RADIOGRAPHY OF THE ROMANIAN PHARMACEUTICAL INDUSTRY

Because the pharmaceutical industry in Romania is one of the industries that thrives even during the crisis, although government regulations set some obstacles, this study is based on the analytical investment of the most powerful Romanian pharmaceutical companies that have successfully survived the crisis through supply and support in areas where progress is easy to achieve, such as research and development. Therefore, this paper compares the four-year financial statements of the selected companies and presents a radiographic introduction to the Romanian pharmaceutical industry, focusing on the

evolution of the five Romanian pharmaceutical manufacturers in terms of profitability, performance, competitiveness and market influence. The study will also provide a detailed analysis and correlation of financial risks and liabilities for selected pharmaceutical manufacturers.

Both primary and secondary data are used to build this research. Firstly, the data is collected using the annual reports of listed companies and reports from the Ministry of Finance and the Romanian Stock Exchange (BSE). In this case, the data includes 4 years of financial statements for the selected companies. The collected data is analyzed using statistical tools and financial reporting formulas and processed in the form of tables and graphs. Based on the statistical analysis of the data of the companies listed on the BVB and the Ministry of Finance, we carried out a more in-depth analysis of their performance.

To analyze the selected companies and determine their financial and economic performance, we use various financial reports that show the overall strategy of the company for its capital investors to make decisions. For this purpose, we use the most commonly used measure of profitability, return on equity (ROE). The return on equity will provide information about the share of that compensation and the investment made by the company's shareholders. This report is one of the important indicators used to assess the financial situation of the company in the market, and the increasing profitability of investment capital can give the company the opportunity to obtain its financial resources to reinvest in the business or attract new investors.

By calculating the financial rate of return, we will be able to determine the ability of the company to generate a surplus value after the payment of the borrowed capital. This also means that after the cancellation of the payment due, the capital can be paid to shareholders through dividends and remuneration. At the same time, the leverage index is calculated to reveal the overall leverage ratio, which is calculated as a division between total debt and equity. This report reflects the degree of financial independence of the company and the ability to use new loans.

3. ANALYSIS OF STATISTICAL DATA

In order to create an x-ray of a Romanian pharmaceutical company and highlight its competitiveness from 2017 to 2020, we first established the hierarchical structure of the company by analyzing the net fiscal value, net income and average number of employees in the last two years.

At the time of the investigation, BVB listed the following five drug manufacturers, namely Terapia S.A., Zentiva S.A., Sandoz S.R.L., Antibiotice S.A., Biofarm S.A. As shown in Table 1 and Table 2, since the first pharmaceutical company in 2019, the hierarchy of the company has not changed. In 2020, it was RPH, and the net income was 348,688,540 RON, respectively 285,418,033 RON in 2019.

Table 1. Top Romanian pharmaceutical manufacturers in 2020

Company name	City	Fiscal value	Net income	Medium number of employees
TERAPIA SA	Cluj	791.079.717	191.859.097	849
ZENTIVA SA	Bucharest	557.960.940	65.635.440	722
SANDOZ SRL	Mures	427.102.086	10.541.374	487
ANTIBIOTICE S.A.	Iasi	341.047.668	26.388.049	1415
BIOFARM SA	Bucharest	216.451.696	54.264.580	331

TABLE 2. Romanian pharmaceutical manufacturers in 2019

Company name	City	Fiscal value	Net income	Medium number of employees
TERAPIA SA	Cluj	736.265.865	149.146.548	851
ZENTIVA S.A.	Bucharest	541.440.353	43.750.880	620
SANDOZ SRL	Mures	412.217.469	10.815.508	349
ANTIBIOTICE S.A.	Iasi	390.646.543	30.823.278	1415
BIOFARM SA	Bucharest	195.390.812	50.881.819	356

To understand a company's profitability relative to the company's total assets, we calculated the return on assets (ROA) indicators for five selected companies over a four-year period (see Table 3). Also known as the rate of return on investment, the rate of return on investment is calculated by dividing the company's annual income by its total assets. This indicator is used to provide investors with information about the company's effectiveness in changing the investment currency to net income. Among the five pharmaceutical manufacturers selected, Terapia and Zentiva were the companies with the highest ROA in 2020. During the evolution from 2017 to 2020, terapia's average return on investment was 17.27%, thus continuously improving the return on assets. Zentiva also managed to increase its return on investment from 2017 to 2018, but decreased in 2019 and 2020, with an average 4-year ROA of 14.45%. Similar to Zentiva, Sandoz and Antibiotice declined from 2019 to 2020, unlike Biofarm which managed to increase its return on investment. According to the roa indicator calculation, Biofarm is different from the other four companies and better converts investments into profit. On the other hand, Sandoz

recorded the lowest average ROA of 4.07%, confirming that its management did not allocate its resources correctly.

➤ **Return on assets (ROA - return on assets)**

Return on assets is one of the main profitability indicators of a company, and measures the efficiency of using assets, in terms of profit obtained.

If in the case of total asset rotation it is about how many sales lei are obtained from a leu of assets, the return on assets shows how many lei a leu invested in assets brings in the form of profit.

It can be said that it is a more important and complete indicator, because the ultimate goal of any business is to obtain profit. Moreover, starting from its formula, "net profit" / "total assets", the return on assets can decompose, resulting in the formula $ROA = \text{"rotation of assets"} * \text{"net margin"}$ (turnover / total assets) * (net profit / turnover), where the turnover is simplified and the initial formula of the ROA even results).

Using this decomposition, conclusions can be drawn and measures taken when it is desired to maximize the return on assets.

Formula for calculating return on assets: $Net\ profit / Total\ assets$

Table 3. ROA indicator compared for the 5 selected entities:

Entity	2017	2018	2019	2020	MEDIUM ROA
TERAPIA SA	13.41 %	12.80 %	17.15 %	25.75 %	17.27 %
ZENTIVA S.A.	17.96 %	29.23 %	4.26 %	6.35 %	14.45 %
SANDOZ SRL	5.08 %	6.01 %	2.79%	2.43 %	4.07 %
ANTIBIOTICE S.A.	5.87 %	4.97 %	4.43 %	3.28 %	4.63 %
BIOFARM SA	13.93 %	13.69 %	14.67 %	14.56 %	14.21 %

The next indicator, return on equity (ROE), is calculated by measuring the profitability of five companies to determine how much profit they generate using shareholder funds (see Table 4). Therefore, the ROE is calculated by dividing the company's net income by equity to show how the selected company uses its investment to increase its revenue. According to calculations, Terapia successfully increased its ROE from 2017 to 2020, achieving an average ROE of 22.19%, followed by Biofarm with an average ROE of 18.01% while Sandoz decreased from 2019 to 2020 but still achieved an average ROE of over 7.55%. On the contrary, from 2017 to 2020, Antibiotice's return on share capital seems to have fallen sharply, with an AVERAGE ROE indicator of 7.28% in the last 4 years. According to the calculation of the ROE indicator, unlike Sandoz, Zentiva makes better use of the investment to increase its revenue.

➤ **Return on equity (ROE - return on equity)**

In the opinion of many economists, ROE is the most important indicator for measuring a company's performance. The indicator is calculated as a ratio between the net profit obtained by the company and the equity, the latter practically representing the shareholders' contribution to the financing of the business.

A high return on equity means that a small material investment of shareholders has been transformed into a large profit, and this is the most important thing for a business: to maximize the results felt by shareholders as a result of the investment they made.

Looking at the indicator formula, we can easily realize that the two methods by which the ROE can be increased are to increase the profit under the conditions of keeping the same equity capital or to reduce the equity capital under the same net profit. In the second situation, it is not necessarily about the decrease in nominal terms of the equity capital, but about the decrease of its share in the total asset.

A company with a high degree of indebtedness and a low degree of financing from shareholders' money will generally have a higher return on equity than one that is financed more from shareholders. The advantage is to obtain a higher profit on the same investment from the shareholders, but the disadvantage is the higher risk that a high dependence on debt gives.

Calculation formula for return on equity: *Net result / Equity*

Table 4. ROE indicator compared for the 5 selected entities

Entity	2017	2018	2019	2020	MEDIUM ROE
TERAPIA SA	15.99 %	14.74 %	22.83 %	35.20 %	22.19 %
ZENTIVA S.A.	24.24 %	41.64 %	6.23 %	8.35 %	16.02%
SANDOZ SRL	9.60 %	11.52 %	5.13 %	3.96 %	7.55 %
ANTIBIOTICE S.A.	8.04 %	7.26 %	6.14 %	7.70 %	7.28 %
BIOFARM SA	16.64 %	17.04 %	19.78 %	18.59 %	18.01 %

Net profit margin is an indicator of the quantity of each currency unit that our company receives as income is converted into profit. Therefore, after deducting all operating expenses, taxes and interest from the total revenues of the company, the percentage of income that still exists remains. This indicator is very important for announcing the financial condition of the company. It is calculated by dividing the net profit of the company by revenue. Analyzing Table 5, we can say that from a financial point of view, on average, the most "healthy" pharmaceutical company is Zentiva with an average profit margin of 24.05%, followed by Terapia with 21.04%, and Biofarm with 9.2%. This also means that Terapia is one of the companies that excels at converting income into available profits of shareholders, differs from Sandoz, which has a lower average profit margin compared to Biofarm.

The net profit margin is a financial indicator of profitability, which shows us in percentages how profitable the total activity of a company is.

It is a comparison between the profit left after the tax and the net sales and shows the profit remaining after all the production and administration costs have been deducted from the sales and the recognized corporate tax. It is one of the best measures of the firm's results especially if combined with an evaluation of how working capital is used. As a rule, the indicator is analyzed in the trend, from one period to another, but it can also be compared with the results obtained by competitors.

It is a short-term indicator because it does not show the company's actions to maintain long-term profitability – such as capital investments or research and development.

It should also be noted that entities can intentionally proceed to keep this indicator at a low level through a variety of strategies for recording expenses, in order to pay a lower corporate tax.

The higher the percentage, the more stable the company in terms of profitability and suggests a good situation of it.

Calculation formula: $Net\ profit\ margin = (Net\ profit\ of\ the\ year / Net\ turnover) * 100$

Table 5. The net profit margin indicator compared for the 5 selected entities:

Entity	2017	2018	2019	2020	Medium net profit margin
TERAPIA SA	19.66 %	20.01%	20.25%	24.25%	21.04 %
ZENTIVA S.A	19.46 %	56.91%	8.08 %	11.76%	24.05 %
SANDOZ SRL	5,34 %	6.09 %	2.62 %	2.46 %	4.12 %
ANTIBIOTICE S.A.	9.93 %	9.39 %	7.89 %	7.70 %	8.72 %
BIOFARM SA	8.92%	9.89%	9.76%	8.23%	9.20%

After calculating the profit ratio of the selected entity, the next step is to determine the ability of the company to use its current assets to repay short-term liabilities. Also known in terms of efficiency and liquidity, the current ratio is calculated by dividing the current assets of the company by its current liabilities. According to the calculation of the index (Table 6), the pharmaceutical companies Terapia and Zentiva have the highest average values of 4.87 and 3.16, respectively. Therefore, the current assets of these companies are about three/ four times higher than the current debts. In addition, this higher ratio will allow the three companies (Biofarm, Sandoz and Antibiotice) to repay their current debts because their debts are due and they can easily repay their debts without having to sell assets that generate long-term income.

Current (current) assets/ current liabilities:

Table 6. General liquidity ratio for the 5 selected entities

Entity	2017	2018	2019	2020	Current average ratio
TERAPIA SA.	5.74	7.71	3.13	2.90	4.87
ZENTIVA S.A	3.57	2.84	2.70	3.55	3.16
SANDOZ SRL	1.41	1.31	1.47	1.68	1.46
ANTIBIOTICE S.A.	2.44	2.02	1.93	2.01	2.10
BIOFARM SA	3.08	2.56	2.28	2.64	2.64

The next calculated report, the quick report, is similar to the current ratio, except that it focuses on the company's ability to use only its quick assets to pay current liabilities, such as cash and cash equivalents and current receivables, short-term investments and even securities. As shown in Table 7, by dividing fast assets by current liabilities, the pharmaceutical company Terapia achieves the highest value, followed by Zentiva and Biofarm. On average, Terapia and Zentiva are able to repay debts without selling capital and long-term assets. Both Sandoz's and Antibiotice's quick reports are below 1.5, which means they may have to use their long-term assets to generate revenue, which will indicate to investors that the company's current operations do not generate enough profits to cover current liabilities.

Receivables + cash flow and accounts / current debts:

Table 7. Current liquidity ratio for the 5 selected entities

YEAR	2017	2018	2019	2020	Current liquidity rate
TERAPIA S.A.	5.14	5.75	2.10	2.22	3.80
ZENTIVA S.A.	3.16	2.44	2.28	2.94	2.70
SANDOZ S.R.L.	1.29	1.18	1.34	1.29	1.27
ANTIBIOTICE S.A.	1.77	1.31	1.58	1.42	1.52
BIOFARM S.A.	2.65	2.24	2.07	1.95	2.22

The last liquidity ratio calculated is the cash ratio, which shows the ability of the company to pay its current debts using only cash and cash equivalents that can be easily used to pay current liabilities. For the five selected pharmaceutical companies listed in

Table 8, only 3 of their cash ratios exceeded 1 in 2020, the other 2 mean they have to exceed their cash reserves to repay their current debts. The lenders are very interested in this report because they want to ensure that the loan is repaid. Based on the calculation of the index for the five selected companies, we can say that Terapia has the lowest ratio of 0.15, which means that the company has difficulty repaying current cash liabilities and cash equivalents.

**Table 8. Immediate liquidity rate for the 5 selected companies
Cash flow and accounts with banks/ current debts**

YEAR	2017	2018	2019	2020	Immediate liquidity rate
TERAPIA SA	2.54	2.90	0.23	0.15	1.45
ZENTIVA S.A	1.59	1.63	1.29	1.82	1.58
SANDOZ SRL	0.10	0.20	0.20	1.20	0.42
ANTIBIOTICE S.A.	3.40	1.00	0.80	3.30	2.12
BIOFARM SA	0.81	0.76	1.02	0.68	0.81

The next calculated report is the debt ratio, which shows the ability of the company to use assets to repay its debts. The solvency ratio measures the financial leverage of the company and is calculated by dividing the total liabilities of the company by its total assets. As shown in Table 9, there are significant differences in the debt ratios of the five selected companies. In this case, lower debt ratios (such as those recorded by Terapia, Biofarm, and Zentiva) mean stable business activities with long-term potential, since lower rates mean that the company's overall debt is lower. In general, a debt ratio of 50% is considered to be within the normal range.

Total liabilities/total assets

Table 9. Comparing the indebtedness rate for the 5 selected entities

YEAR	2017	2018	2019	2020	Indebtedness rate
TERAPIA SA	11.60 %	9.30 %	21.30 %	22.50 %	16.17 %
ZENTIVA S.A	20.20 %	27.50 %	29.30 %	21.60 %	24.65 %
SANDOZ SRL	44.70 %	47.30 %	44.30 %	37.50 %	43.45 %
ANTIBIOTICE S.A.	26.00 %	31.90 %	36.90 %	33.10 %	31.97 %
BIOFARM SA	15.40 %	11.60 %	25.70 %	21.70 %	18.60 %

The next step is to analyze the effectiveness of each company's use of its assets. To do this, we start by calculating the inventory turnover (ITR) ratio, the receivables ratio, the supplier and the current debt ratio. The inventory turnover rate (ITR) is used as a tool to assess the liquidity of stocks, such as how many times a company sells and replaces inventory over a period of time. This is calculated by dividing the cost of goods sold by the average inventory of the company by the cost, in other words, dividing net sales by inventory. To find the average period of share sales, we divide 365 days by the run rate.

The next calculated indicator is the debt ratio of the accounts to be received, also known as the 'rotation rate of the accounts to be received' or the 'debtor's rotation rate'. This indicator shows the company's effectiveness in managing loans issued by customers and collecting loans. Since the funds held in the credit agreement have no interest, the longer the company takes to recover credit sales, the greater the amount it will lose during this period. Therefore, the average duration of receivables is calculated by dividing 365 by the rotation rate of the accounts receivable for that period.

The last calculated value for each company is the current rate of turnover of debts, which allows us to find the period during which the company can repay the debt in the short term. It is calculated by dividing the current sales debt by one year. This indicator is usually important for investors because they can determine the safest companies to invest in.

Taking Terapia as an example (Table 10), the average period of inventory sale in 2017 was 58 days and was reduced to 43 days in 2018 and 2019, after which it increased in 2020 to 52 days. Therefore, it takes an average of 46 days for Terapia to sell and replace the inventory. According to calculations, biofarm's average debt account increased from 150 days to 159 days from 2018 to 2020. In theory, this number varies depending on the size of the company, and usually the shorter it is, the better. However, in this case, we can say that the high report indicates that the company is effective in collecting receivables and that they have a high percentage of customers who can repay their debts quickly. Based on the calculation of the average payment rate of the accounts to be paid, the rate does not seem to decrease from year to year, which indicates that Terapia has not spent more time paying its suppliers in 2020 than in previous years. However, the figures recorded in 2020 indicate that Terapia has increased its running rate, which means that they have been able to pay their suppliers faster. Analyzing Terapia's current debt rotation rate, we can see that the number of days in which the company has the ability to repay the debt in the short term has been reduced from 91 days to 77 days from 2019 to 2020. This shows that the company is improving its solvency and solvency of its debt in the short term. Term debt.

Table 10. Terapia SA - financial indicators for monitoring the balance sheet information 2017-2020

Indicators	2017	2018	2019	2020
Duration of stock rotation (days)	48	43	43	52
Duration of receivables collection (days)	158	150	160	159
Duration of the rotation of the total debts (days)	62	52	91	77

where:

Duration of stock rotation (days) (stock change) = $\frac{\text{Medium stock/the cost of sold goods}}{2} \times 365$ zile

medium stock = $\frac{\text{previous year stock} + \text{current year stock}}{2}$

$$\text{YEAR 2017} = \frac{(74.017.778 + 68.958.252): 2}{530.048.661} = 0.134 \times 365 \Rightarrow 48$$

$$\text{YEAR 2018} = \frac{(68.958.252 + 71.654.082): 2}{530.048.661} = 0.118 \times 365 \Rightarrow 43$$

$$\text{YEAR 2019} = \frac{(71.654.082 + 71.548.297): 2}{530.048.661} = 0.118 \times 365 \Rightarrow 43$$

$$\text{YEAR 2020} = \frac{(71.548.297 + 103.178.557): 2}{530.048.661} = 0.143 \times 365 \Rightarrow 52$$

Duration of collection of receivables (days) = $\frac{\text{average customer balance/fiscal value}}{2} \times 365$

average balance = $\frac{\text{receivables previous year} + \text{receivables current year}}{2}$

$$\text{YEAR 2017} = \frac{(286.059.195 + 297.718.736): 2}{671.028.265} = 0.434 \times 365 \Rightarrow 158$$

$$\text{YEAR 2018} = \frac{(297.718.736 + 303.144.759): 2}{730.164.053} = 0.411 \times 365 \Rightarrow 150$$

$$\text{YEAR 2019} = \frac{(303.144.759 + 345.879.569): 2}{736.265.865} = 0.440 \times 365 \Rightarrow 160$$

$$\text{YEAR 2020} = \frac{(345.879.569 + 347.390.951): 2}{791.079.717} = 0.438 \times 365 \Rightarrow 159$$

Duration of rotation of total debts (days) = $\frac{\text{total liabilities}}{\text{FV}} \times 365$

$$\text{YEAR 2017} = (114.428.962 : 671.028.265) = 0.170 \times 365 \Rightarrow 62$$

$$\text{YEAR 2018} = (106.397.339 : 730.164.053) = 0.145 \times 365 \Rightarrow 52$$

$$\text{YEAR 2019} = (185.448.139 : 736.265.865) = 0.251 \times 365 \Rightarrow 91$$

$$\text{YEAR 2020} = (167.993.091 : 791.079.717) = 0.212 \times 365 \Rightarrow 77$$

Taking Zentiva as an example, as shown in Table 11, the average period of inventory sale in 2017 was 40 days, increased to 54 days in 2018 to 95 days in 2020, so the

average number of days that Zentiva sells and replaces inventory is 66 days. According to calculations, the average maturity of Zentiva's debt increased from 131 days to 178 days from 2017 to 2020. Based on the size of the company, we can say that the high report indicates that Zentiva is not effective in collecting payments. Analyzing Zentiva's current debt rotation rate, we can see that the number of days the company can repay the debt in the short term has increased from 79 days in 2017 to 201 days in 2019 and in 2020 it has decreased to 146 days.

Table 11. Zentiva SA- financial indicators for monitoring the balance sheet information 2017-2020

Indicators	2017	2018	2019	2020
Duration of stock rotation (days)	40	54	78	95
Duration of collection of receivables (days)	131	141	166	178
Duration of rotation of total debts (days)	79	195	201	146

where:

Duration of stock rotation (days) (change in stocks) = (Average stock / cost of goods sold)*365 zile

average stock= (stock previous year+ stock current year): 2

$$\text{YEAR 2017} = \frac{(42.093.203 + 40.549.376) : 2}{369.527.018} = 0.111 \times 365 \Rightarrow 40,50$$

$$\text{YEAR 2018} = \frac{(40.549.376 + 98.982.129) : 2}{467.316.513} = 0.149 \times 365 \Rightarrow 54,38$$

$$\text{YEAR 2019} = \frac{(98.982.129 + 123.841.461) : 2}{514.101.407} = 0.216 \times 365 \Rightarrow 78,80$$

$$\text{YEAR 2020} = \frac{(123.841.461 + 137.798.353) : 2}{498.399.316} = 0.262 \times 365 \Rightarrow 95,60$$

Duration of collection of receivables (days) = (average customer balance / turnover) * 365

average balance = (receivables previous year+ receivables current year): 2

$$\text{YEAR 2017} = \frac{(173.143.655 + 157.877.971) : 2}{458.377.044} = 0.361 \times 365 \Rightarrow 131$$

$$\text{YEAR 2018} = \frac{(157.877.971 + 199.832.571) : 2}{461.405.231} = 0.387 \times 365 \Rightarrow 141$$

$$\text{YEAR 2019} = \frac{(199.832.571 + 295.617.763) : 2}{541.440.353} = 0.457 \times 365 \Rightarrow 166$$

$$\text{YEAR 2020} = \frac{(295.617.763 + 250.288.953) : 2}{791.079.717557.960.940} = 0.489 \times 365 \Rightarrow 178$$

Duration of rotation of total debts (days) = total liabilities/ FV*365

$$\text{YEAR 2017} = (100.574.236 : 458.377.044) = 0.219 \times 365 \Rightarrow 79$$

$$\text{YEAR 2018} = (247.409.236 : 461.405.231) = 0.536 \times 365 \Rightarrow 195$$

$$\text{YEAR 2019} = (298.930.274 : 541.440.353) = 0.552 \times 365 \Rightarrow 201$$

$$\text{YEAR 2020} = (223.361.795 : 557.960.940) = 0.400 \times 365 \Rightarrow 146$$

For the pharmaceutical company Sandoz, as shown in Table 12, the average period of sale of its inventory in 2017 was 20 days, which lasted in 2019, then increased to 37 days in 2020. However, the average sales period in 2015 was 14 days, indicating either an excessive inventory and a slow or outdated inventory. However, excessive maintenance of stocks may be a sign of poor inventory management, as these funds allocated to inventory may have been used in other operations of the company. According to calculations, the average maturity of Sandoz's debt has been significantly reduced from 204 days to 187 days in the period 2017-2020. Because this ratio depends on the size of the company, a declining ratio may indicate that the company is improving its packaging process. After calculating the average payment ratio of the accounts payable, the company appears to have been able to reduce the number of days the provider pays from 2017 to 2020. Analyzing the current turnover rate of Sandoz, we can see that the number of days in which the company is able to repay debts in the short term has steadily increased from 2017 to 2020, which indicates that the solvency of the company does not improve by not repaying the short-term debt.

Table 12. SANDOZ SRL - financial indicators for monitoring balance sheet information 2017-2020

Indicators	2017	2018	2019	2020
Duration of stock rotation (days)	20	22	20	37
Duration of collection of receivables (days)	204	211	191	187
Duration of rotation of total debts (days)	139	174	151	171

where:

Duration of stock rotation (days) (change in stocks) = (Average stock / cost of goods sold)*365 zile

average stock= (stock previous year+ stock current year): 2

$$\text{YEAR 2017} = \frac{(17.304.563 + 19.247.521): 2}{392.157.392} = 0.056 \times 365 \Rightarrow 20,44$$

$$\text{YEAR 2018} = \frac{(19.247.521 + 21.793.614): 2}{331.898.880} = 0.061 \times 365 \Rightarrow 22,26$$

$$\text{YEAR 2019} = \frac{(21.793.614 + 22.153.638): 2}{399.475.953} = 0.055 \times 365 \Rightarrow 20,07$$

$$\text{YEAR 2020} = \frac{(22.153.638 + 62.625.456): 2}{405.614.156} = 0.104 \times 365 \Rightarrow 37,96$$

Duration of collection of receivables (days) = (average customer balance / turnover) *365

average balance = (receivables previous year+ receivables current year): 2

$$\text{YEAR 2017} = \frac{(177.650.519 + 210.728.039): 2}{345.758.646} = 0.561 \times 365 \Rightarrow 204$$

$$\text{YEAR 2018} = \frac{(210.728.039 + 203.299.222): 2}{356.847.656} = 0.580 \times 365 \Rightarrow 211$$

$$\text{YEAR 2019} = \frac{(203.299.222 + 230.680.528): 2}{412.217.469} = 0.526 \times 365 \Rightarrow 191$$

$$\text{YEAR 2020} = \frac{(230.680.528 + 209.172.633): 2}{427.102.086} = 0.514 \times 365 \Rightarrow 187$$

Duration of rotation of total debts (days) = total liabilities/ FV*365

$$\text{YEAR 2017} = (162.635.474 : 345.758.646) = 0.470 \times 365 \Rightarrow 171$$

$$\text{YEAR 2018} = (171.075.143 : 356.847.656) = 0.479 \times 365 \Rightarrow 174$$

$$\text{YEAR 2019} = (171.557.290 : 412.217.469) = 0.416 \times 365 \Rightarrow 151$$

$$\text{YEAR 2020} = (162.927.508 : 427.102.086) = 0.381 \times 365 \Rightarrow 139$$

As shown in Table 13, the average sales cycle of Antibiotice SA's inventory in 2012 was 32 days and is constantly increasing, from 40 days in 2013 to 60 days in 2015. The average growth period may indicate that the inventory is fast and that there is no surplus. Inventory. Analyzing the average receivables of Antibiotice, it can be seen that the collection period from 2017 to 2020 has decreased significantly from 200 days to 74 days. Even though the ratio depends on the size of the company, its decline may indicate that the company has a well-processed collection and good customers. After calculating the average

payment ratio of the accounts payable, the number of days for which Antibiotice providers have to pay seems to have increased significantly from 2017 to 2020. According to the data obtained in 2017, the average duration is 269 days for Antibiotice to collect from its suppliers reaching 320 days in 2020. Analyzing the current turnover rate of Antibiotice's debts, we can see that the number of days in which the company is able to repay debts in the short term has steadily decreased since 2019 to 77 days after which it had increased in 2019 to 91 days. This shows that the company improves its solvency of payment, paying off its debts in the short term.

Table 13. ANTIBIOTICE SA- financial indicators for monitoring balance sheet information 2017-2020

Indicators	2017	2018	2019	2020
Duration of stock rotation (days)	74	71	78	95
Duration of collection of receivables (days)	269	276	295	320
Duration of rotation of total debts (days)	62	52	91	77

where:

Duration of stock rotation (days) (change in stocks) = (Average stock / cost of goods sold)*365 zile

average stock= (stock previous year+ stock current year): 2

$$\text{YEAR 2017} = \frac{(60.269.602 + 67.414.789): 2}{313.107.679} = 0.203 \times 365 \Rightarrow 74$$

$$\text{YEAR 2018} = \frac{(67.414.789 + 66.181.508): 2}{341.813.735} = 0.195 \times 365 \Rightarrow 71$$

$$\text{YEAR 2019} = \frac{(66.181.508 + 73.975.988): 2}{324.635.000} = 0.215 \times 365 \Rightarrow 78$$

$$\text{YEAR 2020} = \frac{(73.975.988 + 108.691.209): 2}{347.266.000} = 0.263 \times 365 \Rightarrow 95$$

Duration of collection of receivables (days) = (average customer balance / turnover) * 365

average balance = (receivables previous year+ receivables current year): 2

$$\text{YEAR 2017} = \frac{(240.613.024 + 258.920.954): 2}{337.629.448} = 0.739 \times 365 \Rightarrow 269$$

$$\text{YEAR 2018} = \frac{(258.920.954 + 294.167.142): 2}{365.304.988} = 0.757 \times 365 \Rightarrow 276$$

$$\text{YEAR 2019} = \frac{(294.167.142 + 338.159.744): 2}{390.646.543} = 0.809 \times 365 \Rightarrow 295$$

$$\text{YEAR 2020} = \frac{(338.159.744 + 260.388.767): 2}{341.047.668} = 0.877 \times 365 \Rightarrow 320$$

Duration of rotation of total debts (days) = total liabilities/ FV*365

$$\text{YEAR 2017} = (148.646.296 : 237.629.448) = 0.625 \times 365 \Rightarrow 228$$

$$\text{YEAR 2018} = (225.252.826 : 365.304.988) = 0.616 \times 365 \Rightarrow 224$$

$$\text{YEAR 2019} = (291.638.894 : 390.646.543) = 0.746 \times 365 \Rightarrow 272$$

$$\text{YEAR 2020} = (285.727.770 : 341.047.668) = 0.837 \times 365 \Rightarrow 305$$

For the pharmaceutical company Biofarm SA, the average period of sale of stocks in 2017 was 55 days, after which it decreased in 2018 and 2019, increasing again in 2020 to 61 days. Therefore, Biofarm needs an average of 53 days to sell and replace stocks. Analyzing the average debt accounts for Biofarm, compared to other pharmaceutical companies analyzed, the company maintained the longest recovery period of the accounts to be received. Based on the calculated average turnover rate, Biofarm decreased the number of days paid by its suppliers from 2017 to 2020, from 174 days to 164 days. Looking at Biofarm's current debt rotation rate, we can see that the number of days the company can pay to pay off its short-term debt increased from 2017 to 2020. This shows that the company is improving its ability to repay debt in the short term.

Table 14. Biofarm SA - financial indicators for monitoring balance sheet information 2017-2020

Indicators	2017	2018	2019	2020
Duration of stock rotation (days)	55	50	48	61
Duration of collection of receivables (days)	174	171	169	164
Duration of rotation of total debts (days)	85	64	166	136

where:

Duration of stock rotation (days) (change in stocks) = (Average stock / cost of goods sold)*365 days

average stock= (previous year stock + current year stock): 2

$$\text{YEAR 2017} = \frac{(19.520.394 + 19.547.141): 2}{128.796.641} = 0.151 \times 365 \Rightarrow 55$$

$$\text{YEAR 2018} = \frac{(19.547.141 + 19.007.343): 2}{140.331.359} = 0.137 \times 365 \Rightarrow 50$$

$$\text{YEAR 2019} = \frac{(19.007.343 + 18.289.407): 2}{139.113.057} = 0.134 \times 365 \Rightarrow 48$$

$$\text{YEAR 2020} = \frac{(18.289.407 + 33.883.106): 2}{154.876.838} = 0.168 \times 365 \Rightarrow 61$$

Duration of collection of receivables (days) = (average customer balance / turnover) *365

average balance = (receivables previous year+ receivables current year): 2

$$\text{YEAR 2017} = \frac{(78.263.200 + 84.684.218): 2}{170.256.235} = 0.478 \times 365 \Rightarrow 174$$

$$\text{YEAR 2018} = \frac{(84.684.218 + 88.322.536): 2}{184.240.669} = 0.469 \times 365 \Rightarrow 171$$

$$\text{YEAR 2019} = \frac{(88.322.536 + 93.372.718): 2}{195.390.812} = 0.464 \times 365 \Rightarrow 169$$

$$\text{YEAR 2020} = \frac{(93.372.718 + 102.412.830): 2}{216.451.696} = 0.452 \times 365 \Rightarrow 164$$

Duration of rotation of total debts (days) = total liabilities/ FV*365

$$\text{YEAR 2017} = (40.007.439 : 170.256.235) = 0.234 \times 365 \Rightarrow 85$$

$$\text{YEAR 2018} = (32.678.318 : 184.240.669) = 0.177 \times 365 \Rightarrow 64$$

$$\text{YEAR 2019} = (89.386.339 : 195.390.812) = 0.457 \times 365 \Rightarrow 166$$

$$\text{YEAR 2020} = (80.824.583 : 216.451.696) = 0.373 \times 365 \Rightarrow 136$$

4. RESULTS

After performing the statistical analysis of the data obtained for the 5 pharmaceutical companies, about 50% of Terapia, Zentiva, Sandoz, Antibiotice and Biofarm's revenues come from low-selling drugs such as aspirin and paracetamol. In addition, all the companies analyzed use external resources (such as bank loans and leasing) to finance their activities. However, as statistics indicate, the leverage of analytical companies is the most widely used mechanism for attracting sources of external funding. This effect increases as the difference between economic yields and interest rates increases. In the case of these five pharmaceutical companies, based on the calculations, the safest entity is Biofarm.

As for the loan period, all five companies have called for loans from 1 to 3 years and loans of over 3 years.

As for their employees, Antibiotice spent more than 10% of staff training costs, while Biofarm and Zentiva usually do not exceed 10%. Terapia and Sandoz allocate about 5-7% of the costs of staff training. However, this information is reasonable, since all companies, regardless of the percentage of expenses allocated, believe that the training of employees will certainly affect the profit and loss account during the period, rather than as a capitalized intangible asset. However, in terms of advertising, the five selected companies allocate more than 6% of their operating costs to advertising.

In terms of business relationships with suppliers of natural or organic raw materials, all five participants have trade relationships of this kind at a significant level. When it comes to customers, companies are asked to expand their types to include chain employees or small business customers. Based on the analysis, Biofarm and Antibiotice deal with medium to high and low to medium chains for employees in small businesses, while Terapia and Zentiva handle a medium to high chain and from small to medium employees. Sandoz reports moderate interactions with the chain of stores and small businesses.

The set of customers varies from company to company, namely: Biofarm, Zentiva and Remedia usually have over 90 days, and Ropharma and Antibiotice are between 30 and 90 days old. In addition, in terms of online sales, Biofarm stated that their share is more than 20% of the total turnover, while the rest agree with about 10-20%. However, if their customers receive the money immediately, the company usually offers discounts of about 5%, since in the case of Biofarm, these discounts, along with incentives, will lead to the retention of customers and affect their profitability by increasing sales. On the other hand, in some cases, discounts and incentives are not enough to affect profitability and increase sales.

CONCLUSIONS

The continuous development of the pharmaceutical market economy and the influence of competitors and established laws and regulations continue to change the conditions of the participants in the pharmaceutical industry. The purpose of this study is to investigate the financial performance of large Romanian brands in the pharmaceutical industry, to show radiographic images of the pharmaceutical industry and to focus on 5 companies in terms of profitability, performance and competitiveness. Using the financial statements of the selected companies and their financial and economic reports, we can calculate the economic and financial indicators that measure the performance of the business. These indicators are in terms of the ability to generate income and profits, in terms of liquidity and in its repayment, short-term debt and solvency. By using this type of analysis, we can study the processes and activities of the selected companies through the results obtained and the resources they have consumed in previous years.

Based on the data obtained from BVB and the financial reports of the selected companies, these companies increased their turnover for most of the period from 2017 to 2020. In terms of profitability, Terapia and Zentiva have proven to be an effective net income in changing the invested capital, thus providing a high return on assets. The two companies also achieved the highest return on equity and showed how they can make good use of investments to increase revenues.

Even after deducting all operating expenses, taxes and interest from the company's total revenue, these two companies are still in the leading position in our top five, and a large part of their revenues are converted into profit. Even in terms of liquidity, Terapia, Zentiva and even Antibiotice have confirmed the activities of stable companies with long-term potential. However, small indicators of other companies, such as Sandoz and Biofarm, do not indicate a weekly company or a weak investment, but rather on a small scale and with fewer activities, but can be easily developed.

For future research, we recommend improving our research by involving more companies and expanding our database. As another suggestion, we recommend calculating several economic and financial indicators, taking into account the exact types of products and services provided by the company, the mix of customers and their consumption preferences, additional information about the organizational structure and resources. Only in this way can we look at the calculation methods of the key performance indicators from different perspectives, so that we can evaluate and understand the past, present and financial "health" trends of the company in the constantly changing business environment through a comprehensive system.

REFERENCES

1. Baltas N, iculete GD. *The analysis of the financial risks in the pharmaceutical industry in Romania*. Revista Economică. 2014;66(2):7-14.
2. Boldeanu D.M., Pugna I.B., *The analysis of the influence factors affecting the performance of pharmaceutical companies*. Theoretical and Applied Economics. 2014;21(7):23-39.
3. Burja C., Burja V., *Analysis of the companies' economic performance using the profitability rates*. European Research Studies. 2009;12(2):100-108.
4. Colbu I.C., *Comparison of profitability for pharmaceutical Romanian listed companies using Dupont identity*. The USV Annals of Economic and Public Administration. 2013;13(17):78-81.
5. EPIFA Report. *The pharmaceutical industry in Figures*. 2014;2-25. <http://www.phar-in.eu/wp-content/uploads/2014/05/Figures 2014 Final.pdf>
6. FDR Center. *The Romanian health and pharma sector 2014. Sector brief - DEMO*. 2014; <http://www.frdcenter.ro/assets/Romania-Health-and-Pharma-market-2014-DEMO-by-FRD-Center.pdf>
7. <http://www.bvb.ro/FinancialInstruments/Details/FinancialInstrumentsDetails.aspx?s=BVB> <http://m.fin.info/>
8. Institute for Economic Forecasting. *Industria farmaceutică în România și impactul asupra societății și economiei*. 2011; 6-14 <http://oglindadevest.ro/wp-content/>
9. Nela S., *A general overview of the Romanian pharmaceutical market*. Annals of the Constantin Brancusi University of Târgu Jiu, Economic Series. 2015;(2):15-20.
10. Wall-Street. Clawback news. 2015. <http://www.wall-street.ro/tag/clawback.html>