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RESEARCH OF DIFFERENCES BETWEEN OPERATING CASH AND CASH ON BANK ACCOUNT IN SELECTED PHARMACEUTICAL COMPANIES IN THE REPUBLIC OF SERBIA

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Abstract: *This research analyzes EBITDA as operating cash and an indicator of the company's earning capacity and cash on account at the end of the business year. The study underlines the difference between EBITDA as operative cash and cash that is really on the account at the end of the business year and shows whether there is an interdependence between these two coefficients. The paper accepts the null hypothesis and rejects the alternative, so it can be concluded that there are differences between operating cash (EBITDA) and cash on the bank account at the end of the business year. The difference between a company's annual earnings and what is on the account at the end of the business year is clarified. Some of the relevant questions are: Are EBITDA and cash on bank account the same? What are the differences between these two concepts? As the answer to the first question is negative, internal and external stakeholders cannot save time in calculating the EBITDA ratio by observing only the account balance at the end of the business year. The second question was used for research for a more detailed explanation of these two concepts.*

Keywords: *EBITDA, cash, account, company, stakeholders, business year, calculating*

JEL classification*: M21*

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ISTRAŽIVANJE RAZLIKA IZMEĐU OPERATIVNOG KEŠA I NOVCA NA TEKUĆEM RAČUNU U ODABRANIM FARMACEUTSKIM KOMPANIJAMA U REPUBLICI SRBIJI

***Sažetak**: Predmet istraživanja je analiza između EBITDA koeficijenta kao operativnog keša - pokazatelja zarađivačke sposobnosti preduzeća i gotovine na računu na kraju poslovne godine. Cilj studije je da naglasi značaj između EBITDA koeficijenta kao operativnog keša i gotovine koje je stvarna na računu na kraju poslovne godine i da pokaže da li postoji i kakva je međuzavisnost ova dva koeficijenta. U radu se prihvata nulta hipoteza, a odbacuje se alternativna, pa se može zaključiti da postoje razlike između operativnog keša (EBITDA) i gotovine na bankarskom računu na kraju poslovne godine. U tekstu je naglasak na pojašnjenju i značaju razlike između onoga što je preduzeće zaradilo u jednoj poslovnoj godini i onoga što je na računu na kraju poslovne godine. Neki od relevantnih odgovora su: da li su EBITDA i gotovina na bankarskom računu isti? I gde su razlike između ova dva koncepta? Pošto je odgovor na prvo pitanje negativan, interni i eksterni stejkolderi ne mogu uštedeti vreme u računanju EBITDA koeficijenta posmatrajući samo stanje računa na kraju poslovne godine. Drugo pitanje je korišćeno u svrhu istraživanja radi detaljnijeg objašnjenja ova dva pojma.*

***Ključne reči**: EBITDA, gotovina, račun, kompanija, stejkholderi, poslovna godina, obračun*

1. INTRODUCTION

As it is known, the job of the manager and CEO of the company is primarily to make decisions both on further investments and on the company's future steps. On the other hand, external stakeholders such as banks, or other stakeholders, as mentioned by Pavlović and Tot (2020), view the company as an entity from which they would like to extract maximum data for their decisions. What both internal and external stakeholders take into account is, among others, the EBITDA coefficient. Kaličanin, Veljković and Bogetić (2015) look into the significance of EBIDTA and explore its connection with other indicators. Its impact and importance for shareholder value are described by Högerle, Charifzadeh, Ferencz and Kostin (2020).

The work analyzes the importance of the coefficient of EBITDA on a sample of pharmaceutical companies in Serbia. It also investigates whether the operative cash (EBITDA) and cash mean the same, as well as if there are certain differences. Then we will explain these differences and point out the importance of both indicators from the perspective of internal stakeholders. There are several reasons why EBITDA and cash occupy the attention of authors and stakeholders of the company. It should be mentioned that many things start and end with cash and EBITDA (Cassic, 2002).

The subject of research is a comparative analysis between EBITDA as operating cash and an indicator of the company's earning capacity and cash on account at the end of the business year in the example of pharmaceutical companies. The study aims to underline the difference between EBITDA as operative cash and cash that is real on the account at the end of the business year. The paper will approach the testing of the truth of the null hypothesis that reads: There are differences between operating cash (EBITDA) and cash on the bank account at the end of the business year in selected pharmaceutical companies. The authors will also answer the question: Are EBITDA and cash on bank account the same?

The paper has five chapters. The introduction presents the hypothesis, aim and subject. The second chapter shows a relevant literature review for the research, and the methodology, as well as research hypothesis is presented in the third part of the research. Finally, the results and discussion are presented in the fourth chapter. Finally, concluding remarks are given in the fifth chapter.

2. LITERATURE REVIEW

According to Pavlović and Tot (2020), external stakeholders are partners with whom the company enters into various types of business contacts: customers, suppliers, financial institutions, associations, government institutions or other entities that express more or less the interests of the whole company or part of it. Kaličanin, Veljković and Bogetić (2015) state that EBITDA margin is influenced by brand orientation and brand barriers and other factors in production, research and development, supply chain, or finance.

Högerle, Charifzadeh, Ferencz and Kostin, (2020) investigated the development of working capital management and its impact on profitability and shareholder value in Germany. These authors described EBITDA's impact and its importance for shareholder value in detail. According to Carroll (2013), the scatter plot chart aims to study the possible relationship between one variable and another. A scatter plot is used to test a theory that two variables are related.

Cassic (2002) said that the matched-allocation performance statement begins with operating EBITDA and ends with cash flow.

According to Kaćanski, Tomašević and Vlaović-Begović (2014), the connection between business entities is reflected in relations with suppliers and customers, various financial organizations, as well as government services. When entering into a business relationship with other entities, business entities need to be informed about them to ensure that their business relationship will be successful and cooperation will be reliable. Therefore they analyze the entity's financial statements.

Bešlić, Bešlić and Rupić (2014) said that among corporate managers around the world, a system of measuring performance based on cash flow, instead of the concept of accounting profit, is increasingly accepted. The reason is that revenues and expenditures as accounting categories differ from cash inflows and outflows. They are recognized when earned and created, i.e., when the goods have been sold, or the service has been performed (and not when the money has been received or paid), and are entered in the period's financial statements.

As Ledley, McCoy, Vaughan and Cleary (2020) conclude, from 2000 to 2018, the profitability of large pharmaceutical companies was significantly greater than other large, public companies. According to the study, the median EBITDA in the mentioned period for pharmaceutical companies was 29.4%, while for other companies observed in the same period, it was 19.0%.

National Research Council (2004) mentions a comparative study in which two (or more) curricular treatments were investigated over a substantial period (at least one semester, and more typically an entire school year). Then, various curricular outcomes are compared using statistical tests.

In the work of Milojević (2011), it is explained that EBITDA can also be used as one of the indicators for company rating. Dadkhah, Heydari and Dadkhah (2021), where was an observed total of 546 observations. The statistical method used in this research is the multivariate regression method using the data panel method. The research shows that EBITDA has a significant direct effect on the company's market value.

According to the International Accounting Standard MRS7, cash includes cash on hand and demand deposits. Cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash and subject to an insignificant risk of changes in value.

In this paper, the EBITDA coefficient is calculated using the formula given by Knežević, Stanišić and Mizdraković (2017) and Barjaktarović, Jović and Milojević (2018):

EBITDA

Profit before tax (AOP 223) or lost before tax (AOP 224)

+

Interest expenses (AOP 667)

+

Depreciation costs (AOP 661)

According to the business data of the Republic of Serbia (The Serbian Business Registers Agency), information about the amount of cash on the bank account and information for calculating EBITDA amount is collected at the end of the year.

The simple linear correlation coefficient was calculated according to the formula by Šekarić (2010),

$$r = \pm \frac{\sum_{i=1}^{n}(x_i-\bar{x})\cdot(y_i-\bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i-\bar{x})^2 * \sum_{i=1}^{n}(y_i-\overline{y})}} \quad (1)$$

Prem (2016) mentioned that the scatter diagram is a graphical representation of data pairs X and, in the basic set or (sample), it is called the scatter diagram (scattering). The scatter plot makes it possible to determine the nature, strength, and direction of agreement between two variables.

According to Joiner Associates Incorporated (1995), a scatter plot is a graph that helps visualize the relationship between two variables. It can be used to check whether a given variable is related to another variable and is an effective way to communicate the established relationships. Brown (2003) explained that the coefficient of determination makes interpreting correlation coefficients easier and calculating this coefficient is simple. The coefficient of determination is simply the squared value of the correlation coefficient. In this paper, the interpretation of the correlation coefficient is as in the paper Uttaruk and Laosuwan (2017), the coefficient of determination (R^2) close to 1 indicates a strong relationship and vice versa.

According to Šekarić (2010), if the partial correlation coefficients are squared, the coefficients of partial determination will be obtained. This coefficient shows how much the estimate of one independent variable affects the value of the dependent variable if the influence of other variables is excluded. Burlaud

(2013) said that the cash balance is a real objective, and it is relevant when making some decisions.

As explained in the work of Milojević, Mihajlović and Vukša (2018), the average time of collection of receivables from customers is six weeks, the average time of keeping goods in stock is 11 weeks, etc. Therefore, with the decline in sales revenue and related costs, the closing balances of the three types of current assets were reduced. The balances of three types of short-term liabilities have also been reduced (when a company operates at zero, there is no profit before taxes, not even profit for that year; at the end of the year, unpaid income tax equals zero).

Megan, Haţegan, Caciuc and Cotleţ (2009) found that cash flow information is useful for assessing the ability of an enterprise to generate cash and cash equivalents. It also enables users to develop models to assess and compare the present value of future cash flows of different entities. It enhances the comparability of the reporting of operating performance by different entities because it eliminates the effects of applying different accounting criteria for the same transactions and events

According to Stumpp, Marshella, Rowan, McCreary and Coppola (2000), EBITDA is probably best assessed by breaking down its components into EBIT, Depreciation, and Amortization. Generally speaking, the greater the percentage of EBIT in EBITDA, the stronger the underlying cash flow. To the extent that EBITDA contains a high amount of depreciation and amortization, it is important to evaluate whether funds provided by such non-cash charges are truly available for debt service. If a company relies on cash from operations to finance new capital investments, depreciation or amortization may not be entirely available for debt service. Sahaf (2009) said that a cash flow statement provides all stakeholders with information on the historical changes in cash and cash equivalents during the financial period. Viswam (2018) mentioned that the EBITDA, as a non-GAAP measure, is still popular among the stakeholders.

According to Brozović, Sever Maleš and Žager (2019), the universal application of financial indicators derived from EBITDA does not give reliable results on the company's performance and its creditworthiness. Research has also shown that, although management structures and stock market analysts attach increasing importance to EBIT and EBITDA margins, investors still rely most on profitability indicators and primarily return on equity.

3. METHODOLOGY

Based on the defined research subject, as well as research goals, the null and alternative hypotheses are defined:

H_0: There are differences between operating cash (EBITDA) and cash on the bank account at the end of the business year in selected pharmaceutical companies.

H_a: *There are no differences between operating cash (EBITDA) and cash on the bank account at the end of the business year in selected pharmaceutical companies.*

In order to test the hypotheses, it is necessary to analyze the indicators on a certain sample. The paper uses data from the website of APR - Business Registers Agency of the Republic of Serbia for forty companies engaged in wholesale and trade of pharmaceutical products. The analysis period is four business years (2016, 2017, 2018 and 2019).

As concluded in the paper by Ledley et al. (2020), pharmaceutical companies are companies whose profitability variables (among others, EBITDA) grew significantly in the period from 2000 to 2018, unlike other public companies, so this is one of the main reasons for choosing this branch of the economy.

According to the Serbian Chamber of Commerce, most pharmaceutical companies operating in Serbia were in business during the four years and were processed through the work. The selected companies recorded a current turnover in the mentioned years, and this was the primary criterion for selecting the companies to be analyzed.

The paper uses data on pharmaceutical companies engaged in the wholesale and distribution of pharmaceutical products. Data on the activities of the companies used in the paper was collected from the Serbian Chamber of Commerce website from the work of the association for pharmaceutical and medical activities - groups.

According to the ownership structure, the observed pharmaceutical companies can be divided into health care institutions, limited liability companies and multinational companies. All companies have a significant annual turnover. The analysis includes companies that merged with larger companies, companies that have partially or entirely withdrawn from the market, and companies that just entered the market of the Republic of Serbia in the observed four years. The diversity of the observed sample is significant in order to view all aspects of the business from several angles in the observed branch.

Comparative analysis was used to compare the two coefficients and draw a general conclusion about their equality or inequality, as said in National Research Council (2004). Correlation analysis with the scatter plot and the coefficient of determination were used to investigate the relationship between observed variables. In order to show this relationship, a scatter plot was used, which used its basic purpose as stated in Carroll (2013).

4. RESULTS AND DISCUSSION

As said in the paper of Kaćanski et al. (2014), it is important not only for the company's CEO but also for other business entities to have a good financial reporting system and insight into what the company has earned what it can earn. Can position "Balance account" - cash decide on the amount of EBITDA from the very fact that EBITDA is said to represent operating cash? According to Bešlić et al. (2014), this question should be important, especially for corporate managers. However, Milojević (2011) points out that calculating the EBITDA coefficient is essential because of the calculation of the company's creditworthiness. The significance of the EBITDA ratio was also investigated in the paper of Dadkhah et al. (2021), which shows that EBITDA has a significant direct effect on the company's market value. So, whether EBITDA must be calculated or only account balance can be used.

The following table shows 40 pharmaceutical companies over four business years and two variables. First is the amount of the position from the balance sheet “cash and cash equivalents” – according to International Accounting Standard MRS7, and the second one is the amount of EBITDA coefficient through each business year (calculated as in Knežević, Stanišić and Mizdraković (2017) and Barjaktarović, Jović and Milojević, (2018).

Table 1

EBITDA and cash for each company in 2016, 2017, 2018 and 2019 year (in thousands of dinars)

Company name	**2016**		**2017**		**2018**		**2019**	
	EBITDA	*Cash*	*EBITDA*	*Cash*	*EBITDA*	*Cash*	*EBITDA*	*Cash*
Hemofarm	4872751	402523	1912266	147713	5062053	173779	6116833	462264
Galenika	272424	213346	7477132	139062	-988241	151139	2820079	88895
Krka	49088	67296	122676	18805	114124	30195	153912	48747
Goodwill pharma	84579	15410	108298	15187	185435	25086	136594	49585
Actavis	186602	73638	134275	14021	209641	79797	240303	33636
Teva pharmac.	11267	23959	1797	40033	0	0	0	0
Pharmaswiss	730581	232797	1637479	229420	1023326	457233	1049112	453417
Salveo	7867	14780	5860	21190	18099	1972	27954	16552
Oktal pharma	91666	28396	50267	27884	45105		56045	
Abbot	16170	471160	-18910	403857	84399	790185	50361	360519
Abela pharm	1033	131	1295	1166	1436		1701	
PharmaS	-43540	23285	22169	2867	22387	7945	50801	8322
Pharmanova	107065	60272	147771	80179	143087	16485	145772	6098
INPharm	389838	37720	325188	43734	520184	103870	546039	37622
Slaviamed	35312	6228	25032	3620	18641	2127	18200	24825
Dragis	20555	14	18938	3096	12452	714	8762	568
Alkaloid	45366	75518	83738	42191	62899	79440	69281	155221
Phoenix pharma	307244	411733	1002946	567185	339094	632660	819174	972143
Biessen pharm (Sodimed)	26864	3319	18195	4323	5065	2922	15565	5928
Unifarm-medicom	27622	14403	30521	27061	26664	1288	31353	11415
Evropa lek	132690	284281	72905	617107	162851	245160	198024	293992
Lekovit-Sopharma	236334	88459	277541	11669	86927	49922	-167011	121737
Lin	6486	127	6023	335	5603	45	5058	13
Medicom	289105	114406	180992	235955	171806	248666	156979	164377
Vega	384100	162053	407688	131392	424404	161867	437890	195704
Farmalogist	249207	35021	343793	126654	194038	118200	180989	14767
Anlek	-285537	448	9432	4	-260142	0	14	0

Company name	**2016**		**2017**		**2018**		**2019**	
	EBITDA	*Cash*	*EBITDA*	*Cash*	*EBITDA*	*Cash*	*EBITDA*	*Cash*
Velexpharm	39145	11976	17939	31566	-108939	50072	118538	107303
JGL	-67272	17254	-68629	7830	-54860	4879	26500	8292
Roche	355508	588463	147571	382454	93126	664785	185115	236345
Erma	-230063	1	-45844	273	-2494	10	-10	11
Novo Nordisk	38851	18339	41678	52489	153264	10796	224852	76362
Berlin-chemie Menarini	0	0	0	0	447	30848	60094	169076
Boehringer ingelheim	111417	299504	119251	218636	102855	322594	105739	275237
Merck Sharp & Dohme	39401	44797	49875	82783	48197	56860	10572	100696
Adoc	579365	328157	216465	105874	201259	175399	245382	260132
Medicunion	4808	23423	5594	5233	7000	1851	8829	7966
Inopharm	252	695	217	400	372	280	300	272
Uni-chem	26806	10956	15859	3012	25336	17540	56458	25692

Note: The author created this table based on available data from the Business Registers Agency of the Republic of Serbia website.

What can be immediately noticed, in this sample of pharmaceutical companies, is that almost nowhere the coefficient of the operating cash and the balance (cash) on the account are not the same except when the cash was 0 (in these cases, the company was not active in those years or it was shut down).

In order to obtain the coefficient of determination, the correlation coefficient that was squared was initially calculated. As explained in Brown (2003), the coefficient of determination makes interpreting correlation coefficients easier in work it is used this simple calculation for an easier explanation of correlation analysis.

The interpretation of the correlation coefficient is as in the paper by Uttaruk and Laosuwan (2017), where the coefficient of determination (R^2) close to 1 indicates a strong relationship.

When correlation analysis is applied to the collected data according to the formula of Šekarić (2010) and Prem (2016), and when a scatter plot is used according to (Joiner Associates Incorporated., 1995), for these two observed

determinants (EBITDA and Cash) the conclusion will look like the graphs below:

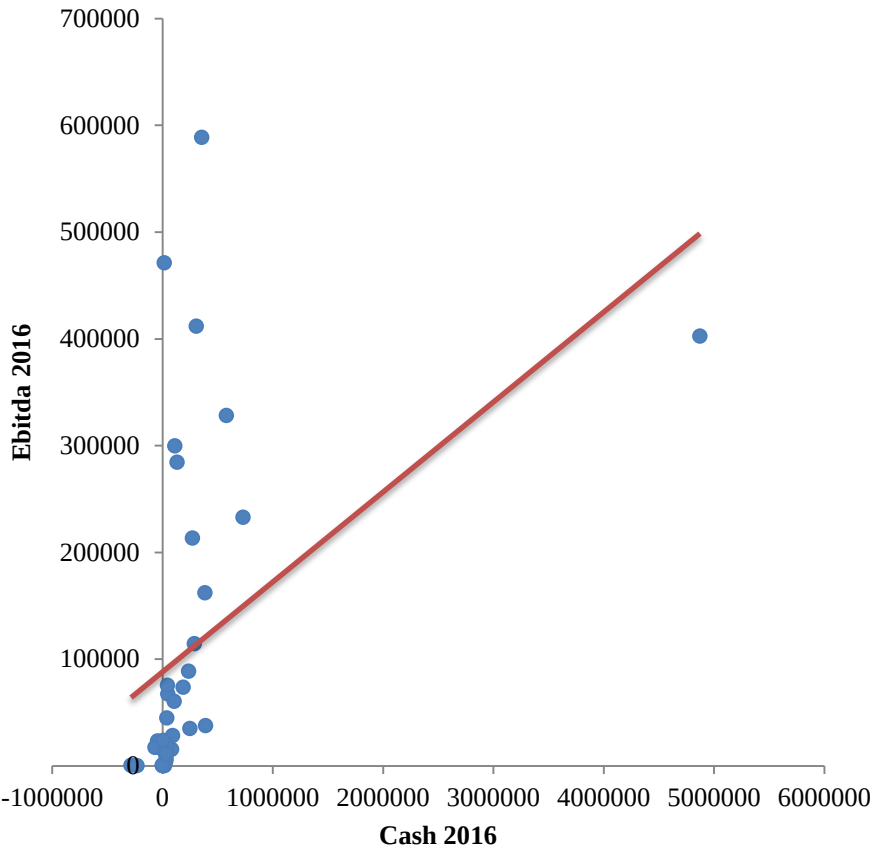

Figure 1. Scatter plot for 2016

Note. Calculated by author.

r= 0,43

r^2= 0,19

The correlation between the EBITDA ratio and the account balance in 2016 is 0.43, i.e., there is a weak interdependence between the cash and EBITDA ratio.

When the dependence between the EBITDA coefficient and the balance on the account equals 19%, the coefficient of determination is 0.19

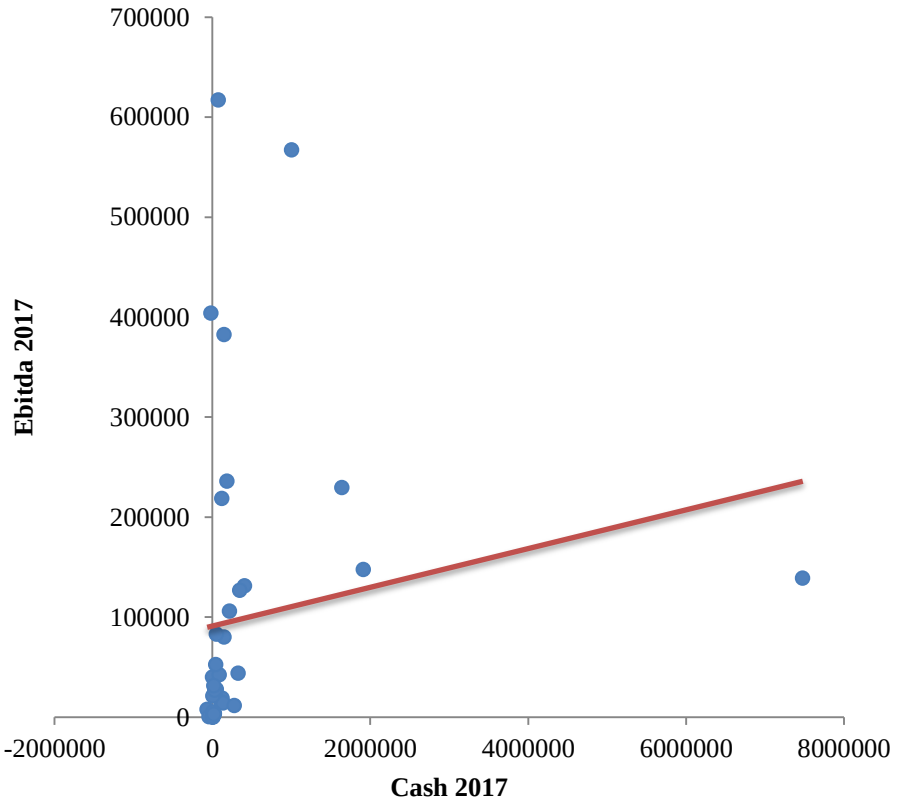

Figure 2. Scatter plot for 2017

Note. Calculated by author.

r= 0,13

r^2= 0,02

The correlation between the EBITDA ratio and the account balance in 2017 is 0.13, i.e., there is a weak interdependence between the cash and EBITDA ratio.

While the dependence between the EBITDA coefficient and the balance on the account is 2%, the coefficient of determination is 0.02.

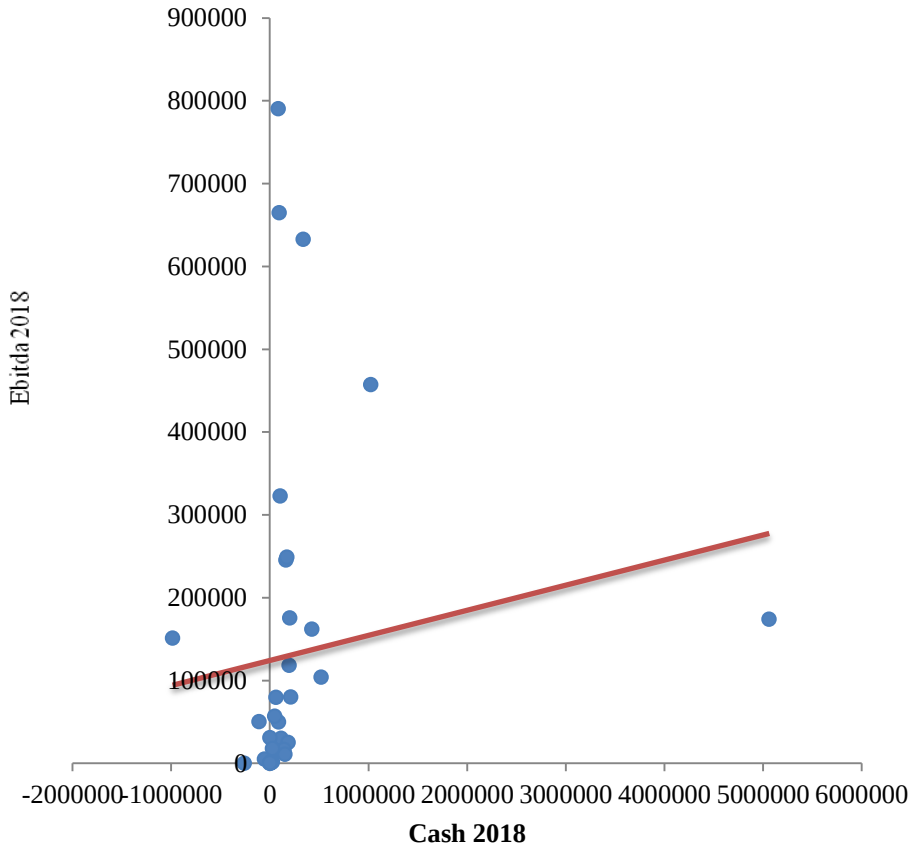

Figure 3. Scatter plot for 2018

Note. Calculated by author.

r= 0,14

r^2= 0,02

The correlation between the EBITDA ratio and the account balance in 2018 is 0.14, i.e., there is a weak interdependence between the cash and EBITDA ratio.

When the dependence between the EBITDA coefficient and the balance on the account is 2%, the coefficient of determination is 0.02.

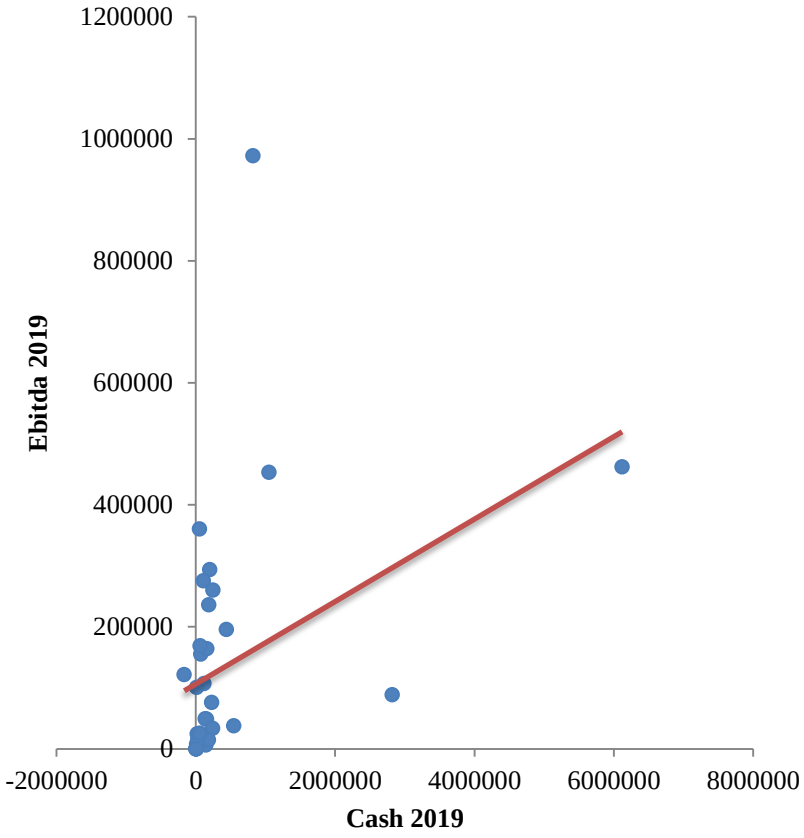

Figure 4. Scatter plot for 2019

Note. Calculated by author.

r= 0,40

r^2= 0,16

The correlation between the EBITDA ratio and the account balance in 2019 is 0.40, i.e., there is a weak interdependence between the cash and EBITDA ratio.

While the dependence between the EBITDA coefficient and the balance on the account is 16%, the coefficient of determination is 0.16.

The conclusion is that, for the sample of forty pharmaceutical companies in four business years, a comparative review of the amount of the item from the balance sheet - account balance and EBITDA ratio does not match (except in business years when the company was not active for some reason). Therefore, the null hypothesis is confirmed, and the alternative can be rejected.

By correlation analysis, with the scattering coefficient and the determination coefficient, it was concluded that the interdependence between these two coefficients is weak. The interdependence is expressed in percentages from 2% to 19%.

Based on the above conclusions, it can be said that the null hypothesis is accepted and the alternative rejected. There are differences between operating cash (EBITDA) and cash on the bank account at the end of the business year.

Firstly, the balance on the account reflects the balance of current inflows and outflows, as well as the fact that at the end of the business year, depending on whether the company has certain obligations (for example as well as deferred inflows sales at one point and collection after a certain time). Burlaud (2013) mentioned that the cash balance is real, objective, verifiable, and relevant information to make some decisions. This situation is clearly explained in a paper by Milojević, Mihajlović and Vukša, (2018). But as mentioned in Megan (2009), this indicator is significant for assessing the ability of an enterprise to generate cash and cash equivalents, and it eliminates the need to apply different accounting criteria for the same transactions and events, etc. While EBITDA - operating cash represents the earning capacity of a company in one year, it includes everything that a company earned during the business year, regardless of whether that amount was collected or not. However, according to Stumpp et al. (2000), these two indicators should be used carefully. It is important to evaluate whether funds provided by such non-cash charges are truly available for debt service. Both indicators are important for the company and stakeholders, as mentioned in Viswam (2018) and Sahaf (2009). Although financial analysts, stakeholders etc., cannot see the whole picture by looking at just one or both of these indicators, they are essential in forming an opinion regarding a company. According to Brozović, Sever Maleš and Žager (2019), EBITDA and EBITD coefficients should be used carefully.

5. CONCLUSION

In conclusion, it can be reported the following:

The operational cash and the account balance are not the same indicators, regardless of the name "operational cash." The account balance is the cash balance of one company at the end of the business year. During the review of

the amounts of EBITDA and account balances, the amounts in question are entirely different. So, it can be said that the null hypothesis can be accepted and the alternative hypothesis rejected because there are differences between operating cash (EBITDA) and cash on the bank account at the end of the business year.

Examining whether there is a connection between these two indicators, it can be concluded that the connection and interdependence do not exist, which is shown graphically.

The main conclusion is that the null hypothesis is confirmed, and the alternative hypothesis is rejected. There is a big difference between operating cash (EBITDA) and cash on the bank account at the end of the business year.

It is also important to underline that both indicators have their applications and significance for a company's internal and external stakeholders.

This paper leaves space for additional analyses of both coefficients in terms of their significance and weaknesses. Also, it could be interesting to look at any additional analyses that can help in making decisions.

The paper analyzes the EBITDA profitability ratio, which is also known as "Operating cash" and balance sheet items "Account balance" on the examples of 40 pharmaceutical companies. In order to examine whether these two coefficients can represent the same but also whether there is a correlation between them, a correlation analysis with a scatter plot was applied, and a comparative analysis of these coefficients was also evaluated by the coefficient of determination. Based on the analysis of all the above, the scientific contribution of this paper can be seen, but the null hypothesis is also confirmed. The alternative is rejected, i.e., it is concluded that the null hypothesis can be confirmed. The alternative hypothesis can be rejected - There is a difference between operating cash (EBITDA) and cash on the bank account at the end of the business year.

This conclusion and the analysis leave enough space for additional similar analysis in companies from other industries. Also, it is possible to analyze determinants that affect one and the other indicator. And, it can be investigated if the growth or decline of these indicators can be predicted? Alternatively, whether the increase or decrease of these indicators may indicate some changes in the future, as well as whether these indicators can significantly influence the decision-making of stakeholders or can only help them conclude. Of course,

future research should pay special attention to fixed assets that the scope of the research includes because the EBITDA ratio is greatly affected by depreciation.

The limitations of this research are that the calculated EBITDA ratio does not show the structure of fixed assets that the company owns primarily due to depreciation. Therefore, it cannot be known if the data would be different if the company had more or less fixed assets in its ownership.

Considering that on the example of pharmaceutical companies, the mentioned two indicators are not dependent or the same, it can also be concluded from the paper that one coefficient cannot be observed to predict another, nor that the time to calculate EBITDA coefficient can be shortened. So, for financial reporting, only the second coefficient will be reviewed. This further implies that both ratios, although mutually independent, are of great importance for the financial report but also for all stakeholders. Observing the work, the purpose of each coefficient is also distinguished, both in financial reporting and for all stakeholders.

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