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## Structure ratios of Profit and Loss Account – source of information for performance analysis

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### Abstract

The Profit and Loss Account is by definition the main source of information for studying the financial performance of the companies. Financial ratios describe the relationship between financial indicators, in general between a result and an effort for the company, in order to offer an image of the financial profitability, if we use the Profit and Loss account or financial position and an image of financial position if we use the Balance Sheet. The structure ratios of the Profit and Loss account have the capability to show in ratios companies' income and expenses, comparing the different positions of the Profit and Loss account. If this analysis is made in dynamics, in a few years, we can obtain specific information on companies' performance in using their assets in order to obtain profit. Our case study performed in dynamics during eight years (2006-2013), based on real data from the Romania's furniture industry, on a large enterprise with more than 700 employees, reveal that the main expenses of the enterprise are with the cost of employees and with the raw material and materials. Also, using the Pearson correlations coefficient we could find a direct and strong relationship between the net income of the enterprise and the cost of the employees.

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**Keywords:** structure ratios, Profit and Loss Account, performance analysis, income, expenses.

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## 1. Introduction

The profit and loss account represents the main source of information for the analysis of the financial-economical performance, having been created to determine this. Which is why we chose the performance's analysis by calculating its structural rates.

In our study, we plan on using the structural rates to do a dynamic analysis on how the generating elements of result influence the performance of the firm named S.C. Mobex S.A. Thus, we wish to identify the expenses that have the greatest influence on the net income and the existing relationship between these.

## 2. The methodology of the research

In order to start our case study, we proceeded in reviewing the specialized literature regarding the domain of analysis based on the structural rates of the profit and loss account. Thus, the structural rates that we applied are those that can be found in specialized literature. These are the general structural rates of the results, the income and expenses for each type of activity performed by the entity, namely: operating activities, financing activities and extraordinary activities. At the level of operating and financial activities, the internal rates of the incomes and expenses are calculated.

Based on specialized literature, we projected a model for analysis that includes the identified structural rates, which is the model we will present in the following paragraph.

From a practical point of view, we collected and centralized the values for each indicators necessary for calculating the established rates in the analysis model. The information was collected from the profit and loss accounts of the company subjected to the study from the period of 2008-2013.

The practical application of the model was accomplished through calculating each rate for each reported period considered and the centralizing of the percentage results in the tables and images, in order to facilitate the process of interpreting the obtained results.

In order to highlight the relationship between the most significant calculated rates and the net profits of the company, we chose to calculate using the Pearson coefficient. This coefficient is a statistical model of the correlation calculation to establish the intensity of relationship between the same two variables within the data distribution. The Pearson correlation report has the following mathematical formula (Raulea, 2010: 72-75):

$$r = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 (y - \bar{y})^2}}$$

## 3. Literature review

According to the author D. Vitan (2010), “for a long time, the account of profit and loss has been seen as a completion to the information given through the Balance Sheet, but it can be said that there was always an important battle between the Balance Sheet and the loss and profit Account in providing useful information to the decision makers. Thus, the development of the corporative form of the companies brings up in the front the utility of the profit and loss Account in financial reporting through growth of interest for the company's performance, for the dynamic information and the decrease of interest in historical expenses and for punctual, and static information.”

The profit and loss account remains as the main source of information for the study of economical-financial performance, in the conditions in which the very form of the document of synthesis is created following the main activities of the commercial companies: exploitation, financial and extraordinary.

The structural rates of the Profit and Loss account can be calculated because they are very important for the financial performance study, offering information of interest as much for the company's management as for the shareholder. Thus, the purpose for which these rates are being calculated is in order to show the structural modifications that happen from one financial exercise to another. (Achim, 2009)

Taking into consideration the fact that in the economical-financial analysis there is a series of analyzing methods, we chose the rates method in our case study. “The rate is a ratio between two indicators comparable from an economic point of view, with a superior meaning to the two indicators taken separately.

The main categories of rates are:

- **structural rates**, which expresses the contribution of the parties for the formation of the phenomena;
- **efficiency rates**, which reflects the correlation between effect and effort;
- **financial balance rates**, which shows the correlations between balance-sheet items or groups of balance-sheet items from active and from passive” (Sandu, 2014)

Of the three types of rates, since we operate with information provided by the profit and loss account, we focus on the structural rates which we will apply on the elements that generate results in order to see which of the expenses and which of the incomes have a significant contribution on forming results. Identifying the contribution of every groups of expenses for the formation of result is necessary in the situation in which the company's management wishes to improve the financial strategy. The extent in which every type of expenses contribute to the formation of the result is thus important when decisions regarding policy stabilization are taken to minimize expenses.

“Financial ratios are analytical tools for the study of a range of concepts such as the activity, profitability or productivity of a firm. They are widely used as explanatory variables in accounting research with applications ranging from the determinants of an auditor's compensation to explaining the firm's investment decisions and the determinants of capital structure (Ioannidis et al., 2003). From a strictly statistical point of view, moreover, the use of these ratios enables the data to better satisfy the assumptions underlying statistical tools such as regression analysis, weakening the influence of certain characteristics such as the firm's size. For these reasons, it is interesting to characterize their dynamic evolution process.” (Gallizo, Gargallo, Salvador, 2008)

Based on the classification of rates of the structure of the profit and loss account shown by Achim, we built a model of analysis which has, at its roots, results and their generating elements. Regarding the results, in the table below, we present the rates that can be calculated, related to every type of activities on the level they were registered (Achim, 2009: 338)

Table 1. The general structural rates of the results

Name	Method of calculation	Formula
Rate of operating result( $R_{ES}$ )	The percentage of the operating result (REXP) in the total the gross result of the exercise (RBE)	$R_{REXP} = \frac{REXP}{RBE} \times 100$
Rate of financial result ( $R_{FR}$ )	The percentage of the financial result (RF) in the total the gross result of the exercise (RBE)	$R_{RF} = \frac{RF}{RBE} \times 100$
Rate extraordinary result ( $R_{ES}$ )	The percentage of the extraordinary result (REX) in the total the gross result of the exercise (RBE)	$R_{REX} = \frac{REX}{RBE} \times 100$
Rate of the exercise's net result ( $R_{NES}$ )	The percentage of the exercise's net result (RNE) in the total the gross result of the exercise (RBE)	$R_{RNE} = \frac{RNE}{RBE} \times 100$
Rate of taxes on profit ( $R_{IP}$ )	The percentage of the exercise's net result (RNE) in the total the gross result of the exercise (RBE)	$R_{IP} = \frac{IP}{RBE} \times 100$

Source: own projection based on literature

Concerning the incomes, our model takes into account the overall structural rates of the incomes associated to the three types of activities carried out within a firm, and at the level of each activities, we'll present the rates of internal structure.

Table 2. The structural rates of the incomes

General structural rates			Internal structural rates		
Name	Method of calculation	Formula	Name	Method of calculation	Formula
The operating rate income (R <sub>VEXP</sub> )	The percentage of the operating incomes (VEXP) in the total income (VT)	$R_{VEXP} = \frac{VEXP}{VT} \times 100$	The net turnover rate (R <sub>CAN</sub> )	The percentage of the net turnover(CAN) in the total operating incomes (VEXP)	$R_{CAN} = \frac{CAN}{VEXP} \times 100$
			The variation rate of inventories (R <sub>QS</sub> )	The percentage of the inventories variation (Qs) in the total operating incomes (VEXP)	$R_{QS} = \frac{Qs}{VEXP} \times 100$
			Other operating income rate (R <sub>Avexp</sub> )	The percentage of other operating income (Avexp) in the total operating incomes (VEXP)	$R_{Avexp} = \frac{Avexp}{VEXP} \times 100$
The financial income rate(R <sub>VF</sub> )	The percentage of the financial income (VF) in the total income (VT)	$R_{VF} = \frac{VF}{VT} \times 100$	The income interest rate (R <sub>VD</sub> )	The percentage of income from interest rates (VD) in the total financial income (VF)	$R_{VD} = \frac{VD}{VF} \times 100$
			The rate of other financial income (R <sub>Avf</sub> )	The percentage of other financial income (Avf) in the total financial income (VF)	$R_{Avf} = \frac{Avf}{VF} \times 100$
The extraordinary income rate (R <sub>Vex</sub> )	The percentage of the extraordinary income (VEX)in the total income (VT)	$R_{Vex} = \frac{VEX}{VT} \times 100$			

Source: own projection based on literature

#### Note:

In the case of the turnover we will calculate the sold production rate (R<sub>QV</sub>) respectively the income rates from the sales of goods (R<sub>VM</sub>):

$$R_{VM} = \frac{VM}{CAN} \times 100; \quad R_{QV} = \frac{Qv}{CAN} \times 100$$

Concerning the model of planed analysis for the expense part, we proceeded the same as for the income. Like this, we maintained the same classification criteria for the structural rates, for a unitary analysis in the framework of our study at the level of the generating elements of results. Likewise, the rates were chosen from the ones shown in specialized literature (Achim, 2009), which agree with the structure of the profit and loss account foreseen from the applicable rules.

Table 3.The structural rates of expenditure

General structural rates			Internal structural rates		
Name	Method of calculation	Formula	Name	Method of calculation	Formula
The operating expenditure rate (R <sub>CEXP</sub> )	The percentage of the operating expenditure (CEXP) in the total expenditure (CT)	$R_{CEXP} = \frac{CEXP}{CT} \times 100$	The goods and materials expenditure rate (R <sub>CM</sub> )	The percentage of the material expenditure(CM) in the total operating expenditure (CEXP)	$R_{Aja} = \frac{Aja}{CEXP} \times 100$
			The expenditure rate with other taxes and assimilated payments (RIT)	The percentage of expenditure with other taxes and assimilated payments(IT) in the total operating expenditure (CEXP)	$R_{Ajp} = \frac{Ajp}{CEXP} \times 100$
			The personnel expenditure rate (R <sub>CP</sub> )	The personnel expenditure percentage (CP) in the total operating expenditure (CEXP)	$R_{AjIF} = \frac{AjIF}{cf} \times 100$

General structural rates			Internal structural rates		
Name	Method of calculation	Formula	Name	Method of calculation	Formula
			Other operating expenditure rate ( $R_{Acexp}$ )	Reflect the percentage of other operating expenditure ( $Acexp$ ) in the total operating expenditure ( $CEXP$ )	$R_{Acexp} = \frac{Acexp}{CEXP} \times 100$
			The rate of the value adjustments on assets ( $R_{Aja}$ )	The percentage of the value adjustments on assets ( $Aja$ ) in the total operating expenditure ( $CEXP$ )	$R_{Aja} = \frac{Aja}{CEXP} \times 100$
			The adjustments rate on provisions ( $R_{Ajp}$ )	The percentage of the adjustments of provisions ( $Ajp$ ) in the total operating expenditure ( $CEXP$ )	$R_{Ajp} = \frac{Ajp}{CEXP} \times 100$
The financial expenditure rate ( $RC_{VF}$ )	The percentage of the financial expenditure ( $CF$ ) in the total expenditure ( $CT$ )	$RC_{VF} = \frac{CF}{CT} \times 100$	The value adjustments rate in the financial investments ( $R_{AjIF}$ )	The percentage of the value adjustments in the financial investments ( $AjIF$ ) in the total financial expenditure ( $CF$ )	$R_{AjIF} = \frac{AjIF}{CF} \times 100$
			The rate of interest expenditure ( $R_{CHD}$ )	The percentage of interest expenditure ( $CHD$ ) in the total financial expenditure ( $CF$ )	$R_{CHD} = \frac{CHD}{CF} \times 100$
			Other financial expenditure rate ( $R_{Acf}$ )	The percentage of other financial expenditure ( $Acf$ ) in the total financial expenditure ( $CF$ )	$R_{Acf} = \frac{Acf}{CF} \times 100$
The extraordinary expenditure rate ( $R_{CEX}$ )	The percentage of the extraordinary expenditure ( $CEX$ ) in the total expenditure ( $CT$ )	$R_{CEX} = \frac{CEX}{CT} \times 100$			

Source: own projection based on literature

Given the analysis model shown in table 1, 2 and 3, we proceeded to apply it on the data collected from the profit and loss account of S.C. Mobex S.A. during the period of 2008-2013, for the dynamic analysis of the structure of the results, incomes and expenses.

#### 4. Results and discussion regarding the structural rates of S.C. Mobex S.A.

By applying the model on the selected information in the profit and loss account of the firm S.C. Mobex S.A., the structural rates of the recorded results during 2006-2008 are the following:

Table 4. The results structural rates

-%

The results structural rates	2006	2007	2008	2009	2010	2011	2012	2013
The operating results rate	135.01	155.91	134.49	134.91	114.23	119.05	116.80	121.68
The financial result rate	-35.01	-55.91	-34.49	-34.91	-14.23	-19.05	-16.80	-21.68
The operating net result rate	84.58	78.49	81.65	82.70	82.39	82.33	84.23	82.79
The tax on profit rate	15.42	21.51	18.35	17.30	17.61	17.67	15.77	17.21

Source: own projection based on information from the profit and loss account of the company

We can observe in Table 4 that the structural rates of the results had an oscillatory evolution during the period analyzed.

The rate of the exploitation results is more than 100 percent because the effect of the financial result intervenes. Financial loss, in our case, diminishes the current result toward the result of exploitation. The current result here is the gross result, because there isn't any extraordinary income and expenses during the period analyzed.

The rate of the net result and the rate of the income tax cumulates every year by 100%, the rapport having been made in a gross result because the calculation formula of the accounting net result is: *Net result = Gross result – income tax*. The dynamic of these results is interesting, because the tax implications are of a special importance in determining them and are important for the society's interest because they represent an expense. Although the tax

rate is of 16%, the tax implications, deductible expenses, non-taxable income, other income assimilated elements, or tax deductions intervene.

The overall rates of revenue and expenditure structure are:

Table 5. The general structural rates of the incomes and expenditure

-%-

The structural results rates	2006	2007	2008	2009	2010	2011	2012	2013
The operating income rate	98.30	99.00	99.22	99.06	97.93	98.71	98.71	98.55
The financial income rate	1.70	1.00	0.78	0.94	2.07	1.29	1.29	1.45
The extraordinary income rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
The operating expenditure rate	96.48	95.80	96.38	97.07	96.84	97.42	97.31	96.85
The financial expenditure rate	3.52	4.20	3.62	2.93	3.16	2.58	2.69	3.15
The extraordinary expenditure rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: own projection based on information from the profit and loss account of the company

From Table 5, we can observe that, in the analyzed period, the society had a nearly maximal exploitation activity in percentage. The biggest rate of financial income was 2%, and its smallest value was 1%. The society didn't register extraordinary incomes and expenses during the period analyzed. To further detail the factors that have participated in the formation of the company's performance we'll present, in table 6 and table 7, the internal rates of income and operating expenses, and the financial income and expenses respectively.

Table 6. The internal operating income rates

-%-

Indicators	2006	2007	2008	2009	2010	2011	2012	2013
The net turnover rate	85.59	82.12	85.56	87.65	85.25	86.74	84.05	87.68
The sold production rate	77.32	73.31	76.32	74.70	73.50	76.35	75.29	81.99
The rate of sale of goods	8.26	8.81	9.24	12.94	11.75	10.39	8.76	5.69
The inventory variation rate	13.91	15.63	14.08	11.83	13.86	12.51	14.97	11.47
Other operating income rate	0.50	2.02	0.29	0.52	0.89	0.47	0.56	0.33

Source: own projection based on information from the profit and loss account of the company

From table 6, we are able to observe that the biggest part of the operating income is represented by the turnover. The turnover comprises the production rate sold and the rate of sale of goods sold.

The rate of production sold comprises, in the period analyzed, more than 73% of the total turnover, with a maximum of 82% in 2013. As a company with activities in the production of furniture, it is normal that the rate of production sold will have the largest share in the turnover. In dynamic, we observe that the indicator of the evolution is a variable one, and in the last year of analysis, it has the highest value, 82%. Statistically, there isn't a significant direct correlation between the rate of production sold and the net profit.

Table 7. Internal rate of operating expenditure

-%-

Indicators	2006	2007	2008	2009	2010	2011	2012	2013
The rate of staff costs	41.89	41.86	42.69	45.31	43.95	42.59	44.14	46.31
The rate of raw materials and materials	38.28	35.93	35.52	28.55	31.88	33.01	33.25	33.31
Rate of other operating expenditure	5.26	5.08	5.89	6.90	6.69	6.10	6.26	6.19
The expenditure rate of works done by other	4.15	3.45	4.47	4.89	4.68	4.43	4.75	4.48
Rate of other materials expenses	0.57	0.86	0.60	0.47	0.33	0.69	0.37	0.56
Rate of other tax expenses	0.45	0.60	0.50	0.88	0.90	0.68	0.43	0.52
The value adjustments rate	-0.18	2.22	1.06	-0.07	0.14	1.23	0.16	0.36

Source: own projection based on information from the profit and loss account of the company

From Table 7 we can see that the largest share of operating expenses is the cost of staff, followed by the cost of raw materials. In dynamic, internal rates show an **increase** in personnel costs and a **decrease** in the rate costs of materials and supplies.

The structure of operating expenses is of the last year analyzed, 2013, which is shown in Figure 1.

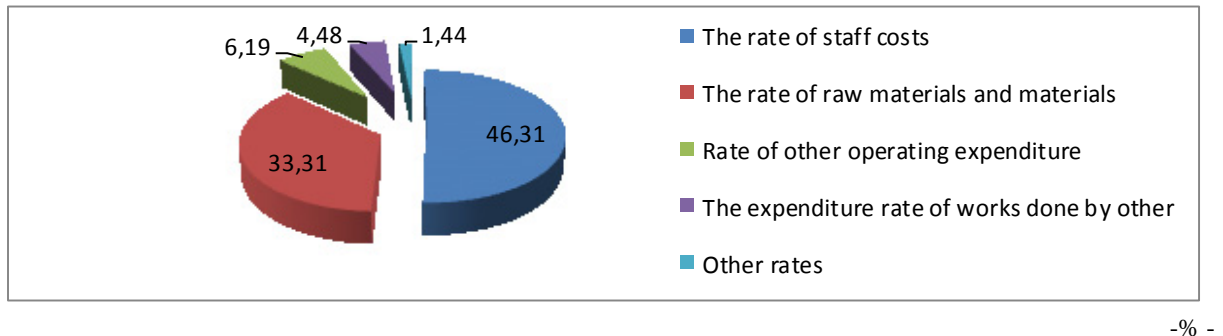


Figure 1. Structure of operating expenses 2013

Source: own projection

We note that for 2013, the rate of staff costs is **41.89%** of the total operating costs and **44.85%** of the total expenditure for the company. Also, in 2013, we see that the rate of expenses for raw materials and consumables has a value of **33.31%** and the level of the total expense amounts to **32.7%**. In these circumstances, we consider that there may be a strong correlation between staff costs and raw materials supplies and the company's performance, given that these two factors **represent 77.12% of the total expenditure of 2013**.

Using the Pearson coefficient correlation, we calculated for the years 2006-2013 the following:

- The correlation between net profit and staff costs, R calculated has a value of 0.93, meaning there is a strong direct correlation.  $R^2$  or the determining step has a value of 0.86, which means that in the sample selected, out of 86% of possible cases, the net profit is influenced directly by staff costs.
- The correlation between net income and expenses for raw materials and consumables, R calculated has a value of 0.68.  $R^2$  or the determining step has a value of 0.46, which means that in the sample, 46% of cases net profit is directly influenced by the cost of raw materials and consumables.

As to the financial activities, we have in Table 8 the internal rates of income and the expenses relating to them for the period under review:

Table 8. Internal rates of income and financial expenses

-% -

Indicators	2006	2007	2008	2009	2010	2011	2012	2013
The income interest rate	0.51	1.08	2.71	4.27	1.20	1.96	0.43	1.32
Other financial income rate	98.06	92.55	97.29	95.73	95.26	98.04	97.25	97.20
The expenditure and interest rates	36.30	26.73	22.94	21.81	15.12	12.54	9.15	10.24
Other financial expenditure rate	63.70	73.27	77.06	78.19	84.88	87.46	90.85	89.80

Source: own projection based on information from the profit and loss account of the company

The rates of evolution of the financial revenues and expenses during the period under review is a variable one. We have to mention that the rate of expense with interest decreased significantly as a share of the company's financial expenses.

## 5. Conclusions

Performance, under its aspects, is a wide and unanimous desire for human society as a whole. Referring to the typology of performance analysis, whether we treat the economic and financial performance, the social performance, the environmental performance, or others, the elements which make up this performance, or elements which are at their performance's base have very good positioning of some specific indicators which were analyzed by the method of comparison. From a financial perspective, given that income and expenses are elements that generate result in an entity, we consider it necessary for the management of an entity to pay more attention to them. The analysis of revenues and expenditures is important because it reveals how each category of income influence the outcome and expenditure, thus being an important source of information for the analysis of economic and financial performance.

The structural rates of the results registered by S.C Mobex S.A. in the period under review have a fluctuating evolution, but, generally, the position of the company is good in relation to these rates. Regarding the income that was registered in the period analyzed, their minimum proportion are of 98% and their maximum of 99% (of the total revenue), generated by the operating activities. Throughout the period under review there are no extraordinary incomes. All this points lead us to conclude that the company is strongly focused on its core activity, namely the production of furniture, most of its revenue being generated by this activity.

Regarding the structure of expenditure rates, the categories of expenses with the largest share are raw material costs and costs of consumables and human resources costs, an aspect determined by the operating activities performed. Applying the Pearson coefficient correlation revealed a strong direct correlation between net profit and human resources costs, respectively there is a strong direct correlation between net profit and the costs of raw materials and consumables. Due to these existing links, we can conclude that the profit margin is directly affected by the costs of raw materials and consumables and staff cost. Thus, in the entity's strategy for the future, we will be able to find a more detailed analysis of the company's costs, and the main way to reduce costs for the entity should be directed towards the two items of expenditure.

We can therefore conclude that the method of analysis used by us is useful in the development of internal financial management strategies for the entity, for it to consider the categories of expenditure with high values, with a major influence on the outcome. The application of such financial strategies can increase the entity's financial results through effective management of resources and a more efficient correlation of elements of efforts and effects obtained, materialized in making a profit.

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## References

- Achim, Monica, Violeta, (2009). Analiza economico-financiara. Cluj-Napoca: Risoprint.
- Burja, Vasile, Todea, Nicolae, Burja, Camelia, (2003). Analiza financiara si evaluarea societatilei comerciale: elemente teoretice si aplicatii, Cluj-Napoca: Risoprint.
- Burja, Camelia, (2005). Analiza economico-financiara, Cluj-Napoca: Risoprint.
- Gallizo, Jose, Luis, Gargallo, Pilar Salvador, Manuel, (2008). Multivariate Partial Adjustment of Financial Ratios: A Bayesian Hierarchical Approach, in *Journal of Applied Econometrics*, Vol. 23, No. 1, Themes in Financial Econometrics (Jan. - Feb., 2008), pp. 43.
- Raulea, Ciprian, (2010). Statistica Psihologica si prelucrarea informatizata a datelor, <http://www.scribd.com/doc/42372943/Statistica-Psihologica>, accessed on 10.02.2015.
- Sandu, Radu, (2014). Analiza economico-financiara. Suport de curs, available at [www.cig.ase.ro/prof/rsandu/resurse/marketing%20-%20curs%202.doc](http://www.cig.ase.ro/prof/rsandu/resurse/marketing%20-%20curs%202.doc), accessed on 28.01.2015
- SPSS Easy Learning, <http://easyspps.wordpress.com/2010/08/30/coeficientul-de-corelatie-al-lui-pearson-r-11/>, accesed on 09.02.2015.
- Vitan, Daniela, (2010). Raportarile financiare la institutiile publice si entitatile nonfinanciare. Puncte comune si deosebiri, in *Revista tinerilor economisti*, no 16, pp. 29.