

THE RESULTS ANALYSIS OF AN ECONOMIC ENTITY OF WATER DISTRIBUTION

RAKOS (BOCA) ILEANA-SORINA¹, SOLOMON ALINA-GEORGIANA², STOLOJESCU
BOGDAN NICOLAE³, MUNTEAN EMIL³

¹ PHD. LECTURER - UNIVERSITY OF PETROȘANI, FACULTY OF SCIENCES, ROMANIA

² PHD. LECTURER - CHRISTIAN UNIVERSITY - DIMITRIE CANTEMIR, FACULTY OF BUSINESS, BUCHAREST,
ROMANIA

³ DOCTORAL STUDENT - UNIVERSITY 1 DECEMBRIE 1918, FACULTY OF ECONOMICAL SCIENCES, ALBA-
IULIA, ROMANIA

e-mail: nihilsinedeo_68@yahoo.com; alinagsolomon@yahoo.com; stolojescu.bogdan.sdc22@uab.ro,
emil.muntean.sdc23@uab.ro

Abstract

The authors of this study aim to carry out a dynamic and structural analysis of the revenues and expenses of an economic entity supplying drinking water, for the period 2021-2022, to highlight their evolution as a result of the increase in the water tariff. For the profitability of the activity of the analyzed economic entity, it is particularly important to know the expenses caused by the performance of the specific activity and, respectively, to identify the best ways to improve its performance. As is known, the correlated analysis of expenses and the management of financial, material, and human resources is the basis of the managerial decision-making process of an economic entity. The objective of this research is to develop an analysis of expenses related to incomes in order to highlight their evolution, as well as the factors that influence their size. The research focused on the study of specialized literature, complemented by a case study comprising the vertical analysis of the profit and loss account, as well as the dynamic and structural analysis of the expenses and revenues of a company in the targeted field. The obtained result resides in the observation that, for the analyzed entity, the revenues adversely influence the efficiency of the total expenses. The article ends with the authors' conclusions regarding how the expenses related to the analyzed entity's revenues evolved during the mentioned period and the effect over time of the resulting variations.

Keywords: dynamic and structural analysis, expenses, efficiency, performance, revenues

Clasificare JEL: M40, M41

1. Introduction and Context of the Study

In the conditions of the competitive economy expansion with deep implications in the process of adopting managerial decisions, the increase in the complexity of the financial activity of economic entities forces the use of scientific methods based on objective knowledge of reality, through the prism of establishing causal links between economic phenomena and the financial situation of the economic entity, in this case. This purpose is served by the financial analysis, as a component of the economic-financial analysis [1].

The analysis of the expenses highlighted with the help of the accounts from the 6th class of the General Chart of Accounts, begins with the general study of the structure on the specific factors of the activities that generate them, according to their nature [2]. Operating expenses reflect the consumptions carried out to achieve the object of activity and include: consumables, expenses with raw materials, with inventory items consumed, expenses with personnel, adjustment of the value of tangible and intangible assets (depreciation and provisions set up for various expenses, etc.), value adjustments regarding current assets, other operating expenses [3]. Financial expenses include losses on receivables related to participations, from the sale of securities, interest, unfavorable exchange rate differences, value adjustments on financial fixed assets and financial investments held as current

assets, etc. [4]. The economic entity’s income represents the amounts received or to be received during the year and includes: operating income, which includes the income from the operations that form the object of activity, to which are added the income from stored production and real estate, as well as other income from exploitation; financial income, which includes income from participations, from other fixed assets and from other securities [5]. Therefore, the objective of the undertaken research is the analysis of the efficiency of total expenses in relation to the total revenues of the considered economic entity.

2. Research methodology

During their research, the authors respected the specific rules of the research methodology, such as: reviewing the specialized literature, collecting and processing conclusive data and information and synthesizing the theoretical aspects.

Among the specific research methods, the authors focused on observation, statistical grouping, deductive research, comparison and case study including the vertical analysis of the profit and loss account, respectively the dynamic and structural analysis of the expenses and revenues of an economic entity in the field water distribution, and the interpretation of the results obtained. The theoretical research focused on the national specialized literature in the field, and the empirical research complemented the theoretical research with the practical translation of the information obtained. The entire research process was subject to rules regarding the rigor of the research, its objectivity and probity, in order to obtain valid and reproducible results.

3. Analysis of the Structure of Income and Expenses by Types of Activities [6]

This analysis is carried out based on the vertical analysis of the profit and loss account table no. 1 and based on the following reports:

Table no. 1 Profit and Loss Account on December 31, 2022 – summarized.

No. crt.	Name of the indicator	Financial exercise		Deviations (±Δ)	Indicators (%)
1	Net turnover	23.954.707	28.792.998	4.837.291	120,20
2	Production sold	23.711.513	28.575.923	4.864.410	120,51
3	Operating income	24.618.252	29.033.079	4.414.827	117,93
4	Operating expenses	21.643.394	24.393.900	2.750.506	112,71
5	Financial income	622.690	291.093	- 331.597	46,75
6	Financial expenses	502.237	752.299	250.062	149,79
7	Total income	25.240.941	29.324.172	4.083.231	116,18
8	Total expenses	22.145.632	25.146.199	3.000.567	113,55
9	Profit tax	907.267	712.501	-194.766	78,53
10	Net profit or loss for the financial year	2.188.042	3.465.472	1.277.430	158,38

Source: authors’ processing based on the company’s financial statements.

a) Ratio of expenses (Chi) to the total debit (Cht);

$$S_{chi} = \frac{Chi}{Cht} \times 100 = \frac{Ch_{exp.}}{Cht} \times 100 + \frac{Ch_{fin}}{Cht} \times 100 + \frac{Ch_{extr}}{Cht} \times 100 \quad (1)$$

b) Ratio of income (V_i) to total credit (V_t)

$$S_{vi} = \frac{V_i}{V_t} \times 100 = \frac{V_{exp}}{V_t} \times 100 + \frac{V_{fin}}{V_t} \times 100 + \frac{V_{extr}}{V_t} \times 100 \quad (2)$$

Knowing the structure of total revenues by types of activities is of particular importance as it influences the overall efficiency of total expenses in relation to total revenues. The efficiency of expenses related to income is characterized with the help of the indicator Expenses per 1,000 lei of income, which can be determined both in total and by types of activities.

$$I_t = \frac{\text{Cheltuieli totale}}{\text{Venituri totale}} \times 1000(\%) \quad (3) \text{ Total expenses Total income}$$

The increase in the efficiency of expenses implies the reduction of the level of the indicator and is the consequence of the slower growth of expenses compared to incomes, according to the correlation:

$$I_{cht} < I_{vt}. \quad (4)$$

The calculation of the indicator can be completed according to the income structure (S_{vi}) and efficiency indicators (I_i) by types of activities (exploitation, financial), according to the following calculation ratio:

$$I_t = \frac{Ch_{exp}}{V_{exp}} \times 1000 \times \frac{V_{exp}}{V_t} + \frac{Ch_{fin}}{V_{fin}} \times 1000 \times \frac{V_{fin}}{V_t} + \frac{Ch_{extr}}{V_{extr}} \times 1000 \times \frac{V_{extr}}{V_t} = I_{exp} \times S_{vexp} + I_{fin} \times S_{vfin} + I_{extr} \times S_{vextr} = \sum S_{vi} \times I_i \quad (5)$$

3.1. The structure and efficiency of expenses related to income taken from the profit and loss account.

The dynamic and structural analysis of total expenses involves the calculation of absolute and percentage deviations in their amount [8]. The structure and efficiency of expenses related to the income taken from the profit and loss account is presented in table no. 2.

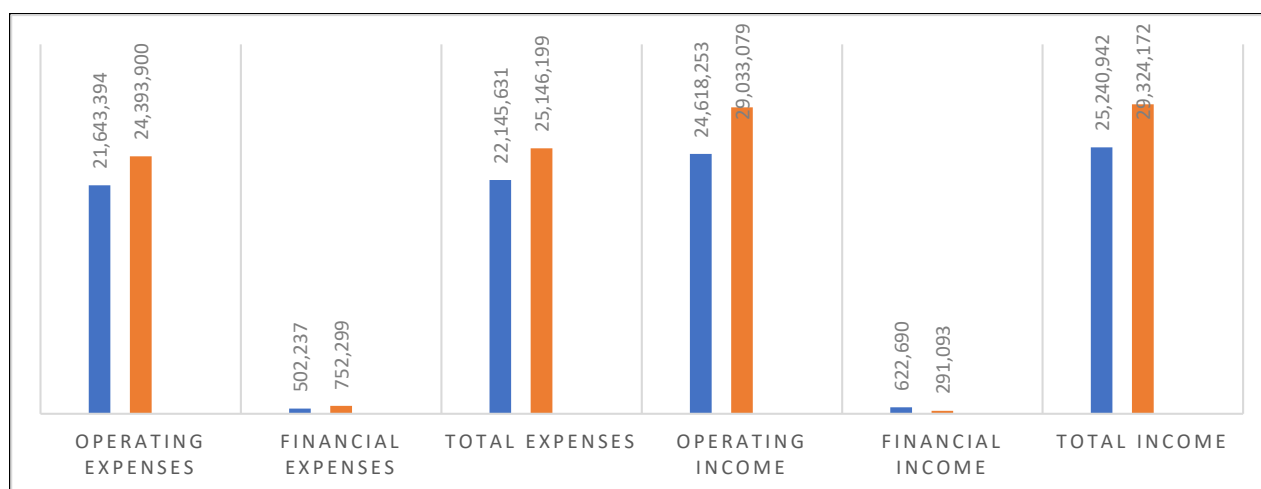
Table 2. Efficiency of Expenditure Related to Income

Calculation element (thousands of lei)	Financial exercise		The structure (%) expenses - income		Efficiency indicators (‰)	
	2021	2022	Si0	Si1	Ii0	Ii1
Operating expenses	21.643.394	24.393.900	97,73	97,00	879,16	840,21
Financial expenses	502.237	752.299	2,27	3,00	806,56	2.584,39
Total expenses	22.145.631	25.146.199	100	100	877,37	857,52
Operating income	24.618.252	29.033.079	97,53	99,27	-	-
Financial income	622.690	291.093	2,47	0,73	-	-
Total revenue	25.240.942	29.324.172	100	100	-	-

Source: authors' processing based on data taken from the company's profit and loss account

In the analyzed period, the total expenses of the considered economic entity, as can be seen in figure no. 1, registered an increase in 2022 compared to 2021, in the amount of 3,000,568 lei.

The majority share in their structure is held by operating expenses, at a percentage of 97% at the level of 2022, as a result of the increase of financial expenses compared to the year 2021 at a percentage of 1.497% compared to the previous year.



Source: authors' processing based on data from the company's profit and loss account

Figure no.1. The Dynamics of Expenses Related to Income

Operating expenses, which have the largest share in total expenses, recorded a growth rate close to that of total expenses, respectively they increased by 1.127% in 2022 compared to 2021. Also, during the analyzed period, total revenues register an increasing trend, which will positively influence the evolution of the company's result, in a percentage of 1.162% compared to the previous year. In the structure of total revenues, the largest share is held by operating revenues, which recorded an increase of 1.179% in 2022 compared to the previous year, the share of financial revenues decreasing in 2022 compared to the previous year by a percentage of 0.467%. The efficiency indicators for the previous and the current financial year are determined, as follows:

$$It_0 = \frac{Cht_0}{Vt_0} \times 1000 = \frac{22.145.631}{25.240.941} \times 1000 = 877,37\% \quad (6)$$

$$It_1 = \frac{Cht_1}{Vt_1} \times 1000 = \frac{25.146.199}{29.342.172} \times 1000 = 857,52\% \quad (7)$$

3.1.1. The change in the efficiency indicator is the difference:

$$\Delta = It_1 - It_0 = 857,52 - 877,37 = -19,85\% \quad (8)$$

$$(\Delta t = It - 100 = \frac{857,52}{877,37} \times 100 - 100 = 97,73 - 100 = -2,27\%)$$

3.1.2. The influencing factors are:

$$\Delta = \Delta Cht + \Delta Vt \quad (9)$$

In which:

$$\Delta Cht = \frac{cht_1}{cht_0} \times 1000 - It_0 = \frac{25.146.199}{25.240.942} \times 1000 - 877,37 = 996,25 - 877,37 = 118,88\%$$

$$(\Delta \text{Cht} = \frac{\text{cht}_1}{\text{It}_0} \times 100 = \frac{118,88}{877,37} \times 100 = 13,54\%)$$

$$\Delta \text{Vt} = \text{It}_1 - \text{It}_0 = 857,52 - 996,25 = -138,73\% \quad (10)$$

$$(\Delta \text{rVt} = \frac{\Delta \text{Vt}}{\text{It}_0} \times 100 = \frac{-138,73}{877,37} \times 100 = -15,81\%)$$

Equality is verified by summation:

$$\Delta \text{Cht} + \Delta \text{Vt} = 118,88 - 138,73 = -19,85\% = \Delta \quad (11)$$

$$(\Delta \text{rCht} + \Delta \text{rVt} = 13,54 - 15,81 = -2,27\% = \Delta \text{r}) \quad (12)$$

Therefore, the reduction of the indicator by 2.27% attests to the increase in the efficiency of expenses related to total revenues, in the conditions of the increase of both revenues and expenses. The reduction of the indicator was the consequence of the faster growth of revenues compared to expenses:

$$\text{Ivt} > \text{Icht}, \text{ respectively} \quad (13)$$

$$\left(\frac{29.342.172}{25.240.942} = 1,162 > \frac{25.146.199}{22.145.631} = 1,1355 \right), \text{ in fact } 1,162 > 1,135.$$

3.2. Income structure by types of activities and efficiency indicators

The structure of revenues by types of activities and their efficiency indicators influence the efficiency of total expenses according to the calculation ratio:

$$\text{It} = \frac{\sum \text{Svj} \times \text{Ii}}{100} \quad (14)$$

In which:

$$\text{It}_0 = \frac{\sum \text{SVi}_0 \times \text{Ii}_0}{100} = \frac{(97,53 \times 879,16) + (3 \times 806,56)}{100} = \frac{85.744,47 + 2.419,68}{100} = 881,64\%$$

$$\text{It}_1 = \frac{\sum \text{SVi}_1 \times \text{Ii}_1}{100} = \frac{(99,27 \times 840,21) + (0,73 \times 2.584,39)}{100} = \frac{83.407,65 + 1.886,60}{100} = 852,94\%$$

3.2.1. Changing the indicator is the difference:

$$\Delta = \text{It}_1 - \text{It}_0 = 852,94 - 881,64 = -28,70\% \quad (15)$$

$$(\Delta \text{r} = \text{It} - 100 = \frac{852,94}{881,64} \times 100 - 100 = 96,74 - 100 = -3,26\%)$$

3.2.2. The influencing factors are:

$$\Delta = \Delta \text{SVi} + \Delta \text{Ii} \quad (16)$$

In which:

$$\Delta \text{SVi} = \frac{\sum \text{SVi}_1 \times \text{Ii}_0}{100} - \text{It}_0 = \frac{(99,27 \times 879,16) + (0,73 \times 806,56)}{100} - 877,37 = 1,2599\%$$

$$(\Delta \text{rSVi} = \frac{1,2599}{877,37} \times 100 = 0,1436\%)$$

$$\Delta \text{rIi} = 857,52 - 877,37 = -19,85\%$$

$$(\Delta r_{li} = \frac{-19,85}{877,37} \times 100 = 2,26\%)$$

Equality is verified by summation:

$$\Delta SV_i + \Delta I_i = 1,2599 - 19,85 = - 18,59\% = \Delta \quad (17)$$

$$(\Delta r_{Sv_i} + \Delta r_{li} = 0,14 - 2,26 = - 2,12\% = \Delta r) \quad (18)$$

These results require the deepening of the study at the level of expenditure categories (exploitation, financial) in order to discover the influencing factors according to nature and destination.

4. Conclusions

The change in the income structure adversely affects the efficiency of total expenses, as it increased the indicator by 0.14% as a result of the increase in the share of operating income from 97.53% to 99.27% under the conditions of an efficiency indicator (879.16%) higher than the average indicator (877.37%). The share of financial income decreased from 2.47% to 0.73% with the related lower indicator (806.56%). The efficiency indicators by types of activities reflect the increase in the efficiency of the exploitation activity by decreasing the related indicator from 879.16% to 840.21%. In contrast, financial expenses per 1,000 lei of financial income increased from 806.56% to 2,584.39%, which confirms the inefficiency of this activity that justifies the financial loss recorded in the current year. The performance of any activity by an economic entity involves the consumption of material, human and financial resources. In the case of exploitation activity, a correlation can be made between income and expenses, in the sense that making an income implies making an expense or vice versa. For the profitability of the company's activity, it is very important to know the expenses caused by its development, in order to find ways to improve the activity [9]. Basically, the correlated analysis of expenses and resource management is the basis of the managerial decision-making process.

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