ACADEMY OF ECONOMIC STUDIES

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Muntean Neli

A DIDACTIC AND APPLICATIVE COURSE IN ECONOMIC AND FINANCIAL ANALYSIS FOR ENGLISH LEARNING STUDENTS

Ediţia a II-a

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Lucrarea didactică ***„Analiza economico-financiară”*** a fost examinată şi recomandată pentru reeditare la şedinţele *Catedrei* ***„Analiza activităţii economico-financiare”*** (proces-verbal nr. 2 din 30.09.11).

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PREFACE

The objective of this book is the presentation of financial and economic analysis from the point of view of the primary users.

We believe that our work will be valuable to numerous audiences. First, it will benefit the English learning students and the working financial analyst. Some of the areas covered (off balance sheet financing and hedging techniques, for example) are rarely covered either in the professional literature or in accounting textbooks. While many analysts are familiar with some of the techniques in this book, we believe that even they will find fresh insights on reporting issues.

This book has been written from an academic point of view. Most of the analysis presented is based on the financial and economic data of an actual enterprise.

The first 3 chapters introduce the essential elements of Economic and Financial Analysis. Chapter 1 provides the content, object and the methodology of Economic and Financial Analysis. Chapter 2 describes the procedures and methods of Economic and Financial Analysis and their mode of application. Chapter 3 presents typology and characteristic abilities of the information used in Economic and Financial Analysis and emphasizing its implications for analysis. Chapter 4 and 5 focus on specific areas of analysis. Chapter 4 examines the profitability ratios and chapter 5 examines the asset structure, their turnover ratios calculation and liquidity ratios.

Readers and students need to apply the text material to actual financial and economic data and the model of problems calculation is designed to enrich their ability to make a good analysis of an enterprise.

1. ECONOMIC AND FINANCIAL ANALYSIS AS A SCIENCE

1.1. Economic and Financial Analysis as a Method of Lively Contemplation

A constant need to evaluate the performances and the potential of the activity irrespective of the level or area of its manifestation, to compare them with something considered as "reference" at a certain moment, to define the priorities and the ways of the management activity is manifested in the actual economic context. That is why the Economic and Financial Analysis appears as a necessity and a utility at the same time.

The analysis appears with a view to have knowledge of the economic phenomena and procedures. It implies the research of one phenomenon by dividing it into its component parts and studying each of them separately.

The word "analysis" arises from the Greek word "analise", which means "division, decomposition".

It is very important to establish the limit (the boundary line) in analysis, further on the object is not of a great importance in the division, because the object's characteristics can be lost. The limit of the analysis is appreciated by its goal and tasks.

Such methods as synthesis, induction, deduction and the phenomenon abstracting allow us to assess the phenomenon under study. No area of activity may nowadays be studied without using these methods of research. This is due to the fact that the complexity level of the activity is constantly increasing in general and the market mechanism is constantly developing. And these methods also have a great influence on management decisions.

Step by step, the analysis became a requirement in the civilized society. The conscious activity of the human being comes to be impossible without analysis.

The process of thinking passes through 3 interdependent steps: real, natural contemplation; abstract thinking; formulating (defining) new purposes and conclusions (issues).

The analysis proceeds through the same stages. The real contemplation is the beginning of the knowledge - of the analysis. This is the cognition of the reality by gathering facts. At the second step the necessary information is collected and processed. This information allows us to discover the meaning and some issues of the studied phenomenon development and this fact permits us to make conclusions, to define practice purposes for a permanent development.

In such circumstances the logic of the analytical research represents the act of passing from the abstract to concrete, the transformation of the theoretical situations into practical ones for a further economic development.

Thus, the Economic Analysis is a method of studding that helps us to examine the economic processes and phenomena completely, then to divide them into component parts in time and in space, and to praise the causes that provoked changes in their component parts.

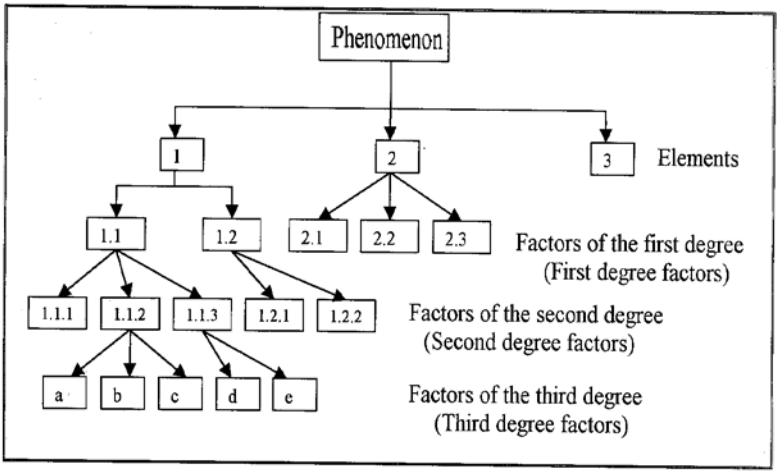
The decomposition is made in steps, from the complex to the simple, with the view to identify the final causes that explain a certain state, a certain level of performance, or a certain evolution.

Schematically the decomposition can be illustrated in Figure 1.

In this way the Economic and Financial Analysis starts from the results of the completed process to the elements and factors. *Elements* represent the component parts of the analyzed phenomenon. *Factors* are the dynamic forces that motivate a phenomenon or a result. And *final causes* represent the events that in certain conditions explain the appearance of a phenomenon, its state and evolution.

Figure 1

The phenomenon decomposition



1.2. Content of Economic and Financial Analysis

Content of Economic and Financial Analysis is always developing and is modifying in accordance with the development of the fundamental and theoretical economic sciences, and certainly in connection with the modification of the economic mechanism. To define the Economic and Financial Analysis content is compulsory to take into consideration those big changes that took place in the country's economy and in the market requirements. Generally these facts contribute to the change of the Economic and Financial Analysis content.

The orientation to the development of market relations needs an evolution and improvement of the Economic and Financial Analysis in our society, as being the most important management method.

The Economic and Financial Analysis content results first of all from its **functions**, which include:

1) *The study of the economic laws action character*, the establishment of relations and characteristic tendencies of the economic processes in concrete circumstances of the enterprise's development. Economic Analysis in this sense appears as a medium to study the economic laws' influence on concrete production circumstances, which are formed under the action of the objective economic laws and the influence of the subjective factors.
2) *The scientific foundation of business plans* and objective assessment of its realization means the following: without a deep analysis of the weak outcome and without emphasizing the drawbacks is impossible to elaborate a well – established plan, to select an optimal managing version;
3) *The emphasize of the production efficiency increasing reserve*;
4) *The appreciation of the efficient use of resources and the management decisions elaboration*. Analysis is done not only to establish facts and admitted mistakes, but also to act effectively in the production processes. In such conditions it is necessary to apply an effective analysis;
5) *The estimation of the enterprise's activity result*s. The objective appreciation of the obtained results generates a growth in the production, the increase of its efficiency and vice versa.

Generally, the Analysis of the Economic and Financial Activity, as a science, represents a system of special knowledge, related to the research of the development tendencies, to the scientific foundation of business plans and management decisions; to the control of these plans and decisions accomplishment; to the emphasize of the internal reserves of production efficiency increasing, and to the elaboration of some measures for their usage, thus they should be analyzed.

And from the fact that the Economic Analysis is accomplished in the managing process we may deduce its goal and tasks.

The **main tasks** are:

1. Enhance the business plan scientific establishment, norms (in the process of its elaboration) to an upper level. It can be done first of all by performing a detailed analysis of the enterprises' activities. During the analysis the development tendency of the analyzed unit is being showed up; and there are emphasized the main action factors. A special attention must be given to the current period analysis, which is simultaneously the period that precedes the plan. Conclusions are applied by the plan's calculation.
2. Make an objective and multilateral appreciation of business plan fulfillment based on the accounting data and reports. It studies how business plan is accomplished from the point of view of volume, structure, production quality, etc. In the production units is studying the production program fulfillment from the point of view of quantity, structure, quality, ranges, rhythmically, contract obligations accomplishment. In commercial units – a special attention is paid to the appreciation of Sales Revenue accomplishment, ranges, and its structure, elements co-reporting of goods circulation balance, customer harm quality.
3. Appreciate the efficient usage of human resources, goods, finance (each in particular and as a whole).The production enterprises particularly study how to use efficiently the production means, human forces, financial resources on the whole (the owner's or loaned).
4. Control how the commercial calculation requirements are made. An enterprise's activity in general depends a lot on the keeping of commercial calculation principles, showing thus the production relations that absolutely correspond to the relations, requirements created on the market.
5. Emphasize and measure the internal reserves (at all stages of the production process). The reserves emphasized at each stage of production process have a real utility in analysis. A

rhythmical enhancing depends directly on the fact if the intern emphasized reserves were used.

6. Elaborate and accomplish an optimal management decision. The enterprise's success depends on a lot if the optimal decisions are used in the managing process. But the elaboration of correct decisions is possible only if the results are based on a preventive analysis. The Economic and Financial Analysis tasks are not limited; those are different at each stage, which propose new tasks and spotlights some of previous once. That process will continue in future too.

1.3. The object of Economic and Financial Analysis

Each science has its object of studying. In literature there are many definitions of the Economic and Financial Analysis object. The most widely-used definition is the following:

The object of Economic and Financial Analysis studies the enterprise's activity according to the business plan data, financial and statistical reports, accounting data and other sources of information; it studies factors which influence the enterprise's activity with the goal to identify the reserves of the enterprise's performances increasing.

The Economic and Financial Analysis studies phenomena, processes and economic results in their evolution and interdependency, with a view to emphasize qualitative aspects and to remove the factors that damage their development.

The following component parts compose the object of Economic and Financial Analysis:

Indicators represent quantitative characteristics, generalized by the phenomena and economic processes. Some of the indicators used in the process of economic analysis are taken from business-plan, bookkeeping, reports; others are calculated supplementary during the analysis process.

Factors are causes and conditions, which contribute the economic phenomena development. They provoke changes in the analyzed indicators.

Reserves don't mean supply or store of something. In Economic and Financial Analysis they mean unused possibilities to improve the enterprise's performances.

1.4. Methodology of Economic and Financial Analysis

Economic and Financial Analysis as a scientific science presupposes to have a research methodology of phenomena that makes the subject. Methodology assumes (summarizes) a group of methods and procedures, used to determine the essentiality of the studied phenomena.

The Economic and Financial Analysis methodology is in strong relation with its theoretical base, and on the other hand, with its object. It involves concrete forms of quantification and research, common methods and procedures, at the same time used by other disciplines, and specific methods. On the whole the techniques and methods constitute the so-called - scientific apparatus of analysis.

2. PROCEDURES AND METHODS OF ECONOMIC AND FINANCIAL ANALYSIS

2.1. Definition and classification of Economic and Financial Analysis procedures and methods

The qualitative analysis presumes the knowledge of phenomenon nature, of its causative sides, but the quantitative one – the establishment of the element's size, of the factors that explain the phenomenon. The quantification of the factor's action is possible only after the causative relations have been settled between these phenomena and factors. It means that qualitative analysis precedes the quantitative analysis.

Methods of Economic and Financial Analysis assume to be the procedures that help us to make the analytical processing of economic information. They can be classified according to the level of Economic Analysis fulfillment. In this way each level uses its methods of analysis, but it is also possible to use the same methods at different steps.

In Economic and Financial Analysis all methods can be distinguished in two big groups:

I group – *methods used for a preliminary study of indices or the qualitative analysis of economic results;*

II group – *methods used to emphasize and to determine the factors action or the quantitative analysis;*

Both, the qualitative and the quantitative models should be used in the process of phenomena and economic result analysis.

2.2. Methods used for a preliminary study of indices

The indices preliminary studying methods are the methods used for a qualitative investigation of information, including: *comparison, grouping, calculation of analytical indicators, calculation of relative and average values and decomposition.*

Comparison

Comparison takes an important place in the system of procedures used by Economic and Financial Analysis. It is the most frequent materialization method of the logical thinking in the economic activity research. Its main characteristic consists in studying the phenomena, processes, and economic and financial results by using a certain principle and also in establishing the resemblance and differences between them. Thus, Economic and Financial Analysis has the possibility to examine and appreciate the economic results, not as a measure by itself, but regarding a certain criterion, or a basis of comparison, and to settle the levels, proportions and rhythms of their development.

There are used different types of comparison in the economic activity analysis:

Comparison with planned data or another established criteria (norm, normative, standard) is made to appreciate the level of the plan fulfillment. The reserves obtained from the removed deviation are emphasized through it. Modifications, which have derived from this type of comparison, represent the object for the factors' quantification.

Example:

Comparison with planned data is presented in the table below.

Table 1

Business plan fulfillment related to Output

Type of products	**Output, thousand lei**		**Absolute differences (+;-)**	**The plan fulfillment, %**
	Plan	**Effective**		
A	**2**	**3**	**4 = 3 - 2**	**5 = = 3/2*100**
Chairs	6966,0	9569,0	+2603,0	137,37
Armchairs	10700,0	10600,0	-100,0	99,06
Couches	1834,0	1966,0	+132,0	107,20
TOTAL	**19500,0**	**22135,0**	**+2635,0**	**113,51**

The data from the table above show an achievement of plan for the entire enterprise. So, the enterprise fulfilled its production tasks by increasing the Output by 2635,0 thousand lei, or by 13,51%. Output raised especially for such products as chairs and couches, respectively by 2603,0 thousand lei (or 37,37%) and 132,0 thousand lei (or 7,20%). The plan for armchairs was very strained and shows a partial achievement of business plan for output. It means that the enterprise should pay attention to this product and take measures about its plan fulfillment.

Comparison in time between current data and those from the last year or another past year, taken as a basis of calculation, helps to determine the rhythms of growth of the studying phenomena and to establish the developing tendencies of the economic procedures. Also, we can calculate the rhythm of growth (index change in dynamics).

Example:

In the table below the usage of comparison in time will be shown.

Table 2

Dynamic of Output

(thousand lei)

Enter-prise's depart-ments	Previous year	Current year		Absolute difference (+;-)		Rate of growth, %	
		Planned	Effective	Given to the previous year	Given to the planed data	Given to the previous year	Given to the planned data
A	1	2	3	4=3-1	5=3-2	6=3/1*100	7=3/2*100
xxx1	3800,0	3900,0	3033,0	-767,0	-867,0	79,82	77,77
xxx2	5980,0	6800,0	7333,0	+1353,0	+533,0	122,62	107,84
xxx3	4315,0	4133,0	4221,0	-94,0	+88,0	97,82	102,13
xxx4	4457,0	4667,0	7548,0	+3091,0	+2881,0	169,35	161,73
Total	**18552,0**	**19500,0**	**22135,0**	**+3583,0**	**+2635,0**	**119,31**	**113,51**

The data presented in the table above show us that the enterprise fulfilled its production tasks given to the plan data by increasing its output in all the enterprise's departments, excluding only the first one. The increase in output constitutes 2635,0 thousand lei, or 13,51% in comparison with business plan data. In comparison with the previous year, even in the departments 1 and 3 the output decreased respectively by 767,0 thousand lei and 94,0 thousand lei, or by 22,23% and 2,18%, for the entire enterprise it increased by 3583,0 thousand lei, or by 19,31%.

It means that the enterprise should pay attention to its production activity and take some effectual measures for departments 1 and 3 in order to increase its output in comparison with previous year.

Comparison in space can be made between the intern administrative departments of the enterprise and/or the general directions, with the branch average. This type of comparison is usually used in order to establish the enterprise's place in the branch (direction), to spotlight the existent reserves and to determine the following enterprise's perspective of development. Comparison can be also made between effective data of leader enterprises from our country and from other countries to study and generalize the advanced experience.

Comparison between effective data and economic-mathematical model is made to establish the unused reserves.

Comparison with a special - character is made to determine the efficiency of some technical-economic measures or solutions (comparisons between different versions to choose the optimal one).

The comparison domain can be extended outside the enterprise. In this case the results of one national enterprise are compared with those registered globally.

There are some principles that are necessary to follow when the method of comparison is used achieving:

- the data compatibility, from the point of view of its homogeneity and the way to express it in unique standards;
- the usage of a unique methodology to determine the compared data.

Calculation of analytical indicators

Some of indicators used in the process of economic analysis are taken from business-plan, financial and statistical reports; others are calculated supplementary in the analysis process.

The system of indicators sensitively grows during the process of analysis. Usually, the analytic indicators are calculated in percentage of plan fulfillment or in dynamic (in comparison with previous year); changes given to the plan.

In the process of economic analysis there are calculated *absolute* and *relative* changes of current indicators given to the fundamental ones.

Absolute change (deviation) is calculated as a difference between the effective indicators and fundamental (basic) indicators.

Relative change can be computed applying *two versions* of calculation. *The first version* is ratio between absolute change and indicator's fundamental size in percent or units. And *the second one* can be determinate as a difference between the effective indicator and its size in a basic period, recalculated according to the rate of growth of the output.

Example:

To illustrate the example the initial data are taken from the table with additional data (Appendix 4)

Table 3

Analysis of number of workers

Indicators	Basic period (N_0)	Reporting period (N_1)	Absolute difference (+;-)	Relative difference (change), (+;-)
A	**1**	**2**	**3**	**4**
Average number of workers, men	230	239	+9	-22

The relative difference of number of workers (ΔN_{rel}) is calculated according to the following formula and calculation:

$$\Delta N_{rel} = N_1 - N_0 * \text{Rate of growth}/100,$$

where *Rate of growth is the rate of the output growth, taken from Table 1.*

In our example, $\Delta N_{rel} = 239 - 230*113,51/100 = 239 - 261 = -22$ *workers.*

The calculations made show that the analyzing enterprise saved the labour force in number of 22 workers due to the increase in the output and labour productivity.

In spite of the fact that the obtained size appears as an absolute number of workers, it is called *relative change*.

Average values calculation

Average value calculation characterizes specific properties of the studied phenomenon. In economic practice, for example, there are calculated such values as average value of finished products stocks; annual average labour productivity; average number of employees and workers etc. These examples can be continued. Because there are a huge number of average values, it is necessary to know the models of their calculation. Further we will examine some of them.

Simple arithmetical average **(m_a)** is used to calculate the average level of different indicators from an aggregate or in dynamics. It can be computed according to the following formula:

$$m_a = \frac{A1 + A2 + ... + An}{n},$$

where A_1, A_2, …, A_n *are elements of the aggregate or dynamic series.*

Example:

To determine the annual average value of assets can be used the simple arithmetical average. The initial data are taken from Balance Sheet for previous and current year (Appendix 1, 2).

$$\overline{A}_{previous\ year} = \frac{21271383 + 22781193}{2} = 22026288 \text{ lei;}$$

$$\overline{A}_{current\ year} = \frac{22781193 + 22973368}{2} = 22877281 \text{ lei.}$$

The annual average value of assets in current year increased by 851 thousand lei or 3,86%.

Weighted arithmetical average **(m_w)** is calculated in order to determinate the average level of an indicator taking in consideration number of elements from each group. It is computed according to the following formula:

$$m_w = \frac{X1A1 + X2A2 + ... + XnAn}{X1 + X2 + ... + Xn},$$

where A_1, A_2, …, A_n *are size of the analyzing indicator elements;* X_1, X_2, …, X_n *are the number or weight of elements in each group.*

Example:

This model can be used in analysis to calculate the labour average age. The following table describes the calculation of the labour average age.

Table 4

Data related to the enterprise's labour average age

Working years	**>16**	**16-19**	**20-25**	**26-35**	**36-45**	**46-55**	**>56**	**Average age, years**
Number of workers	6	33	45	65	36	27	27	33,99

$$m_w = \frac{16*6+17{,}5*33+22{,}5*45+30{,}5*65+40{,}5*36+50{,}5*27+60{,}5*27}{6+33+45+65+36+27+27} = =$$

$$\frac{8123}{239} = 33{,}99 \text{ years.}$$

The average age of workers constitutes 33,79 years. It means that the enterprise disposes relative young labour force that allows it to improve the future enterprise's performance.

Geometrical average **(m_g)** is calculated in order to determinate the annual average growth of an investigated indicator, according to the next formula:

$$m_g = \sqrt[n]{A1*A2*...*An},$$

where $A_1, A_2, \ldots, A_n$ *are elements of dynamic series.*

Example:

It is necessary to determine the rate of growth of owner's equity. The data are taken from Appendix 1,2 and financial reports for previous years (2006-2008).

Table 5

Dynamic of owner's equity

Date	Owner's Equity value, lei	Rate of growth in comparison with previous year (year by year method),%
1	**2**	**3**
31.12.2006	19025398	
31.12.2007	18673254	98,15
31.12.2008	18703902	100,16
31.12.2009	19601454	104,80
31.12.2010	21134701	107,82

$$m_g = \sqrt[n]{A1 * A2 * ... * An} = \sqrt[4]{0,9815 * 1,0016 * 1,0480 * 1,0782} =$$

$$= \sqrt[4]{1,1108} = 1,0266,$$ or 102,66%. *Thus, the average owner's equity rate of growth for 2006-2010 constituted 102,66%.*

Chronological average is used to calculate the average value of different indicators in dynamic, such as average of workers, average value of assets or stocks, or fixed assets. It can be calculating according to the following formula:

$$m_c = \frac{\frac{A1}{2} + A2 + A3 + ... + \frac{An}{2}}{n-1},$$

where $A_1, A_2, \ldots, A_n$ are elements of the dynamic series.

Example:

For our enterprise average number of workers in current year was calculated according to the data for 4 quarters using the chronological average.

Table 6

Number of workers in current year at the end of each quarter

Date	**31.12.2009**	**31.03.2010**	**30.06.2010**	**30.09.2010**	**31.12.2010**
Number of workers, persons	240	238	239	239	240

$$\overline{N}_{w} = \frac{\frac{240}{2} + 238 + 239 + 239 + \frac{240}{2}}{5-1} = 239 \text{ workers,}$$

where $\overline{N}_{w}$ – average number of workers

Grouping

Grouping is an investigation method of analysis that is used to emphasize the relation between grouping and the resulted indicators; to study the direction of the analyzed phenomenon development. It is made in the analysis process. Some groups can be found in different reports and statements of enterprises and in special investigations. For example, assets are grouped by their terms of usage in the enterprise's activity; revenues are grouped according to the types of activity; the employees can be grouped by gender, age, length of service, education, etc.

Example:

The table below shows the grouping of employees by length of service.

Table 7

Employees grouping by length of service

Length of service, years	**Number of employees**	**Weight to the total, %**
< 1 year	35	11,99
1-5 years	105	36,16
5-10 years	50	17,10
10-20 years	47	16,09
> 20 years	54	18,65
Total	290	100,00

The date from table 7 demonstrates that 52% of personnel have gained their experience working in the enterprise for more than 5 years that highlights availability of qualified personnel. At the same time, about 12% of the employees have an experience less than one year.

Division or decomposition

Division or decomposition results represent the method that studies the economic relations by penetrating in its structures, and it consists in decomposing the phenomena and the explored processes in its component elements.

The usage of division in economic analysis enlarges the exploration sphere till the component elements level, establishing its contribution to the total modification of the studied phenomena and placing in time and space the results and their causes of appearance.

There are different types of the division and decomposition:

Division in accordance to the time demonstrates the explored phenomena evolution in a certain period of time. By this moment the contribution of different time units are placed to form the total result and the deviations from the general tendency of phenomenon manifestation in time and from the planned rhythm, are emphasized. That permits to follow the steadiness in the explored phenomenon production process. In this way can be explored the plan accomplishment of the studied indicators not only for one year, but also for a quarter, a month, ten days, a day. The division admissible limit is determined by the analysis goal and conditions.

Example:

In the table below the usage of division in accordance to the time will be shown.

Table 8

Output business plan fulfillment by time

Quarter	Output, thousand lei		Absolute differences (+;-)	The plan fulfillment, %
	Plan	Effective		
A	**2**	**3**	**4 = 3 - 2**	**5 = 3/2*100**
Quarter I	4875	5634	+759	115,57
Quarter II	4875	5946	+1071	121,97
Quarter III	4875	6199	+1324	127,16
Quarter IV	4875	4356	-519	89,35
TOTAL	19500	22135	+2635	113,51

According to the data from the table 8 the plan of Output was achieved by 113,51%. Using the division method the rhythm of the achievement can be determined by dividing the obtained result per each quarter. In the first quarter the plan was fulfilled by 115,57%, in the second quarter – by 121,97%, in the third quarter – by 127,16% and in the fourth quarter – by 89,35%. The enterprise had reserves to increase its Output according to the plan fulfillment in the fourth quarter.

Division in accordance to the place devolves mandatory from the analysis function of places identification, where the obtained effect doesn't correspond to the made conditions, where there are possibilities to emphasize the activity and where both bad and good results are noticed. This division identifies the participation level of each place in order to obtain the economic result.

Example:

In the table below it is shown the division of sales revenues by types of market.

Table 9

Analysis of Sales Revenues by the types of market

Revenues segmentation	Revenues, thousand lei		Rate of growth, %	Weight to the total, %		Weight difference, %
	Previous year	Current year		Previous year	Reporting year	
Domestic market	15227	16481	108,23	82,35	75,48	-6,87
Export - total	3264	5354	164,05	17,65	24,52	6,87
Including:						
Russia	2077	2063	99,37	11,23	9,45	-1,78
Ukraine	967	1474	152,40	5,23	6,75	1,52
Other countries	220	1817	825,60	1,19	8,32	7,13
Total revenues	18491	21835	118,08	100	100	x

The calculations made show that the enterprise developed its operating activity on the domestic market as well as on the external one. The weight of the domestic market prevailed in the total revenues and constituted 75,48% in the reporting year. The enterprise's activity was characterized by the growth of export in comparison with the previous year. And it was defined by the increase of the export weight in the total revenues from 17,65% in the previous year to 24,52% in reporting year.

Division into parts or elements typical for economic result permits to study the component elements as the first condition for a correlated grouping and determination of the factors causative relations.

Example:

Applying the method of division into parts or elements it is necessary to define the labour factors that influence the enterprise's output (O).

For that we need to follow three steps. At the first step we should occur from the fact that the equation parts are equal, the output is equal with the output for the same period (O=O). At the next step we introduce in the equation the indicators that characterize labour force, such as: number of workers (N_w), total number of man-days worked by all workers ($T_{man\text{-}days}$), total number of man-hours worked by all workers ($T_{man\text{-}hours}$). But the additional information should be introduced in such a way not to disturb the equality between parts. It can be done in following way:

$$O = O * \frac{N_w}{N_w} * \frac{T_{man-dazs}}{T_{man-dazs}} * \frac{T_{man-hours}}{T_{man-hours}}.$$

At the third step formula turns into another one with the view to obtain factors that influence the result indicator (O). So in example the formula take the following form:

$$O = N_w * \frac{T_{man-dazs}}{N_w} * \frac{T_{man-hours}}{T_{man-days}} * \frac{O}{T_{man-hours}} = N_w * N_{days} * D * W_h,$$

where N_w – Number of workers;

N_{days}– Average number of days worked by a worker;

D – Average duration of a labour day;

W_h – Average hour labour productivity of a worker.

Thus, the usage of the examined procedures (methods) permit so far to make the qualitative analysis of the studied object and to determine what factors have influenced the obtained result. Nevertheless the level of their influence can not be established by the methods mentioned above. Only the quantitative methods of analysis are used for that.

The economic processes and phenomena are in conditional relations. Phenomena (indices) that are dependent are called resultant (economic result), but those that influence them (interdependent) are called factors. The connections between different parts of the results, as well as the conditional relations are presented in the aspect of mathematical functions, or in the aspect of functional relations.

The mathematical modulation of economic phenomena as a process of essence fixation constitutes the necessary goal for the factorial–causative relations' quantification. The quantification of factorial–causative relations establishes the size, the sense and the force of the factors activity under the studied phenomenon, making possible the interpretation and complex materialization of phenomenon state, with a view to identify the internal reserves.

There are used a variety of methods and mathematical procedures in case of factorial–causative relations assessment depending on the analysis purpose, on the type of causative relations and how the characteristics of the studied phenomenon are manifesting.

A functional–causative relation of a determinative type takes place when the relation between economic result and influencing factors are characterized by the fact that a modification of a factor determines a modification of the economic result. That interdependence gets the expression of the following function:

$$Y = f(x, z),$$

where Y – *Output;*

x, z – *Production factors.*

When we have an undetermined, probable and non-strict relation, it means that we have a stochastic type of relation. In such situations the change of factors doesn't provoke directly the change of result or it does, but not with the same intensity as the factor had changed.

The functional-causative relations of determinative type are reflected in Economic and Financial Analysis by models with different types of relations.

Additive relation is a relation when the elements of the studied phenomenon correlate between them with the arithmetical sign of plus (+) or minus (-):

$$Y = \sum_{i=1}^{n} X_i = X_1 + X_2 + X_3 + \ldots + X_n,$$

where Y – Resulting indicator;

$X_1 + X_2 + X_3 + \ldots + X_n$ *– Factorial indicators (factors).*

Example:

According to the National Accounting Standards the Result from Operating Activity (profit or losses) (OP) is calculated applying the following correlation:

$$OP = GP + OOR - SE - GAE - OOE,$$

where GP - Gross Profit;

OOR - Other Operating Revenues;

SE - Selling Expenses;

GAE - General and Administrative Expenses;

OOE - Other Operating Expenses

Another example is the relation of Revenues of finished products sold. The Revenues of finished products sold (R) can be expressed as:

$$R = S_{in} + O - S_f,$$

where S_{in} *- Initial stock of finished products;*

O - Output;

S_f *- Final stock of finished products*

Multiplication relation represents the relation when the elements of the studied phenomenon correlate among them with the arithmetical sign of multiplication (*) and/or division (:).

$$Y = P\,X_i = X_1 * X_2 * X_3 * \ldots * X_n,$$
$$i=1$$

where Y – resulting indicator;

X_1 , X_2 , X_3 ,…, X_n – factorial indicators (factors).

Example:

The correlation between labour factors and the Output (O) can be shown with the help of the following formula:

$$O = N_w * N_{days} * D * W_h,$$

which were described above.

Combined relation is the correlation when there are both additive and multiplication relations in the factorial formula.

Y = a/(b+c); Y = (a+b)/c; Y = (a+b)*c; etc.,

where Y – Resulting indicator

a, b, c - Factorial indicators.

Example:

The factorial formula of return on production assets is:

$$ROPA = \frac{\text{Profit before Tax}}{\overline{FA} + \overline{CA}} = \frac{OP + RIA + RFA + RE}{\overline{FA} + \overline{CA}},$$

where ROPA - Return on production assets; OP – Result from Operating Activity; RIA – Result from Investing Activity; RFA – Result from Financial Activity; RE – Extraordinary Result; $\overline{FA}$ - Annual average value of fixed assets; $\overline{CA}$ - Annual average value of current assets.

2.3. Methods used to emphasize and determine the factors action

In analysis the following methods are used to determine the factors influence.

Balance method

Balance method is the simplest method used in the factors quantification. It can be used when between the studied phenomenon's elements is an additive relation (+ ; -). Balance method is based on the equality of two parts. Balance relations reflect the quantitative interdependence of the phenomenon's elements, their analysis, allowing the evidence of causes that determined the phenomenon modification through the comparison of the effective values of balance elements with the planned values or the values of the previous year.

The analytical model of this type of relations is:

$$R = a + b - c,$$

where R *– Resulting indicator;*

a, b, c *– Factorial indicators(factors).*

The influences of modification given to plan or previous year are determined as a difference, taking in consideration the mathematical sign (+ or -).

So, $\Delta R = R_1 - R_0 = (a_1 + b_1 - c_1) - (a_0 + b_0 - c_0)$,

whereas: $\Delta R_a = a_1 - a_0$; $\Delta R_b = b_1 - b_0$; $\Delta R_c = c_1 - c_0$.

The factorial balance is $\Delta R = \Delta R_a + \Delta R_b + \Delta R_c$.

Balance method can be used in Economic and Financial Analysis in three cases.

In the first case it is applied to calculate the influence of factors on the resulting indicator.

Example:

It is necessary to perform the factorial analysis of operating profit. The initial data are taken from the Income Statement (Appendix 3).

Table 10

Factorial analysis of Operating Profit

(lei)

Indicators	Previous year	Actual reporting year	Absolute difference (+;-)	Result of factors influence* (+;-)
1. Gross Profit (Loss)	5814861	5580739	-234122	-234122
2. Other Operating Revenues	1867564	1285950	-581614	-581614
3. Selling Expenses	207105	193093	-14012	+14012
4. General and Administrative Expenses	3680803	3335183	-345620	+345620
5. Other Operating Expenses	1734632	1121804	-612828	+612828
6. Result from Operating Activity [r.1+r.2-r.3-r.4-r.5]	**2059885**	**2216609**	**+156724**	X

** According to the operating profit formula, first two factors (Gross profit and Other operating revenues) influence directly the result indicator and next three factors (Selling Expenses, General and Administrative Expenses and Other Operating Expenses) influence indirectly the operating profit. In order to determine the influence of the indirect factors their absolute difference must be multiplied by -1.*

The data from the table above show an increase of operating profit by 156724 lei. This growth was due to the decrease in selling expenses, which increase the result indicator by 14012 lei. The reduction of the general and administrative expenses and the other operating expenses increased operating profit by 345620 lei and 612828 lei respectively. At the same time operating profit was diminished due to the reduction of gross profit and other operating revenues by 234122 lei and 581614 lei. The intern reserves in order to improve operating profit constitute measures taken to grow gross profit.

In the second case balance method is used to verify the completeness and the accuracy of the factors influences calculation on the modification of the result indicator. The sum of factors action should be always equal with the absolute difference of the effective and basic values of the economic result. The absence of this equality shows that was made a mistake in the calculating process.

To confirm this fact it is used the factorial balance formula, presented above:

$$\Delta \boldsymbol{R} = \Delta \boldsymbol{R_a} + \Delta \boldsymbol{R_b} + \Delta \boldsymbol{R_c},$$

where ΔR *– Result indictor modification;*

$\Delta R_a, \Delta R_b, \Delta R_c$ *– Factors influence.*

Example:

According to the data from Table 10, let's check the completeness and the accuracy of the factors influence on the operating profit modification, applying the balance method requirements. This factorial balance formula assumes the next view:

(+156724) = (-234122) + (-581614) +
+ (+14012) + (+345620) + (+612828).

In the third case balance method is applied to establish the influence of the unknown factor. It is used when the modification of resulting indicator and the influence of the other factor are known. It can be calculated as a difference between the resulting indicator modification and the influence of the known factors. Using the factorial balance formula, the influence of the unknown factors can be computed as follows:

$$\Delta \boldsymbol{R_a} = \Delta \boldsymbol{R} - \Delta \boldsymbol{R_b} - \Delta \boldsymbol{R_c};$$
$$\Delta \boldsymbol{R_b} = \Delta \boldsymbol{R} - \Delta \boldsymbol{R_a} - \Delta \boldsymbol{R_c};$$
$$\Delta \boldsymbol{R_c} = \Delta \boldsymbol{R} - \Delta \boldsymbol{R_a} - \Delta \boldsymbol{R_b}.$$

Chain substitution method

Chain substitution method is used when there are causative relations between the analyzed phenomenon and the influencing factors, expressed in all forms of the determined dependence (multiplication, division, additive and combined relations). Substitution assumes the replacement of one factor's value with another one in a certain relation. The order of the factors chain can make a lot of possible variants of substitutions with different results.

Using the method of chain substitution, it is necessary to respect the following requirements in order to obtain indicators with a real economic contains:

a) in the causative relations factors are arranged in the following economic order: quantitative factors, structure factors, and then qualitative factors;
b) the substitution is made successively, beginning with the quantitative factor and till the last factor – qualitative one;
c) the substitute factor rests substitute till the ending, being expressed in its effective value;
d) the unsubstantiated factor is expressed in base or planned value.

The essence of chain substitution method consists in the successive replacing of planned or base values of factors with their effective or current values in a certain relation, assuming that the rest of factors are factors with a permanent action at this moment, and they remain unchanged.

The size and the sense of each factor's influence on the economic result are obtained in a successive comparison between the second calculation and the first one, the third one and the second (successive difference). The sign obtained shows the result of the factor's action: positive or negative.

In the following examples we will examine some cases of the chain substitution method usage.

Example:

It is necessary to compute the influence of labour factors on Output (O). The formula of the factors influence is:

$$O = N_w * W_w,$$

where N_w – Number of workers;

W_w – Average annual labour productivity of a worker.

The initial data are taken from the Table with additional data (Appendix 4).

Table 11

Initial data for labour factor analysis on Output

Indicators	Previous year	Actual reporting year	Absolute difference, (+;-)
A	1	2	3
1. Output, thousand lei	18552,0	22135,0	+3583,0
2.Average number of workers, persons	297	239	-58
3.Total number of man-days worked by all workers, thousand man-days	65,8	63,5	-2,3
4. Total number of man-hours worked by all workers, thousand man-hours	454	450	-4,0
5.Average number of days worked by a worker, days [r.3/r.2]	221,55	265,69	+44,14
6.Average duration of a day, hours [r.4/r.3]	6,9	7,09	+0,19
7.Annual average productivity of a worker, lei[r.1/r.2*1000]	62 460	92 620	+30 160
8.Average hour productivity of a worker, lei[r.1/r.4]	40,86	49,19	+8,33

In the table below we will compute the influence of general labour factors on Output using the chain substitution method.

Table 12

Calculation of the labour factors influence on Output

No. of calcu-lation	No. of substi-tution	Correlated factors		Output, thousand lei	Calculation of the factors influence	Result of influence (+;-),
		Number of workers (N_w)	Annual average labour productivity of a worker (W_w)			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	0	297	62,46	18552,0	x	x
2	1	239	62,46	14927,9	14927,9–18552,0	-3624,1
3	2	239	92,62	22135,0	22135,0–14927,9	+7207,1
Total		**x**	**x**	**x**	**x**	**+3583,0**

(-3624,1) + (+7207,1) = (+3583,0)

The data from the table above show an increase of output by 3583,0 thousand lei, due to the growth of the average annual labour productivity of a worker that positively affected the resulted indicator, increasing it by 7207,1 thousand lei. Number of workers decreased in dynamics by 58 workers and diminished output by 3624,1 thousand lei.

At the next stage of labour factor analysis we can examine the influence of detailed labour factors on Output. The formula of Output calculation can be presented in the following way:

$$O = N_w * N_{days} * D * W_h,$$

where O – Output;

N_w *– Average number of workers;*

N_{days} *– Average number of days worked by a worker in a year;*

D – Average duration of a day;

W_h *– Average hour labour productivity of a worker.*

Using the data from table 11 we will perform the factorial analysis of Output in the following table.

Table 13

Calculation of the detailed labour factors influence on Output

No. of calculation	No. of substitution	Correlated factors				Output, thousand lei	Calculation of factors influence	Result of influence (+;-)
		Number of workers (N_w)	Average number of days worked by a worker in a year (N_{days})	Duration of a day (D)	Average hour labour productivity of a worker (W_h)			
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	0	297	221,55	6,9	40,86	18552,0	x	x
2	1	239	221,55	6,9	40,86	14928,5	14928,5 – 18552,0	-3623,5
3	2	239	265,69	6,9	40,86	17902,8	17902,8-14928,5	+2974,3
4	3	239	265,69	7,09	40,86	18395,8	18395,8-17902,8	+493,0
5	4	239	265,69	7,09	49,19	22135,0	22135,0–18395,8	+3739,2
Total		**x**	**x**	**x**	**x**	**x**	**x**	**+3583,0**

(-3623,5) + (+2974,3) + (+493,0) + (+3739,2) = (+3583,0)

Output has increased by 3583,0 thousand lei. That increase was due to the growth of the number of days worked by a worker in a year by 44,14 days, the duration of a day by 0,19 hours and of the average hour labour productivity of a worker that positively affected the resulted indicator, increasing it respectively by 2974,3; 493,0 and 3739,2 thousand lei. At the same time number of workers decreased in dynamics by 58 workers and diminished the output 3623,5 thousand lei.

In case of division relation between factors the economic general model of factorial dependence can be illustrated as follows:

$$A = a/b,$$

where *A – Resulting indicator;*
a, b - Factorial indicators(factors).

Taking into consideration the rules of chain substitution method, the first factor that must be substituted is the quantitative one. That is why there are two situations, regarding the factors place:

1) the separation of two direct factors influence when the quantitative factor is a numerator can be done in the following way:

$\Delta A_a = a_1/b_0 - a_0/b_0 = (a_1 - a_0)/b_0$;

$\Delta A_b = a_1/b_1 - a_1/b_0$;

2) when the quantitative factor is a denominator of the relation, its influence can be determined like this:

$\Delta A_b = a_0/b_1 - a_0/b_0$;

$\Delta A_a = a_1/b_1 - a_0/b_1 = (a_1 - a_0)/b_1$.

Example:

It is necessary to compute the influence of factors on return on Sales. The formula of the factors influence is:

Return on Sales = Net Profit/Sales Revenues * 100%.

In the table below we will compute the influence of factors on Return on Sales using the chain substitution method. The initial data are taken from the Income Statement (Appendix 3).

Table 14

Calculation of factors influence on Return on Sales

No. of calculation	No. of substitution	Correlated factors		Return on sales, %	Calculation of the factors influence	Result of influence (+;-),
		Sales revenues, thousand lei	Net Profit, thousand lei			
1	2	3	4	5	6	7
1	0	18491,0	2163,3	11,70	x	x
2	1	21833,2	2163,3	9,91	9,91– 11,70	-1,79
3	2	21833,2	1930,4	8,84	8,84– 9,91	-1,07
Total		**x**	**x**	**x**	**x**	**-2,86**

(-1,79) + (-1,07) = (-2,86)

The data from the table above show a diminution of Return on Sales by 2,86%, due to the negative influence of Sales Revenue and Net Profit. The growth of Sales Revenue by 3342,20 thousand lei affected the resulted indicator, decreasing it by 1,79%. At the same time the diminution of Net profit in dynamic by 232,9 thousand lei decreased Return on Sales ratio by 1,07%. So, the enterprise possesses reserves of growing Return on Sales by increasing its Net Profit.

The priorities of chain substitution method are large spread, accessible as a mathematical method; simple in usage; quality of the received answers.

While *disadvantages of it* are:

1) The results of the calculation depend on a certain way of the substitution consequence. Sometimes it is impossible to determine the correctness of the substitution. It is more difficult when we have more factors.
2) When the level of one factor's action is being appreciated, the others rest unchanged, but in reality the action of each factor is manifesting not separately but in parallel with the others.
3) The active role in the change of result's action is assigned to the qualitative factor, that doesn't permit to establish objective results of economic activity.

In practice when the analytical formula of the resulting indicator is presented as multiplication the chain substitution method is not used in its classical form. It is applied with the help of different simplified forms and united by notion – varieties of chain substitution method.

The most widely - used varieties of chain substitution method are absolute difference method, relative difference method and recalculation indicator method. We will examine only the first one.

Absolute differences method

Absolute difference method is the most widely-used variety of the chain substitution method. More frequently this method is applied in the presence of the multiplication relation between factors and resulting indicator.

Let's analyse the following model of the factor's causative relations expressing:

$$A = a * b * c,$$

where *A – Resulting indicator;*

a, b, c - Factorial indicators (factors).

Applying all principals of chain substitution method let's determine the influence of each factor:

- the influence of "a" – factor $(\Delta A_{\Delta a})$, where $\Delta A_{\Delta a} = (a_1 * b_0 * c_0) - (a_0 * b_0 * c_0)$;
- the influence of "b" – factor $(\Delta A_{\Delta b})$, where $\Delta A_{\Delta b} = (a_1 * b_1 * c_0) - (a_1 * b_0 * c_0)$;
- the influence of "c" – factor $\Delta A_{\Delta c}$), where $\Delta A_{\Delta c} = (a_1 * b_1 * c_1) - (a_1 * b_1 * c_0)$.

It can be remarked that factors are repeated as at the subtrahend, as at the minuend. In this case we can pull the common factors out of the parentheses and the influence factors will be determined like this:

- the influence of "a" factor $(a_1 - a_0) * b_0 * c_0$ *or* $\Delta a * b_0 * c_0$;
- the influence of "b" factor $a_1 * (b_1 - b_0) * c_0$ *or* $a_1 * \Delta b * c_0$;
- the influence of "c" factor $a_1 * b_1 * (c_1 - c_0)$ *or* $a_1 * b_1 * \Delta c$.

The influence of each factor on the economic result is determined in the same connectivity according to the rule of chain substitution method, distinguished only by the fact that the level of each factor's influence is obtained after a calculus (without comparing them).

Example:

The task is to compute the influence of detailed labour factors on Output. The formula of the Output calculation, as it

was already mentioned above, can be presented by the following one: $\boldsymbol{O = N_w * N_{days} * D * W_h}$**.**

Table 15

Calculation of the detailed labour factors influence on Output

Name of factors	The calculation of factors influence	Result of influence (+;-), %
1. Modification of the average number of workers	(-58) * 221,55* 6,9*40,86	-3623,5
2. Modification of the average number of days worked by a worker	239 * (+44,14) * 6,9*40,86	+2974,3
3. Modification of the average duration of a day	239* 265,69 * (+0,19)* 40,86	+493,0
4. Modification of the average hour productivity of a worker	239*265,69*7,09*(+8,33)	+3739,2
TOTAL		**+3583,0**

(-3623,5) + (+2974,3) + (+493,0) + (+3739,2) = (+3583,0)

The conclusion of this example corresponds to the conclusion of Table 13.

In the situation when economic result is influenced by two factors, the model of factors action determination is following:

$\boldsymbol{A = a * b,}$ where

“a” factor is a quantitative factor and its influence is commuted as**:**

$$\Delta A_{\Delta a} = \Delta a * b_0;$$

“b” factor is a qualitative factor and its influence is**:**

$$\Delta A_{\Delta b} = \Delta b * a_1.$$

Example:

The formula of factorial dependence is

$$O = Ne * We,$$

where Ne - Average number of employees,

We – Annual average productivity of an employee.

The factorial analysis of Output is done in following table using the data from Appendix 4.

Table 16

Calculation of labour factors influence on output

Indicators	Previous year	Actual reporting year	Absolute difference (+;-)	Under the factor influence of	
				Average number of employees (N_e)	Average annual productivity of an employee (W_e)
1.Volume of outputs, thousand lei	18552,0	22135,0	+3583,0	-3354,03	+6937,03
2. Average number of employees, persons	354	290	-64	x	x
3. Annual average productivity of an employee, lei [r.1/r.2]*1000	52406,78	76327,59	+23920,81	x	x

(-3354,03) + (+6937,03) = (+3583,0)

The output has increased by 3583,0 thousand lei, due to the positive influence of the average annual labour productivity of an employee that positively affected the result indicator, increasing it by 6937,03 thousand lei. Number of employees decreased in dynamics by 64 employees that negatively affected the resulted indicator, decreasing it by 3354,03 thousand lei.

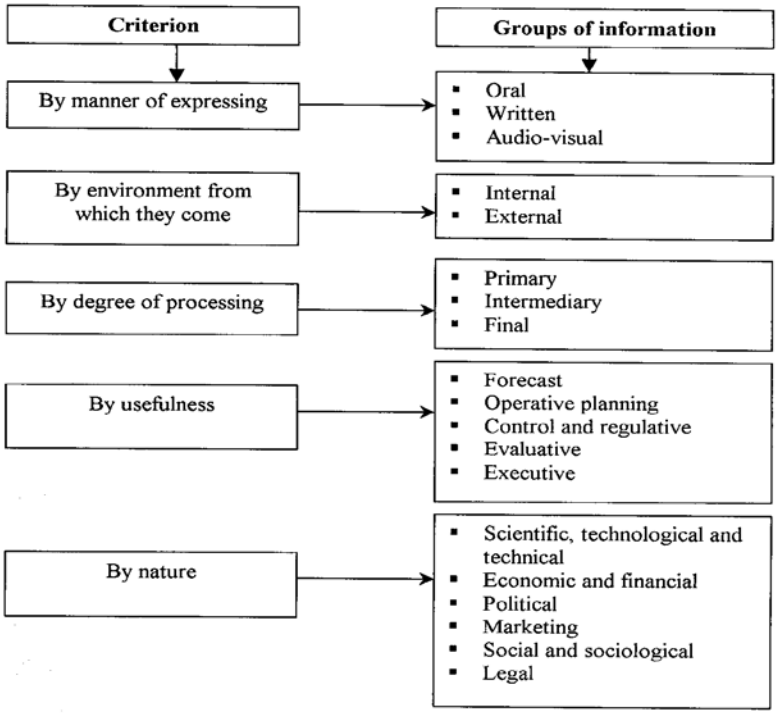
3. SYSTEM OF INFORMATION - PREMISE OF ECONOMIC AND FINANCIAL ANALYSIS

3.1. Typology of information and its role in Economic and Financial Analysis

The information comparability, content and quality play a substantial role in the Economic and Financial Analysis effectiveness. The ability of an enterprise is to use in its interest the totality of knowledge, resulted from hundreds of information sources. The variety of information can be grouped according to the following criteria, presented in Figure 2.

Figure 2

Grouping of information



Thus, analysis does not use only economic data, but it widely uses technical, technological and other information. All sources of information, used in Economic and Financial Analysis, are divided into planned, accounting and out-of-accounting data.

Planned sources of information include all types of business plans (perspective, current and operative), which are elaborated by an enterprise, as well as normative documents, estimates, price lists, project tasks and others.

The leading role in the analysis's information provision belongs to accounting data and financial reporting, where the operating phenomena, process and its results are reflected much more completely. The period and the complete analysis of the enterprise's data can be found in accounting documents (primary and summary) and financial reports. This information provides to an enterprise the possibility of taking adjusted measures in order to fulfill the business plans data and achieves higher results.

So, *the accounting sources of information* embrace all data, which contain primary accounting documents, financial statements and operative reports.

Financial reports should provide the information that is useful for being presented to the potential investors and creditors, and other users for making rational investment, credit, and for taking different decisions. The information should be comprehensible to those who have a reasonable understanding of business and economic activities and to those who want to study the information with a reasonable diligence.

Parties demanding financial statement information can be grouped into internal versus external users.

Internal users consist of managers and employees, while *external users* of financial information can be classified into three general groups:

- Credit and equity investors,
- Government (the executive and legislative branches), regulatory bodies, tax authorities,

- The general public and special interest groups, consumer groups and customers.

Managers use financial statement information in many of their financing, investment, and/or operating decisions. The financial statement of other enterprises can also be used in management decisions. For instance, when deciding where to re-direct the resources of an enterprise the financial statement of other enterprises can show areas where high profit margins are currently being earned.

Employees have several motivations. They have a vested interest in the continued and profitable operations of their firm. Financial statements are an important source of information about current and potential future profitability and solvency. They may also need them to monitor the viability of their pension plans.

The common characteristic of external users is their general lack of authority to prescribe the information they want from an enterprise. They depend on general-purpose external financial reports provided by management. Each of these user groups has a particular objective in financial statement analysis, but primary users are equity investors and creditors. However, the information supplied to investors and creditors is likely to be generally useful to other user groups as well.

The underlying objective of financial analysis is the comparative measurement of risk and profitability in order to make investment or credit decisions. These decisions require estimates of the future, be it a month, a year, or a decade. General-purpose of financial statements, which describe the past, provide one basis for projecting future earnings and cash flows. Many of the techniques used in this analytical process are broadly applicable to all types of decisions, but there are also specialized techniques concerned with specific investment interests or, in other words, risks and returns specific to one class of investors or securities.

The equity investor is primarily interested in the long-term earning power of the enterprise, its ability to grow, and, ultimately, its ability to pay dividends and increase in value. Since the equity investor bears the residual risk in an enterprise, the largest and most volatile risk, the required analysis is the most comprehensive by any user and encompasses techniques employed by all other external users.

Creditors need somewhat different analytical approaches. Short-term creditors, such as banks and trade creditors, place more emphasis on the immediate liquidity of the business because they seek an early payback of their investment. Long-term investors in bonds, such as insurance companies and pension funds, are primarily concerned with the long-term asset position and earning power of the enterprise. They seek assurance of the payment of interest and the capability of retiring or refunding the obligation at maturity. Creditor risks are usually smaller than equity risks and may be more easily quantifiable.

The demand by Government, regulatory bodies, tax authorities can arise in a diverse set of areas such as profit rising, e.g. for income tax, or value-added tax collection. Government contracting, e.g. for reimbursing suppliers paid on a cost-plus basis or for monitoring whether companies engaged in government business are earning excess profits. Regulatory intervention is, e.g. determining whether to provide a government-backed loan agreement to a financial distress firm.

The Government may also want to ensure that the enterprise complies with laws on, for example, wage payments and employee benefits.

The set of parties that make demands of financial statements information of corporations is open-ended. Diverse parties such as academicians, environmental protection organizations, and other special interest lobbying groups approach corporations for details relating to their financial and other affairs.

The relationship between the enterprise and its customers can extend over many years. In some cases, these relationships take the form of legal obligations associated with guarantees, warranties, or deferred benefits. In other cases, the long-term association is based on continued attention to customer service.

Prospective Investors are interested in enterprises profitability and potential for growth. They rely on financial statement information in making their investment decisions.

The out-of-accounting sources of information include documents, which regulate the operating activity of the enterprise as well the data that did not concern to the above mentioned sources of information. The following documents form these sources of information:

1) Official documents: laws, decrees, Government's and local authorities' decisions, inspection and control acts, management orders.
2) Economic and legal documents: contracts, agreements, decisions of the court and arbitration, decisions of general meetings of shareholders and the executive body.
3) Scientific, technological and technical information: materials related to the study of progressive innovations, obtained from different sources (Internet, radio, TV programs, newspapers, magazines, information bulletins, etc.).
4) Materials of special production investigations at a separate labour place: time study, photography of a working day, etc.
5) Verbal information, which is obtained during the meetings with shareholders, management, representatives of other enterprises.
6) Information about the main enterprise's contractors (suppliers and clients): the data related to suppliers are necessary to forecast their reliability and price policy; the information about clients is required to characterize their current and long-term solvency.

7) Data about main competitors, received from different sources of information.
8) Data about the state of market supply: market volumes and price level.
9) Information about the capital market state: interest, exchange rate, etc.
10) Information about the state of securities market: volumes and prices of transactions, general index of the stocks from securities market.
11) Macroeconomic data about the changes in the enterprise's economic situation.

3.2. The information's characteristic abilities

The quality of information is defined by an ensemble of characteristics, which stipulate the usefulness of information in the decisive process. The four main characteristics of the information are intelligibility, relevancy, reliability and comparability.

Intelligibility is a quality of information to be easily comprehended by competent users, who dispose sufficient knowledge in economics and accounting and who are interested in studying the presented information.

Relevancy is a capacity of information to influence the users' decision, to change in compliance with the retrospective and predictive value of it.

Acceptable information is the information, which generates the users' behavioral changes allowing them:

- To evaluate the previous and present events;
- To forecast the performances, financial situation and other aspects of the enterprise's activity;
- To confirm and correct the previous evolutions of different aspects of the enterprise's activity.

Relevancy depends on the nature of information and its importance. The importance of information is designated through the point of significance, e.g. the limit from which omission or erroneous declaration of the information influences the users' decision.

Reliability is the quality of information not to contain representative errors of reality and communication. To be reliable the information has to:

- Represent with exactness the transactions and other events of the enterprise's life;
- Account these events and transactions in compliance with their essence and with economic reality and not only with their legal form;
- Be neutral, i.e. not to be exposed to any influences.

Comparability is a general attribute of any information, which allows users to carry out some comparisons in time and space (see chapter 2.2).

Thus, the information used in analysis overcomes the accounting sphere. Only in this way the analyst disposes sufficient fundamental information about his estimations and recommendations in order to take decisions about the future development of the enterprise performances.

4. Profit Analysis

4.1. Dynamic and structure analysis of Profit before Tax

Financial result obtained by an enterprise is characterized by the amount (sum) of profit (loss) or level of profitability.

Profit represents a part of the total amount (value) of incomes obtained by the enterprise during its economic and financial activity. Its general formula of calculation is:

Profit = Total Incomes – Total Costs and Expenses

According to National Accounting Standards, the following notions of profit are used by the internal economic practice:

1. *Gross Profit* – profit obtained from selling products, merchandises and providing services. It is equal with:
   Sales Revenues – Cost of Sales.
2. *Operating Profit (loss)* – is profit obtained from the main (basic) activity of the enterprise. It is equal with:
   Gross Profit + Other Operating Revenues – Commercial Expenses – General and Administrative Expenses – Other Operating Expenses.
3. *Profit (loss) from Investing Activity* – difference between the incomes and expenses obtained from the operations related to long term assets existence and movement.
4. *Profit (loss) from Financial Activity* – difference between the incomes and expenses obtained from the operations related to the modifications in the amount and structure of owner's equity.
5. *Extraordinary Profit (loss)* – difference between the incomes and expenses appeared

from different unexpected exceptional events and operations.

6. *Profit (loss) before tax* – is the profit obtained during a certain period of time from operating, investing, financial and extraordinary activities. It is also called accounting profit.
7. *Taxable Income or Profit* – is equal to accounting profit adjusted by the amount of permanent and temporary differences, according to the tax code.
8. *Net Profit (loss)* – is difference between Profit before tax and Income tax.

In order to make the analysis of profit the informational sources are: Income Statement, Appendix of Income Statement and some managerial information.

Profit analysis starts with the dynamic and structure analysis of Profit before Tax. It involves following components:

- Financial result from operating activity;
- Financial result from investing activity;
- Financial result from financial activity;
- Extraordinary result.

$$\mathbf{Pbt = \pm ROA \pm RAI \pm RAF \pm RE,}$$

where Pbt – profit before tax;
ROA – financial result from operating activity;
RIA – financial result from investing activity;
RFA – financial result from financial activity;
RE – extraordinary result.

The dynamic and structure analysis of Profit before Tax consists in the determination of accounting profit and of its

component elements modifications in dynamics or in comparison with plan data. It, also, allows the calculation of the share of each financial result in the profit before tax. Positive is appreciated the growth in dynamics of the weight of operating profit in the total value of profit before tax.

Example:

The dynamic and structure analysis of profit before tax will be done in comparison with previous year. The initial data are taken from Income Statement (Appendix 3)

Table 17

Dynamic and Structure Analysis of Profit before Tax

Indicators	Previous year		Current year		Difference (+;-)	
	Amount, th lei	Share, %	Amount, th lei	Share, %	th lei	%
A	*1*	*2*	*3*	*4*	*5=3-1*	*6=4-2*
1. Financial result from operating activity (rd.080)	2216,6	93,35	2059,9	84,70	-156,7	-8,65
2. Financial result from investing activity (rd.090)	(263,7)	(11,11)	26,0	1,07	+289,7	+12,18
3. Financial result from financial activity rd.100)	421,6	17,76	346,0	14,23	-75,6	-3,53
4.Extraordinary result (rd.120)	—	—	—	—	—	—
5. Profit (loss) before tax **(rd.1±rd.2±rd.3±rd.4)** (rd.130)	**2374,5**	**100**	**2431,9**	**100**	**+57,4**	**X**

From the table we can see that the analyzed enterprise obtained accounting profit in both years. However, in current year the value of profit before tax increased with 57,4 th lei. This increase was determined by the fact that in current year the enterprise obtained a positive result from investing activity.

Also, could be mentioned that in current year the profits from operating and financial activity decreased profit before taxes with 156,7 th lei and 75,6 th lei. As a positive moment, can be remarked that the result from operating activity in both years occupies the major weight in profit before taxes (93,35% - previous year and 84,70% - current year).

4.2. Operating Profit Analysis

Operating profit is the result obtained from the main activity of the enterprise that is why the next stage of profit analysis consists in the factorial analysis of operating profit.

According to the National Accounting Standards the Result from Operating Activity (profit or losses) (ROA) is calculated applying the following correlation:

$$ROA = GP + OOR - CE - GAE - OOE,$$

where GP - Gross Profit;
OOR - Other Operating Revenues;
CE - Commercial Expenses;
GAE - General and Administrative Expenses;
OOE - Other Operating Expenses

Every part of this formula represents a factor which influences the operating profit. The relation among these factors and the result indicator is additive. It means that it should be used the balance method in order to make this factorial analysis. According to the operating profit formula, first two factors (Gross profit and other operating revenues) influence directly the result indicator and next three factors (Commercial Expenses, General and Administrative Expenses and Other Operating Expenses) influence indirectly (opposite) the operating profit. In order to determine the influence of the indirect factors their absolute difference must be multiplied by -1.

The initial data are taken from the Income Statement.

The example related to the factorial analysis of Operating profit was presented above (see table 10).

4.3. Gross Profit Analysis

Gross profit is the main element of operating profit. That is why it should be analyzed more thoroughly especially if it decreases.

Changes in gross profit can be caused by the following factors:

1) Changes in the volume of sales – this factor has a direct influence, its increase determines the rise of gross profit. The rate of growth of gross profit will be the same as for volume of sales if other factors do not change.
2) Changes in the structure of sales - this factor has a direct influence, the increase of the weight of more profitable products (goods, services), will determine the rise of gross profit.
3) Changes in the unit cost of services - this factor has a indirect (opposite) influence, the increase of unitary cost of products (goods, services), will determine the diminution of gross profit.
4) Changes in the unit selling prices - this factor has a direct influence, its increase determine the rise of gross profit. It is an external factor.

In order to calculate the influence of each factor the initial data is taken from Income statement and from the table 21.

Example:

The initial data for gross profit factorial analysis are selected in this table.

Table 18

Initial Data for Gross profit factorial analysis (th lei)

Indicators	Previous year (plan)	Recalculated (flexible)	Current year (effective)
A	**1**	**2**	**3**
1.Sales revenues	**18491**	**20509**	**21835**
2.Cost of Sales	**12910**	**14382**	**16020**
3.Groos Profit (rd.1-rd.2)	**5581**	**6127**	**5815**

Rate of increase in volume of sales (Δ%VS) = (CS_{rec} : CS_0) x 100 – 100 = (14382:12910) x 100–100 = +11,40%

The table below demonstrates the factorial analysis of Gross Profit.

Table 19

Factorial analysis of Gross Profit

Factors	Method of calculation	Factors influence calculation	Result of influence (+, -)
A	***B***	***1***	***2***
1. Changes in the volume of sales	Δ%VS x GP_0 :100%	+11,40% x5581 : 100%	+636,3
2. Changes in the structure of sales	$GP_{rec} – GP_0 - \Delta GP_{VS}$	6127–5581-636,3	-90,3
3. Changes in the unit cost of services	$-(CS_1 – CS_{rec})$	–(16020–14382)	-1638
4. Changes in the unit selling prices	$SR_1 – SR_{rec}$	21835 – 21509	+1326
Total	**X**	**X**	**+234**

Where: GP_0 – Gross Profit from basic period (previous or planned); GP_{rec}– recalculated Gross Profit (actual Gross Profit in basic unit prices and costs); SR_1 – actual Sales Revenues; SR_{rec} – recalculated Sales Revenues (actual

Sales Revenues in basic unit prices); CS_1 – actual Cost of sales. CS_{rec} – recalculated Cost of sales (actual Cost of sales in basic unit costs);

BFI = +636,3 + (–90,3) + (-1638) + 1326 = +234 th lei
Verification: 5815 – 5581 = +234 th lei

The made calculations show that Gross Profit has increased in comparison with previous year by 234 th lei. This increase was due to the rise in volume of sales by 11,40% and in unit selling price of products (goods, services). Thus these factors increased gross profit respectively by 636,3 and 1326 th lei. As negative moments can be mentioned the growth in unit cost and the diminution of the weight of the most profitable products (goods, services)in total volume of sales, which had decreased gross profit by 90,3 th lei and 1638 th lei. In this case, in order to improve gross profit the enterprise should change the structure of products (goods, services), and decrease the unit cost.

5. PROFITABILITY ANALYSIS

Equity investors are concerned with the firm's ability to generate, sustain, and increase profits. The ability of a business to earn profits depends on the effectiveness and efficiency of its operations as well as the resources available to it. Profitability analysis, therefore, focuses primarily on the relationship between operating results as reported in the income statement and resources available to the business as reported in the balance sheet. Profitability can be measured in several differing but interrelated dimensions. Major analyses used in assessing profitability include the following:

- Return on sales.
- Contribution margin
- Return on assets.
- Return on equity.

5.1. Return on Sales Analysis

One measure of profitability is the relationship between the enterprise's costs and its sales. The ability to control costs in relation to revenues enhances earnings power. A common-size income statement shows the ratio of each cost component to sales. In addition, 4 summary ratios measure the relationship between different measures of profitability and sales:

1. The *gross (profit) margin* captures the relationship between sales and manufacturing or merchandising costs:

Gross Margin = Gross Profit/Sales Revenues * 100%

or ***Gross Margin = Gross Profit/Cost of goods sold * 100%***

2. The *operating margin*, calculated as

Operating Margin = Operating Profit/Sales Revenues * 100%

This ratio provides information about the enterprise's profitability from the operations of its "core" business.

3. The pretax *margin* is calculated prior to income taxes:

Pretax Margin = Profit before Tax/Sales Revenues * 100%

4. Finally, the *overall (net) profit margin* is after of all expenses:

Profit Margin = Net Profit/Sales Revenues * 100%

The four ratios listed above can be computed directly from an enterprise's financial statements. These ratios can be analyzed in comparison with the previous year or planned data, using the following example.

Example:

Let's perform the dynamic analysis of Return on Sales. The initial data are taken from Income Statement and from Balance Sheet (Appendix 2, 3).

Table 20

Dynamic analysis of Return of Sales

Indicators	Previous year	Actual Reporting year	Absolute difference, (+;-)
1.Sales Revenues, thousand lei	18491,0	21835,2	+3344,2
2.Gross Profit, thousand lei	5580,7	5814,9	+234,2
3.Operating Profit, thousand lei	2216,7	2059,9	-156,8
4.Profit before Tax, thousand lei	2374,5	2431,9	+57,4
5.Net Profit, thousand lei	2163,3	1930,4	-232,9
6.Gross Margin, %, [(r.2/r.1)*100%]	30,18	26,63	-3,55
7.Operating Margin, %, [(r.3/r.1)*100%]	11,99	9,43	-2,56
8.Pretax Margin, %, [(r.4/r.1)*100%]	12,84	11,14	-1,70
9.Profit Margin, %, [(r.5/r.1)*100%]	11,70	8,84	-2,86

The data from the table show a decrease of all the sales revenues ratios in dynamic. This diminution was due to a higher increase in sales then in profits. It means that the level of costs and expenses has increased during the current year.

At the second stage of analysis there are calculated the influence of different factors on these ratios. According to the calculation formulas of the Return on Sales ratios, the following general factors change them:

1) modification in sales revenues;
2) modification in profit indicators.

These factors correlate between them through the division correlation. It means that the chain substitution method can be applied to perform the return on sales factorial analysis. The example related to the factorial analysis of Return on Sales was presented above (see table 14).

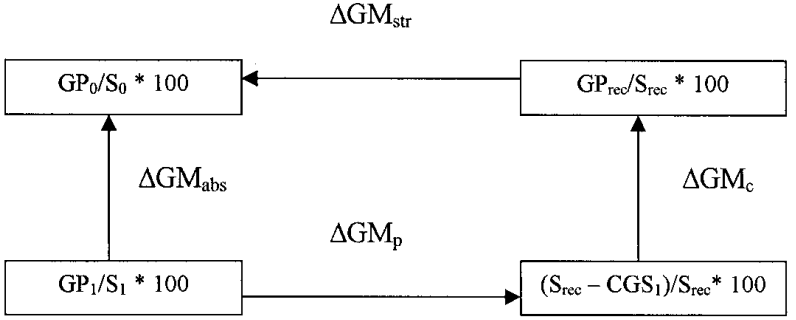
The causes that change the Gross Margin have its specificity. They can be united in the following general factors:

1) modification in structure of goods sold (ΔGM_{str});
2) modification in unit costs of goods sold (ΔGM_c);
3) modification in unit prices of goods sold (ΔGM_p).

The calculation model of the influence of these factors is presented in Figure 3.

Figure 3

Mode of calculation of the factors influence on Gross Margin



where GP_0 – Gross Profit from basic period (previous or planned); GP_{rec}– recalculated Gross Profit (actual Gross Profit in basic unit prices and costs); GP_1 – actual Gross profit; S_0 – Sales Revenues from basic period (previous or planned); S_{rec} – recalculated Sales Revenues (actual Sales Revenues in basic unit prices); S_1 – actual Sales Revenues; CGS_1 – actual Cost of goods sold.

Example:

The table below demonstrates the calculation of indicators that form the base of the factorial analysis of Gross Margin and Gross Profit calculation.

Table 21

Initial data for the factorial analysis of Gross Margin

Type of goods	Quantity, units		Unit price, lei		Unit cost, lei		Sales, thousand lei			Cost of goods sold, thousand lei			Gross profit, thousand lei		
	Basic (q_0)	Actual (q_1)	Basic (c_0)	Actual (c_1)	Basic (p_0)	Actual (p_1)	Basic (q_0*p_0)	Recalculated (q_1*p_0)	Actual (q_1*p_1)	Basic (q_0*c_0)	Recalculated (q_1*c_0)	Actual (q_1*c_1)	Basic (GP_0)	Recalculated (GP_{rec})	Actual (GP_1)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Chairs	1528	1603	1506	1607	1023	1324	2301	2414	2576	1563	1640	2122	738	774	454
Armchairs	2569	3256	2567	2458	1653	1627	6595	8358	8003	4247	5382	5298	2348	2976	2706
Couches	1569	1587	5678	6359	4258	4728	8909	9011	10092	6681	6757	7503	2228	2254	2588
Other goods	x	x	x	x	x	x	686	726	1164	419	603	1097	267	123	67
Total	*x*	*x*	*x*	*x*	*x*	*x*	*18491*	*20509*	*21835*	*12910*	*14382*	*16020*	*5581*	*6127*	*5815*

Further we will perform the factorial analysis of Gross Margin step-by-step.

<u>At the first step</u> we need to calculate the absolute variance of Gross Margin (ΔGM_{abs}):

*ΔGM_{abs} = 5815/21835*100 –5581/18491*100 = 26,63 – 30,18 = - 3,55%;*

<u>At the second step</u> we compute the variance of Gross Margin under the influence of changes in structure of goods sold (ΔGM_{str}):

*ΔGM_{str} = 6127/20509*100 - 5581/18491*100 = 29,87 – 30,18 = - 0,31%;*

<u>At the third step</u> we compute the variance of Gross Margin under the influence of changes in unit costs (ΔGM_c):

*ΔGM_c = (20509 - 16020)/20509*100 – 6127/20509*100 = = 21,89 - 29,87= -7,98%*

At the forth step we compute the variance of Gross Margin under the influence of changes in unit prices (ΔGM_p):

ΔGM_p *= 5815/21835*100 –(20509 - 16020)/20509*100 =*

= 26,63 – 21,89 = + 4,74%.

Verification: $\Delta GM_{abs} = \Delta GM_{str} + \Delta GM_c + \Delta GM_p$

(-3,55) = (- 0,31) + (-7,98) + (+ 4,74)

The calculation made show that the Gross margin decreased in comparison with basic period by 3,55%. This reduction was caused by the increase of the weight of less profitable goods in the total amount of Sales Revenues and growth of unit costs. Due to these factors Gross Margin diminished by 0,31% and 7,98% respectively. At the same time the increase in unit prices of goods sold allowed the enterprise to rise its Gross profit by 4,74%.

Thus, on the grounds of the Gross Margin factorial analysis performed we can establish that the enterprise has reserves of increasing its Gross Margin cutting of unit costs of goods sold.

5.2. Cost-Volume-Profit Analysis

Cost-volume-profit (CVP) analysis is the systematic examination of the interrelationships between selling prices, sales and production volume, costs, expenses, and profits. CVP analysis is a complex matter, since these relationships are often affected by forces entirely or partially beyond management's control. For example, the selling price of a product is affected not only by the costs of production, which are generally controllable, but also by changes in consumer trends and competitor actions, which are generally uncontrollable.

Analysts and accountants can play an important role in cost-volume-profit analysis by providing management information on the relative profitability of its various products.

In addition, CVP analyses can help management predict the probable impact of changes in selling prices and other variables on profit. Such information can help management improve profits. For example, an analysis of sales and cost data can be helpful in determining the level of sales volume necessary for the business to achieve a desired or target profit.

In CVP analysis, all costs must be classified into two categories: (1) *variable* and (2) *fixed*. *Variable costs* are costs that change in total as the volume of activity changes. *Fixed costs* remain constant in total as the volume of activity changes.

Contribution Margin Concept

One relationship among cost, volume, and profit is the contribution margin concept. The **contribution margin** is the excess of sales revenues over variable costs. The contribution margin is especially useful in short-term profit planning.

Example:

To illustrate the contribution margin calculation, Table 22 is presented as the income statement of the enterprise "Ariana" that has been prepared in a contribution margin format.

Table 22

Income statement prepared in a contribution margin forma

(lei)

Indicators	Current Period
1. Sales	21835176
2. Variable costs	16051381
3. Contribution margin [r.1- r.2]	5783795
4. Fixed costs	5591474
5. Operating profit [r.3 - r.4]	192321

The contribution margin of 5784 thousand lei is available to cover the fixed costs of 5591 thousand lei. Once the fixed costs are covered, any remaining contribution margin adds directly to the operating profit of the enterprise.

Contribution Margin Ratio

The contribution margin can also be expressed as a percentage. The contribution margin ratio, sometimes called the profit-volume ratio, is the percentage of each sales lei available to cover the fixed costs and to provide operating profit. The contribution margin ratio is computed according to the following formula:

$$\textbf{Contribution Margin Ratio} = \frac{Sales - Variable\,Costs}{Sales}.$$

Example:

For the enterprise "Ariana" (see Table 19), the contribution margin ratio is 26,50%, as computed below:

$$Contribution\ Margin\ Ratio = \frac{21835176 - 16051381}{21835176} = 26{,}50\%.$$

The contribution margin measures the effect on operating profit for an increase or a decrease in sales volume.

Example:

To assume that the management of the enterprise "Ariana" is studying the effect on operating profit of adding 80 thousand lei in sales orders. The following contribution margin income statement of the enterprise "Ariana" illustrates the validity of this analysis.

Table 23

Income statement prepared in a contribution margin format

(lei)

Indicators	Forecast
1. Sales	21915176
2. Variable costs *(21915176 * 73,50%)*	16107654
3. Contribution margin *(21915176 * 26,50%)*	5807522
4. Fixed costs	5591474
5. Operating profit [r.3-r.4]	216048

*Variable costs as a percentage of sales are equal to 100% minus the contribution margin ratio. Thus, in the above income statement, the variable costs are 73,50% (100% - 26,50%) of sales, or 16108 thousand lei (21915 thousand lei * 73,50%). We can also compute directly the total contribution margin, 5808 thousand lei, by multiplying the sales by the contribution margin ratio (21915 thousand lei * 26,50%).*

In using the contribution margin ratio in an analysis, factors other than sales volume are assumed to remain constant. If such factors as the amount of fixed costs, the percentage of variable costs to sales, and the unit sales price are not constant, the effect of any change must be considered.

The contribution margin ratio is also useful in setting business policy. For example, if the contribution margin ratio of an enterprise is large and production is at a level below 100% capacity, a comparatively large increase in operating profit can be expected from an increase in sales volume. A firm in such a position might decide to devote more effort to additional sales promotion because of the large change in operating profit that will result from changes in sales volume. In contrast, an enterprise with a small contribution margin ratio will probably want to give more attention to reducing costs and expenses before attempting to promote sales.

Unit Contribution Margin

Similar to the contribution margin ratio, the unit contribution margin is also useful for analyzing the profit potential of proposed projects. The unit contribution margin is the lei available from each unit of sales to cover fixed costs and provide operating profits.

The contribution margin ratio is most useful when the increase or decrease in sales volume is measured in sales lei. The unit contribution margin is most useful when the increase or decrease in sales volume is measured in sales units (quantities).

Example:

If the enterprise "Ariana" 's unit selling price for a chair is 1607 lei and its unit variable cost is 1192 lei, the unit contribution margin is 415 lei (1607 lei – 1192 lei).

*To illustrate, assume that the enterprise "Ariana" sold 1603 units of chairs. Its operating profit is 15355 lei. If the enterprise "Ariana"'s sales of chairs could be increased by 200 units, from 1603 units to 1803 units, its operating profit would increase by 83 thousand lei (200 units * 415 lei), as shown below.*

Table 24

Income statement prepared in a contribution margin format for chairs

(lei)

Indicators	**Current Period**	**Indicators**	**Forecast**
1. Sales *(1603 units * 1607 lei)*	2576021	1. Sales *(1803 units * 1607 lei)*	2897421
2. Variable costs *(1603 units * 1192 lei)*	1910776	2. Variable costs *(1803 units * 1192 lei)*	2149176
3. Contribution margin *(1603 units * 415 lei)*	665245	3. Contribution margin *(1803 units * 415 lei)*	748245
4. Fixed costs	649890	4. Fixed costs	649890
5. Operating income	15355	5. Operating income	98355

Unit contribution margin analysis can provide useful information for managers. The preceding illustration indicates, for example, that the enterprise "Ariana" could spend up to 83 thousand lei (98355 – 15355) on special advertising or other product promotions to increase sales by 200 chairs.

Mathematical approach to cost – volume – profit analysis

Analysts and accountants have proposed various approaches for expressing the effect of costs along with revenues and volume on profits. The mathematical approach is one approach that is frequently used in practice.

The mathematical approach to cost – volume – profit analysis uses equations (1) to determine the units of sales necessary to achieve the break-even point in operations or (2) to determine the units of sales necessary to achieve a desired or target profit. We will describe and illustrate these equations and their use by management in profit planning in the paragraphs that follow.

Break-Even Point

The break-even point is the level of operations at which revenues and expired costs are exactly equal. At this level of operations, an enterprise will neither realize an operating profit nor incur an operating loss. The break-even point is a useful guide to business planning, especially when either an expansion or a decline in operations is expected.

Since the break-even point is that point at which the total sales equals the total costs, the break-even point can be mathematically determined as follows:

Sales =Total Costs

Sales = Fixed Costs + Variable Costs

(Selling price per Unit * Quantity of Units Sold) = Fixed Costs + (Variable Costs per Unit * Quantity of Units Sold)

(Selling price per Unit * Quantity of Units Sold) - (Variable Costs per Unit * Quantity of Units Sold) = Fixed Costs

Quantity of Units Sold * (Selling price per Unit - Variable Costs per Unit) = Fixed Costs

Quantity of Units Sold * Unit Contribution Margin = Fixed Costs

$$\textbf{Quantity of Units Sold} = \frac{Fixed\ Costs}{Unit\ Contribution\ M\ arg\ in}$$

The quantity of units sold in the preceding equation is the break-even sales in units. Thus, the preceding equation can be rewritten as:

$$\textbf{Break-Even Point (units)} = \frac{Fixed\ Costs}{Unit\ Contribution\ M\ arg\ in}$$

The break-even point in lei can be determined as follows:

$$\textbf{Break-Even Point (lei)} = \frac{Fixed\ Costs}{Unit\ Contribution\ M\ arg\ in\ Ratio}$$

Example:

To illustrate the computation of break-even point, assume that the fixed costs for chairs are estimated to be 649890 lei. The unit selling price, unit variable cost, and unit contribution margin for a chair are as follows.

Table 25

Value characteristics of a chair

Indicators	Value
1. Unit selling price, lei	1607
2. Unit variable cost, lei	1192
3. Unit contribution margin, lei [r.1-r.2]	415
4. Unit contribution margin ratio, % [(r.3/r.1)*100%]	25,82

The break-even point is 1590 units or 2555 thousand lei, which is computed as follows:

Break-Even Sales (units) = 649890/415 = 1566 units;

Break-Even Sales (lei) = 649890/0,2582 = 2517 thousand lei.

The following income statement shows the validity of the preceding computation.

Table 26

Income Statement

(lei)

Indicators	Current Period
1. Sales *(1566 units * 1607 lei)*	2516562
2. Variable costs *(1566 units * 1192 lei)*	1866672
3. Contribution margin [r.1-r.2]	649890
4. Fixed costs	649890
5. Operating income [r.3-r.4]	0

The break-even point is affected by changes in the fixed costs, unit variable costs, and the unit selling price. In the following paragraphs, will be briefly described the effect of each of these factors on the break-even point.

Effect of changes in fixed costs. Although fixed costs do not change in total with changes in the level of activity, they may change because of such factors as changes in property tax rates or salary increases given to factory supervisors. Increases in fixed costs will raise the break-even point. Likewise, decreases in fixed costs will lower the break-even point.

Example:

To illustrate, assume that the enterprise "Ariana" is evaluating a proposal to budget an additional 5000 lei for advertising of chairs. Fixed costs before the additional advertising are 649890 lei, and the unit contribution margin is 415 lei. The break-even point before the additional expense is 1566 units, computed as follows:

Break-Even Sales (Units) = 649890/415 = 1566 units

If the additional amount is spent, the fixed costs will increase by 5000 lei, and the break-even point will increase to 1578 units computed as follows:

Break-Even Sales (Units) = 654890/415 = 1578 units.

*The 5000 lei increase in fixed cost increases the break-even point by 12 units of sales. The break-even point changes because, for each unit sold, the unit contribution margin of 415 lei is available to cover fixed costs. A 5000 lei increase in the fixed costs will require an additional 12 units (5000 lei / 415 lei) of sales to break-even. In other words, an increase in sales of 12 units is required in order to generate an additional 5000 lei of total contribution margin (12 units * 415 lei) to cover the increase in fixed costs.*

Effect of changes in unit variable costs. Although unit variable costs do not change with changes in volume of activity, they may change because of such factors as changes in price of direct materials and increases in wages for factory workers providing direct labour. Increases in unit variable costs will raise the break-even point. Likewise, decreases in unit variable costs will lower the break-even point.

Example:

To illustrate, assume that the enterprise "Ariana" is evaluating a proposal to pay additional 0,5% commission to its sales representatives for chairs as an incentive to increase sales. Fixed costs are 649890 lei, and the unit selling price is 1607 lei, unit variable cost is 1192 lei, and unit contribution margin before the additional 2% commission is 415 lei. The break-even point is 1566 units.

*If the sales commission proposal is adopted, variable costs will increase by 8 lei per unit (1607 lei * 0,5%). This increase in the variable costs will decrease the unit*

contribution margin by 8 lei (from 415 lei to 407 lei). Thus, the break-even point is raised to 1597 units, computed as follows:

Break-Even Sales (Units) = 649890/407 = 1597 units

*The additional 0,5% sales commission increases the break-even point by 31 units. The break-even point changes because, at the original break-even point of 1566 units, the new unit contribution margin of 407 lei would only provide 637362 lei to cover fixed costs of 649890 lei. Thus, additional 31 units of sales will be required in order to provide the additional 12600 lei (31units*407lei) contribution margin necessary to break even.*

Effect of changes in the unit selling price. Increases in the unit selling price will lower the break-even point, while decreases in the unit selling price will raise the break-even point.

Example:

To illustrate, assume that the enterprise "Ariana" is evaluating a proposal to increase the unit selling price of its chair from 1607 lei to 1695 lei. The following data have been gathered.

Table 27

Value characteristics of a chair

Indicators	Current	Forecast
1. Unit selling price	1607	1695
2. Unit variable cost	1192	1192
3. Unit contribution margin	415	503
4. Total fixed costs	649890	649890

The break-even point based on the current selling price is 1566 units.

In the selling price is increased by 88 lei per unit, the break-even point is decreased to 1292 units, computed as follows:

Break-Even Sales (Units) = 649890/503 = 1292 units

The 88 lei per unit increase in the selling price increases the unit contribution margin by 88 lei. Thus, the break-even point decreases by 274 units (from 1566 units to 1292 units).

Summary of effects of variables on break-even point. A summary of the impact of the equation variables on the break-even point in units is shown below. As a general rule, the break-even point in units is inversely related to the change in the unit sales price. That is, the break-even point in units will move in the opposite direction to changes in the sales price per unit. The break-even point in units is directly related to the change in variable and fixed costs. That is, the break-even point in units will move in the same direction as changes in variable and fixed costs.

Table 28

Impact of Variables on Break-Even Point in Units

Variable(factors)	Direction of Change in Variable	Direction of Change in Break-Even Point in Units
Unit sales price	Increase	Decrease
	Decrease	Increase
Variable cost per unit	Increase	Increase
	Decrease	Decrease
Fixed costs	Increase	Increase
	Decrease	Decrease

Target Profit

At the break-even point, sales and costs are exactly equal. However, the break-even point is not the goal for the future operations of most enterprises. Rather, managers seek to achieve maximum profit by attaining the largest possible sales volume above the break-even point. By modifying the break-

even equation, the sales volume required to earn a target or desired amount of profit may be estimated. For this purpose, we add a factor for target profit to the standard break-even equation, as shown below:

$$\textbf{Sales (Units)} = \frac{Fixed\ Costs + Target\ Profit}{Unit\ Contribution\ Margin}$$

Example:

To illustrate, fixed costs for chairs are 649890 lei, and assume that the desired profit is 49800 lei. The unit selling price, unit variable cost, and unit contribution margin of a chair are presented in table 22.

The sales volume necessary to earn the desired profit of 50000 lei is 1686 units, computed as follows:

$$\textbf{Sales (Units)} = \frac{Fixed\ Costs + Target\ Profit}{Unit\ Contribution\ Margin};$$

Sales (Units) = (649890 + 49800)/415 = 1686 units.

The following income statement shows the validity of this computation.

Table 29

Income Statements

Indicators	Current Period
1. Sales *(1686 units * 1607 lei)*	2709402
2. Variable costs *(1686 units * 1192 lei)*	2009712
3. Contribution margin *(1686 units * 415 lei)*	699690
4. Fixed costs, lei	649890
5. Operating income, lei [r.3-r.4]	49800

5.3. Return on Investment Analysis

Return on investment (ROI) measures the relationship between profits and the investment required generating of them. Diverse measures of that investment result in different

forms of ROI, such as Return on Assets (ROA), Return on Equity (ROE), Return on Permanent Capital (ROPC), etc.

Return on Assets

The Return on Assets compares income (profit) with total assets and tells how well management is performing on all the enterprise's resources. It can be interpreted in following ways:

- ***ROA = (EBIT/ Average value of total assets) *100%,***
  where EBIT = Profit before Tax + Interest Expenses;
- ***ROA = (Profit before Tax/Average value of total assets) * 100%;***
- ***ROA = (Net Profit/ Average value of total assets) *100%;***
- ***ROA = [(Net Profit + After Tax Interest Expenses)/ Average value of total assets)] *100%.***

It measures efficiency in using the enterprise's assets to generate profits. These ROI ratios are named post interest ones, because they make leveraged firms appear less profitable by charging earnings for payment (interest) to some capital providers (lenders) but not others (stockholders).

In practice, however, the ROA can be measured using (EBIT, Net Income + After Tax Interest Expenses) or the profit independent of the enterprise's financing and tax position. These are pre interest ROI ratios, which in contrast, facilitate the comparison of enterprises with different degrees of leverage. Therefore, ROI ratios that use total assets in denominator should include total earnings (before interest) in the numerator. As interest is tax-deductible, post tax profit measures should add back net-of-tax interest payments.

The interrelationships among ratios have important implications for financial analysis. Desegregation of a ratio into its component elements allows us to gain insight into factors affecting an enterprise's performance; for example, significant changes in ROA may be best understood through an analysis of its components.

Further, ratio differences can highlight the economic characteristics and strategies of:

- the same enterprise over time;
- enterprises in the same industry;
- enterprises in different industries;
- enterprise in different countries.

These relationships among ratios imply that one might be able to "ignore" some component ratios and use a composite or representative ratio to capture the information contained in other ratios. For example, in the ROA relationship described earlier, the effect of the two ratios on the right side of the equation may be captured by the ROA ratio. For certain analytic purposes, this composite ROA ratio may suffice.

So, the ROA ratio can be desegregated as follows:

ROA = Total Asset Turnover * Return on Sales =
= Sales Revenues/Average value of Assets *
**** Profit before Tax/Sales Revenues***

The enterprise's ROA is the product of an activity ratio and a sales profitability ratio. A low ROA can result from low turnover, indicating poor asset management, low profit margin, or a combination of both factors.

Note:

1) *the use of Profit before Tax (rather than net profit) shows trends independent of the tax position of the enterprise;*
2) *changes in profitability are largely responsible for the variability of ROA;*
3) *assets are taken from balance sheet that is why this number is an average of beginning and ending balances.*

The relationship between factors is a multiplication one, so it allows us to use the chain substitution or absolute difference method.

Example:

The factorial analysis of assets profitability will be done in comparison with previous year using the absolute difference and the chain substitution methods. The initial data are taken from Income Statement and from Balance Sheet (Appendix 1,2,3).

Table 30

Factorial analysis of assets profitability

(Absolute difference method)

Indicators	Previous year	Actual Reporting year	Absolute difference (+;-)	Under the factors influence of	
				Return on Sales	Asset Turnover
1.Profit before Tax, thousand lei	2374,5	2431,9	+57,4	x	x
2. Sales Revenue, thousand lei	18491,0	21835,2	+3344,2	x	x
3. Average value of assets, thousand lei	22026,3	22877,3	+851,0	x	x
4. Return on Sales, % [(r.1/r.2)*100%]	12,84	11,14	-1,70	x	x
5. Asset Turnover [r.2/r.3]	0,8395	0,9545	+0,115	x	x
6.Assets profitability, % [(r.1/r.3)*100%]	10,78	10,63	-0,15	***(-1,70) * 0,8395 = -1,43***	***(+0,115)* *11,14 = +1,28***

(10,63 - 10,78) = (-1,43) + (+1,28)

The factorial analysis of the return on assets can also be performed using the chain substitution method. The table presented below describes these calculations.

Table 31

Factorial analysis of assets profitability
(Chain substitution method)

Number of calcula-tion	Number of substi-tution	Indicators (factors) correlated		ROA,%	The calculation of factors influence	Result of influence (+;-), %
		Return on Sales	Asset Turnover			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	0	12,84	0,8395	10,78	x	x
2	1	11,14	0,8395	9,35	9,35–10,78	-1,43
3	2	11,14	0,9545	10,63	10,63–9,35	+1,28
Total		**x**	**x**	**x**	**x**	-0,15

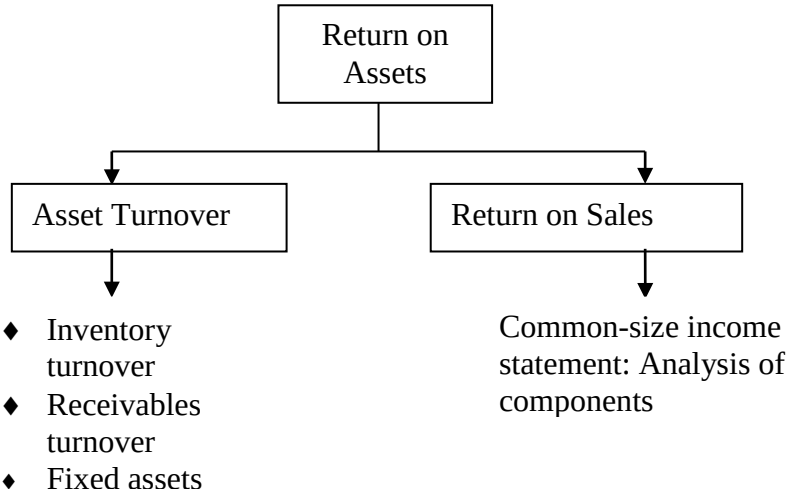
(10,63 - 10,78) = (-1,43) + (+1,28)

The calculations show us a decrease of the return on assets level in comparison with the previous year by 0,15%. This reduction was due to the negative influence of the Return on Sales, which decreased the return on assets by 1,43%. At the same time a 0,115 growth of asset turnover caused a rise of asset profitability by 1,28%. However, it can be mentioned that the return on assets level is very small one in the both years. That fact does not allow the enterprise to renew its assets in a short period of time.

The analysis of changes in ROA can be refined further by examining individual turnover ratios and the elements of profitability. Figure 4 provides an overall summary of this hierarchical analysis.

Figure 4

Desegregation of ROA into Basis Components



Return on Equity

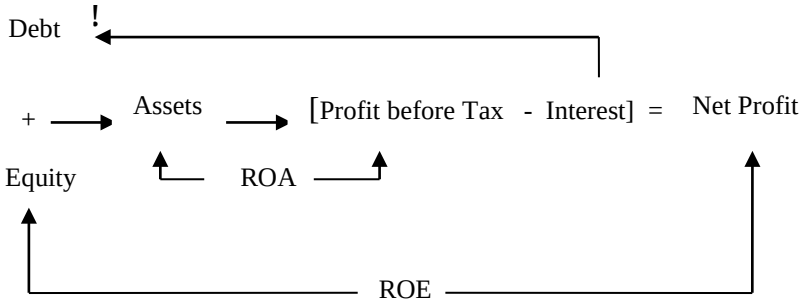
Return on Equity measures how well management is doing for the investor, because it tells how much earnings they are getting for each invested lei. The return on total stockholders' equity (ROE) excludes debt in the denominator and uses either profit before tax or net profit. It can be computed according to the following formulas:

- ***ROE = (Profit before Tax/Average value of Owners' Equity) * 100%;***
- ***ROE = (Net Profit/ Average value of Owners' Equity) *100%.***

Relationship of ROA and ROE is presented in Figure 5.

Figure 5

Relationship of ROA and ROE to Providers of Investment Base



The relationship between ROA and ROE reflects the enterprise's capital structure. As shown in Figure 5, creditors and shareholders provide the capital needed by their share of the enterprise's profits. If volume increases and the ROA is greater than the cost of debt, the excess return accrues to the common shareholders. The relationship between ROE and ROA is a function of the proportion of debt used for financing and the relationship of cost of that debt to ROA. This can be formally expressed as:

ROE = ROA + [(ROA – Cost of Debt)*Debt/Owners 'Equity],

where *Cost of Debt = Interest Expenses/Average value of Debt * 100%.*

In effect, the benefit of financial leverage is the product of the excess returns earned on the enterprise's assets over the cost of debt and the proportion of debt financing to equity financing. If there are no excess returns (ROA<cost of debt), then ROE will be lower than ROA.

Till now, it was illustrated the ROA and ROE relationship on a pre tax basis using DuPont model. Further it is extended the ROA calculation, deducting the interest component and multiplying by the assets/equity ratio.

The assets/owners 'equity ratio reflects a capital structure of an enterprise and is often named financial leverage ratio. It indicates the degree to which the enterprise is internally financed. It will always be greater than 1, its effect is to increase ROE relative to ROA. A higher ratio indicates more outside financing. The ratio equals 1 plus the debt/equity ratio, where debt is defined as total liabilities. Thus, if we recall the components of ROA, ROE is a function of three of the four categories discussed. That is,

ROE = Return on Sales * Asset Turnover * Financial Leverage Ratio = Profit before Tax/Sales Revenues * *Sales Revenues/Average value of Assets * * Average value of Assets/ Average value of Equity

The analysis of the components of ROE, which is frequently known as the DuPont model, enables the analyst to discern the contribution of each factor to the change in ROE.

Note: Assets and Equity are taken from balance sheet that is why their value is an average of beginning and ending balances.

The relationship between factors is a multiplication one, so it allows us to use the chain substitution method or absolute difference method.

Example:

The factorial analysis of equity profitability will be done in comparison with previous year. The initial data are taken from Income Statement and from Balance Sheet (Appendix 1, 2, 3)

Table 32

Initial data for ROE analysis

Indicators	Previous year	Actual reporting year	Absolute difference (+;-)
1.Profit before Tax, thousand lei	2374,5	2431,9	+57,4
2. Sales Revenue, thousand lei	18491,0	21835,2	+3344,2
3. Average value of assets, thousand lei	22026,3	22877,3	+851,0
4. Average value of equity, thousand lei	19152,7	20368,1	+1215,4
5. Return on Sales, % [(r.1/r.2)*100%]	12,84	11,14	-1,70
6. Asset Turnover [r.2/r.3]	0,8395	0,9545	+0,115
7. ROA (Assets profitability), % [(r.1/r.3)*100%]	10,78	10,63	-0,15
8. Financial leverage,[r.3/r.4]	1,15	1,1232	-0,0268
9. ROE (Equity profitability), % [(r.1/r.4)*100%]	12,40	11,94	-0,46

Calculation of influence of factors on the Return on Equity is shown in the table below.

Table 33

Factorial analysis of equity profitability

(Absolute difference method)

Name of factors	The calculation of factors influence	Result of influence (+;-), %
1. Modification of Return on Sales	(-1,70) * 0,8395 * 1,15	- 1,65
2. Modification of Asset Turnover	11,14 * (+0,115) * 1,15	+1,48
3. Modification of Financial Leverage Ratio	11,14 * 0,9545 * (-0,0268)	- 0,29
TOTAL		- 0, 46

(11,94 - 12,40) = (-1,65) + (+1,48) + (-0,29)

From previous year to current year ROE decreased from 12,40% to 11,94%. The decrease of ROE resulted

primary from a significant decrease in return on sales ratio from 12,84% to 11,14%. Also a negative influence under the ROE has the modification in capital structure, namely increase in the weight of equity in the total value of assets. Due to this influence the ROE decreased by 0,29%. At the same time the growth of asset turnover by 0,115 caused a rise of equity profitability by 1,48%.

However, it can be mentioned that the equity profitability level is very small one in the both years. That fact will determine the enterprise to pay more attention to the return on sales and to its capital structure.

Although the three-component model shown is the standard DuPont analysis, that model can be developed further. In many cases, it is worthwhile to look at the effect of interest payments or tax payments. To do so, we must desegregate the profitability ratio further as follows:

1) ***Net profit/Sales Revenues =Net profit/Profit before Tax * Profit before Tax/Sales Revenues;***
2) ***ROE = Profit before Tax /Average value of Assets * * Assets/Equity * Net profit/Profit before Tax;***
3) ***ROE = ROA * Assets/Equity * Net profit/Profit before Tax;***
4) ***ROE = Profit before Tax/Sales * Sales/Assets * * Assets/Equity * Net profit/Profit before Tax***

The ratio of net profit to profit before tax is the inversely proportional of financial leverage and will always be less than 1, tending to drive ROE below ROA.

Example:

The factorial analysis of equity profitability will be performed on the basis of initial data taken from Income Statement and from Balance Sheet (Appendix 1, 2, 3).

Table 34

Initial data for ROE analysis

Indicators	Previous year	Actual reporting year	Absolute difference (+;-)
1.Profit before Tax, thousand lei	2374,5	2431,9	+57,4
2.Net Profit, thousand lei	2163,3	1930,4	232,9
3. Sales Revenues, thousand lei	18491,0	21835,2	+3344,2
4. Average value of assets, thousand lei	22026,3	22877,3	+851,0
5. Average value of equity, thousand lei	19152,7	20368,1	+1215,4
6. Return on Sales, % [(r.1/r.3)*100%]	12,84	11,14	-1,70
7. Asset Turnover [r.3/r.4]	0,8395	0,9545	+0,115
8. ROA (Assets profitability), % [(r.1/r.4)*100%]	10,78	10,63	-0,15
9. Financial leverage,[r.4/r.5]	1,15	1,1232	-0,0268
10. Ratio of Net Profit/Profit before Tax,[r.2/r.1]	0,9110	0,7938	-0,1172
11. ROE (Equity profitability), % [(r.2/r.5)*100%]	11,29	9,48	-1,81

Calculation of factors influence on Return on Equity is shown in the table below.

Table 35

Factorial analysis of equity profitability
(Absolute differences method)

Name of factors	The calculation of factors influence	Result of influence (+;-), %
Modification of Return on Sales	(-1,70) * 0,8395 * 1,15 * 0,9110	-1,49
Modification of Asset Turnover	11,14 * (+0,115) * 1,15 * 0,9110	+1,34
Modification of Financial Leverage Ratio	11,14 * 0,9545 * (-0,0268) *0,9110	-0,26
Modification of Ratio of Net Profit/Profit before Tax	11,14 * 0,9545 * 1,1232 * (-0,1172)	-1,40
TOTAL		**-1,81**

(9,48 - 11,29) = (-1,49) + (+1,34) + (-0,26) + (-1,40)

From previous year to current year ROE decreased from 11,29% to 9,48%. The decrease of ROE resulted primary from a significant decrease in return on sales ratio by 1,70%. Also a negative influence under the ROE has the modification in capital structure, and the modification of Ratio of Net Profit/Profit before Tax. Due to these influences the ROE decreased by 0,26% and 1,40% respectively. At the same time the growth of asset turnover by 0,115 caused a rise of equity profitability by 1,34%.

6. FINANCIAL SITUATION ANALYSIS

6.1. Asset Structure Analysis

The basic *financial statements* provide much of the information users need to make economic decisions about business. The *analysis of financial statement* refers to the examination of the statements for the purpose of acquiring additional information regarding the activities of the business. The users of the financial information often find analysis desirable for the interpretation of the enterprise's activities. The overall objective of financial statement analysis is the examination of an enterprise's financial position and returns in relation to risk. This must be done with a view to forecasting the enterprise's future prospective.

That is why we will illustrate how to perform an analysis of these statements by integrating individual analytical measures. Analytical procedures may be used to compare items on a current statement with related items on earlier statement. Analytical procedures are also widely used to examine relationships within a financial statement.

Here, we will illustrate a number of common analytical measures. The measures are not ends in themselves. They are only guides in evaluating financial and operating date. Many other factors, such as trends in industry and general economic conditions, should also be considered.

Horizontal Analysis

The percentage analysis of increases and decreases in related items in comparative financial statements is called *horizontal analysis*. The amount of each item on the most recent statement is compared with the related item on one or more earlier statements. The amount of increase or decrease in the item is listed, along with the percent of increase or decrease.

Horizontal analysis may compare two statements. In this case, the earlier statement is used as the base. Horizontal analysis may also compare three or more statements. In this case, the earliest date or period may be used as the base for comparing all later dates or periods. Alternatively, each statement may be compared to the immediately preceding statement.

Example:

The analysis of assets will be performed on the basis of the initial data taken from the Balance Sheet (Appendix 2).

Table 36

Comparative Balance Sheet – Horizontal Analysis

Assets	**At the end of the previous year**	**At the end of the current year**	**Absolute difference (+;-), lei**	**Rate of increase (decrease),%**
A	**1**	**2**	**3**	**4**
Intangible Assets	1092	1028	-64	94,14
Long-term Tangible assets	16206535	14070930	-2135605	86,62
Long-term financial Assets	170222	1168132	+997910	686,24
Other Long-term Assets	-	-	-	-
Total Long-term Assets	**16377849**	**15240090**	**-1137759**	**93,05**
Inventories	1880200	1219369	-660831	64,85
Short-term Receivables	1856672	4475627	+2618955	241,06
Short-term Investments	-	-	-	-
Cash	2651273	1721989	-929184	64,95
Other Current Assets	15199	316293	+301094	2081,01
Total Current Assets	**6403344**	**7733278**	**+1239934**	**120,77**
TOTAL GENERAL-ASSET	***22781193***	***22973368***	***+192175***	***100,84***

The information from the table above shows that the total assets at the end of the current year were by 192175 lei or 0,84% more than in the previous year. The growth in total assets was achieved mostly through the rise in current assets by 2618955 lei or 20,77%, especially in the amount of short-term receivables, which increased in 2,4 times. Although the long-term assets decreased in dynamic by 6,95% due to the diminution in the value of long-term tangible assets by 2135605 lei or 13,38%.

Vertical Analysis

A percentage analysis may also be used to show the relationship of each component to the total within a single statement. This type of analysis is called *vertical analysis*. Like horizontal analysis, the statements may be prepared in either detailed or condensed form. In the latter case, additional details of the changes in individual items may be presented in supporting schedules. In such schedules, the percentage analysis may be based on either the total of the schedule or the statement total. Although vertical analysis is limited to an individual statement, its significance may be improved by preparing comparative statements.

In vertical analysis of the balance sheet, each asset items is stated as a percent of the total assets. Each liability and stockholders' equity item is stated as a percent of the total assets.

Example:

Further we will perform the structure analysis of assets using the vertical procedure. The initial data are taken from the Balance Sheet (Appendix 2).

Table 37

Comparative Balance Sheet – Vertical Analysis

Assets	At the end of the previous year		At the end of the current year	
	Amount, lei	**Share, %**	**Amount, lei**	**Share, %**
A	**1**	**2**	**3**	**4**
Intangible Assets	1092	0,01	1028	0,01
Long-term Tangible Assets	16206535	71,14	14070930	61,25
Long-term financial Assets	170222	0,74	1168132	5,08
Other Long-term Assets	-	-	-	-
Total Long-term Assets	**16377849**	**71,89**	**15240090**	**66,34**
Inventories	1880200	8,25	1219369	5,31
Short-term Receivables	1856672	8,15	4475627	19,48
Short-term Investments	-	-	-	-
Cash	2651273	11,64	1721989	7,50
Other Current Assets	15199	0,07	316293	1,37
Total Current Assets	**6403344**	**28,11**	**7733278**	**33,66**
TOTAL GENERAL-ASSET	***22781193***	***100***	***22973368***	***100***

The information from the table above show us that the major weight in the total amount of assets constitutes the weight of Long-term Tangible assets that decreased in current period from 71,14% to 61,25%. Also, a major percentage change in assets is in the Short-term Receivables that increased from 8,15% to 19,48%. At the same time we can mention the relative decrease of Cash in total amount of assets

by 4,14% (7,50 - 11,64) and the relative diminution of inventories by 2,94% (5,31 -8,25).

Horizontal and vertical analyses with both lei and percentage amounts are useful in assessing relationships and trends in financial conditions and operations of a business. Vertical analysis with both lei and percentage amounts is also useful in comparing one enterprise with another or with industry averages.

Ratio analysis of assets

This type of analysis involves the calculation of a variety of relative values that help us to analyze the financial statement of an enterprise. It is one of the most popular and widely used methods. In economic practice the following reciprocal substitutable ratios can be applied in order to characterize the asset structure:

- *Rate of asset immobilization (RAI)*

RAI = (Long-term assets/Total assets) * 100%

This ratio reflects the share of the long-term assets in the total amount of assets.

Example:

Taking the initial data from the Balance Sheet (Appendix 2), let's determine RAI:

Table 38

Rate of Asset Immobilization analysis

Indicators	Previous year	Actual Reporting year	Absolute difference, (+;-)
1.Long-term assets, thousand lei	16377,9	15240,1	-1137,8
2.Total assets, thousand lei	22781,2	22973,4	+1922,0
3.Rate of asset immobilization, %, [(r.1/r.2)*100%]	71,89	66,34	-5,55

The patrimony structure is characterized by having a higher level of RAI. So, at the beginning of the year it was 71,89% that diminished in dynamic by 5,55% and constitutes at the end of the year 66,34%.

- *Rate of fixed assets (RAF)*

RAF = (Book value of Fixed assets /Total assets) * 100%

Book value of Fixed assets = Fixed assets - Depreciation

This ratio shows the weight of fixed assets in the total amount of assets. Fixed assets take an important role in the economic potential creation of an industrial enterprise. These are the assets that generate profit. This fact explains the analytical role of RAF calculation. This ratio does not have any especial level; it can be different from one economic branch to another.

Example:

Taking the initial data from the Balance Sheet (Appendix 2), let's determine RAF:

Table 39

Rate of Fixed Assets analysis

Indicators	Previous year	Actual Reporting year	Absolute difference, (+;-)
1.Book value of Fixed Assets, thousand lei	16147,8	14012,2	-2135,6
2.Total assets, thousand lei	22781,2	22973,4	+1922,0
3.Rate of fixed assets,%, [(r.1/r.2)*100%]	70,88	60,99	-9,89

The patrimony structure is characterized by having a higher level of RAF. So, at the beginning of the year it was 70,88% that diminished in dynamic by 9,89% and constitutes at the end of the year 60,99%.

- *Rate of current assets (RCA)*

RCA = (Current assets/Total assets) * 100% = 1 – RAI

Example:

Taking the initial data from the Balance Sheet (Appendix 2), let's determine RCA:

Table 40

Rate of Current Assets analysis

Indicators	Previous year	Actual Reporting year	Absolute difference, (+;-)
1.Current assets, thousand lei	6403,3	7733,3	+1330,0
2.Total assets, thousand lei	22781,2	22973,4	+1922,0
3.Rate of current,%, assets[(r.1/r.2)*100%]	28,11	33,66	+5,55

The patrimony structure is characterized by having a satisfactory level of RCA for industrial enterprises. So, at the beginning of the year it was 28, 11% that increased in dynamic by 5, 55% and constitutes at the end of the year 33, 66%.

- *Correlation between current and long-term assets*

Correlation rate = (Current assets/Long-term assets) * 100%

This indicator shows the inside correlation between the patrimony's elements reflected in balance sheet. A higher level of this coefficient leads to the patrimony turnover stimulation and provides the decrease of economic sources necessary to entertain the business activity.

Example:

Taking the initial data from the Balance Sheet (Appendix 2), let's determine the Correlation between current and long-term assets.

Table 41

Correlation rate analysis

Indicators	Previous year	Actual Reporting year	Absolute difference, (+;-)
1.Current assets, thousand lei	6403,3	7733,3	+1330,0
2.Long-term assets, thousand lei	16377,9	15240,1	-1137,8
3.Correlation Rate,%, [(r.1/r.2)*100%]	39,10	50,74	+11,64

So, at the beginning of the year the Correlation rate between current and long-term assets was 39,10% that increased in dynamic by 11,64%. It constitutes 50,74% at the end of the year.

- *Share of production assets (SPA)*

SPA = [(Book value of Fixed assets + + Inventories)/Total assets] * 100%

This ratio reflects the share of assets that are directly used in manufacturing. The growth of this ratio in dynamic is assessed as being positive, because it leads to the increase of the operating activity volume.

Example:

Taking the initial data from the Balance Sheet (Appendix 2), let's determine SPA.

Table 42

Share of production assets analysis

Indicators	Previous year	Actual Reporting year	Absolute difference, (+;-)
1.Book value of Fixed assets, thousand lei	16147,8	14012,2	-2135,6
2.Inventories, thousand lei	1880,2	1219,4	-660,8
3.Total assets, thousand lei	22781,2	22973,4	+1922,0
4.Share of production assets,%, [((r.1+r.2)/r.3)*100%]	79,14	66,30	-12,84

In current year the share of production assets decreased by 12,84% in comparison with the previous year.

- *Technical composition of the capital (TCC)*

TCC = (Book value of Fixed assets/Current assets)

This ratio reflects the correlation between fixed assets and current assets. The growth of this ratio in dynamic is appreciated as being a positive tendency.

Example:

Taking the initial data from the Balance Sheet (Appendix 2), let's determine TCC.

Table 43

Technical composition of the capital rate analysis

Indicators	Previous year	Actual Reporting year	Absolute difference, (+;-)
1.Current assets, thousand lei	6403,3	7733,3	+1330,0
2.Book value of Fixed assets, thousand lei	16147,8	14012,2	-2135,6
3.Technical composition of the capital Rate [r.2/r.1]	2,52	1,81	-0,71

In current year the TCC decreased by 0,71 in comparison with the previous year. So, at the end of the year it was 1,81.

6.2. Assets Turnover Analysis

An enterprise's operating activities require investments in both short-term (inventory and accounts receivable) and long-term (property, plant, and equipment) assets. If a business does not use its assets effectively, investors in the business would rather take their money and place it somewhere else.

Activity ratios describe the relationship between the enterprise's level of operations (usually defined as sales) and the assets needed to sustain operating activities. So, these ratios are therefore used to assess how active various assets are in the business.

The higher the ratio, the more efficient the enterprise's operations, as relatively fewer assets are required to maintain a given level of operations (sales). Trends in these ratios over time and in comparison to other enterprises in the same industry can indicate potential trouble spots or opportunities. Furthermore, although these ratios do not measure profitability or liquidity directly, they are important factors affecting those performance indicators.

Activity ratios can also be used to forecast an enterprise's requirements (both operating and long-term). Increases in sales will require investments in additional assets. Activity ratios enable the analyst to forecast these requirements and to assess the enterprise's ability to acquire the assets needed to sustain the forecasted growth.

Total asset turnover is an overall activity measure relating sales to total assets. It is calculated according to the following formula:

Total Asset Turnover =Sales Revenues/ Average Total Assets.

This relationship provides a measure of overall investment efficiency by aggregating the joint impact of both short- and long-term assets. The total asset turnover indicates the efficiency with which the enterprise uses all its assets to generate sales. Generally, the higher the enterprise's total asset turnover, the more efficiently its assets have been utilised.

Also the asset turnover can be calculated in days using the following formula:

Average No.Days Asset Outstanding (Operating Cycle)=365/ Asset Turnover =(Average Total Assets*365)/ SalesRevenues.

This indicator denotes the number of days during which sales cover the entire value of assets.

Other groups of activity ratios that can also be used to forecast an enterprise's requirements are the turnover ratios of component elements (parts) of assets: *fixed assets, inventories, accounts receivable, cash.*

The *fixed asset turnover ratio* measures the efficiency of (long-term) capital investment. It reflects the level of sales generated by investments in productive capacity and is computed as:

Fixed Assets Turnover = Sales Revenues / Average Fixed Assets.

The *average number of days of fixed asset outstanding* can be calculated similarly as:

Average No.Days Fixed Assets Outstanding = 365/ Fixed Assets Turnover = (Average Fixed Assets*365)/ Sales Revenues.

The level and trend of the Fixed Assets Turnover are affected by characteristics of its components. First, sales growth is continuous, albeit at varying rates. Increases in capacity to meet that sales growth, however, are discrete, depending on the addition of new factories, warehouses, stores, and so forth. Compounding this issue is the fact that management often has discretion over the timing, form, and financial reporting of the acquisition of incremental capacity.

The combination of some of these factors, results in an erratic turnover ratio. The life cycle of an enterprise or product includes a number of stages: start-up, growth, maturity, and decline. Start-up enterprises' initial turnover may be low, as their level of operations is below their productive capacity. As sales grow, however, turnover will improve continually until the limits of the enterprise's initial capacity are reached. Subsequent increases in capital investment decrease the turnover ratio until the enterprise's sales growth catches up to

the increased capacity. This process continues until maturity when sales and capacity level off, only to reverse when the enterprise enters its decline stage.

Additional problems can result from timing of an enterprise's asset purchases. Two enterprises with similar operating efficiencies, having the same productive capacity and the same level of sales, may show differing ratios depending on when their assets were acquired. The enterprise with older assets has the higher turnover ratio, as accumulated depreciation has reduced the carrying value of its assets. Over time, for any enterprise, the accumulation of depreciation expense improves the turnover ratio without a corresponding improvement in actual efficiency. The use of gross rather than net fixed assets alleviates this shortcoming. However, this is rarely done in practice.

An offsetting and complicating factor is that newer asset generally more efficiently due to improved technology. However, due to inflation newer assets may be more expensive and this decrease the turnover ratio. Using current or replacement cost rather than historical cost to compute the turnover ratio is solution to this problem. Finally, it should be noted that methods of acquisition and subsequent financial reporting choices also affect turnover ratios for otherwise similar enterprises.

Other asset turnover ratios as the component parts of assets are computed using the following formula:

1) Inventory Turnover = Sales Revenues / Average Inventory, Average No.Days of Inventories in Stock = 365 / Inventory Turnover = (Average Inventories*365)/ Sales Revenues;

2) Receivables Turnover = Sales Revenues / Average Accounts Receivable,

Average No.Days Receivables Outstanding=365/ Receivables Turnover = (Average Receivables *365)/ Sales Revenues;

3)Cash Turnover = Sales Revenues / Average Cash,

Average No.Days Cash Outstanding = 365/ Cash Turnover = =(Average Cash *365)/ Sales Revenues.

Example:

Taking the initial data from the Balance Sheet and Income Statement (Appendix 1, 2, 3), let's determine asset turnover and the turnover ratios of asset component elements.

Table 44

The analysis of assets turnover

Indicators bff.	**Previous year**	**Current year**	**Absolute difference (+;-), lei**
1.Sales Revenues, lei	18491002	21835176	+3344174,0
2.Average value of total assets, lei	22026288,0	22877280,0	+850992,0
3.Average value of inventories, lei	2057241,5	1549784,5	-507457
4.Average value of fixed assets, lei	16295255,0	15079985,5	-1215269,5
5.Average value of receivables, lei	1549857,5	3166149,5	+1616292,0
6.Average value of cash, lei	1717681,5	2186631	+468949,5
7.Total Asset Turnover	***0,8395***	***0,9545***	***+0,115***
8.No. of days	*435*	*382*	*-53*
9.Fixed Assets Turnover	***1,1347***	***1,4480***	***+0,3133***
10.No. of days	*322*	*252*	*-70*
11.Inventory Turnover	***8,99***	***14,09***	***+5,10***
12.No. of days	41	25	-16
13.Receivables Turnover	***11,93***	***6,90***	***-5,03***
14.No. of days	31	53	+22
15.Cash Turnover	***10,76***	***9,99***	***-0,77***
16.No. of days	34	37	+3

The calculations made above show an increase of total asset turnover and fixed assets turnover ratios respectively by 0,115 and 0,3133. So, the enterprise uses more efficient its assets and especially fixed assets in current period.

The inventory turnover ratio has improved significantly from 8,99 (41 days) in previous year to 14,09 (25 days) in current year. But the receivables turnover ratio decrease by 5,03 (22 days) in current year in comparison with previous one. The similar decrease shows the cash turnover ratio over this period. Though, the inventory turnover ratio grew the others current turnover ratios reflect worse operating performance.

The average number of days Asset outstanding depends on two factors:

1) changes in Average value of assets;

2) changes in Sales Revenues.

Example:

Calculation of factors influence on Average number of days of Assets is presented in Table 45.

The calculations in Table 45 show a decrease of average number of days of total assets, of fixed assets and inventories, due to the increase of their turnover ratios. That fact is appreciated as having a positive impact over the enterprise's activity. On the other hand the number of days of receivables and cash increased in dynamic by 22 and 3 days respectively, due to the growth of average value of receivables and cash in current period.

Short-Term (Operating) Activity Ratios

At the same time in economic practice there are examined some other turnover ratios, due to these assets transformation from one form to another.

Table 42

Factorial Analysis of average number of days Asset outstanding

Indicators	Average value of assets, lei		Sales Revenue, lei		Number of days, days			Absolute differences (+;-)	Under the modification of:	
	Previous year	Current Year	Previous year	Current Year	Previous year	Recalculated	Previous year		Average value of assets	Sales Revenue
1	2	3	4	5	6=2*365:4	7=3*365:4	8=3*365:5	9 = 8 - 6	10 = 7 -6	11 = 8 - 7
1.Average value of total assets including:	22026288,0	22877280,0	18491002	21835176	435	452	382	-53	+17	-70
1.1.Average value of fixed assets	16295255,0	15079985,5	18491002	21835176	322	298	252	-70	-24	-46
1.2.Average value of inventories	2057241,5	1549784,5	18491002	21835176	41	31	25	-16	-10	-6
1.3.Average value of receivables	1549857,5	3166149,5	18491002	21835176	31	63	53	+22	+32	-10
1.4.Average value of cash	1717681,5	2186631	18491002	21835176	34	43	37	+3	+9	-6

The *inventory turnover ratio*, defined as

Inventory Turnover = Cost of Sales / Average Inventory.

If measures the efficiency of the enterprise's inventory management. A higher ratio indicates that inventory does not remain in warehouses or the shelves but rather "turns over" rapidity from the time of acquisition to sale. This ratio is affected by the choice of accounting method.

The inverse of this ratio can be used to calculate the average number of days inventory is held until it is sold:

Average No.Days Inventory in Stock = 365 / Inventory Turnover

Example:

Taking the initial data from the Balance Sheet and Income Statement (Appendix 1,2,3), let's determine inventory turnover.

Table 46

The analysis of inventory turnover

Indicators	**Previous year**	**Current year**	**Absolute difference (+;-), lei**
Cost of Sales	12910263	16020315	+3110052
Average value of inventories	2057241,5	1549784,5	-507457
Inventory Turnover	***6,277***	***10,337***	***+4,06***
No. of days	58	35	-23

The calculations made in table above show that the gross inventory turnover ratio has improved significantly from 6,277 (58 days) in previous year to 10,337 (35 days) in current year. Though, the inventory turnover ratio growth reflects a better operating performance.

The *receivables turnover ratio* and the *average number of days of receivables outstanding* can be calculated similarly as

Receivables Turnover = Sales Revenues / Average Trade Receivables

Average No.Days Receivables Outstanding = = 365/ Receivables Turnover

The receivables turnover ratios:

- Measure the effectiveness of the firm's credit policies.
- Indicate the level of investment in receivables needed to maintain the firm's sales level.

Receivables turnover should be computed using trade receivables in the numerator in order to evaluate operating performance. Receivables generated from financing (unless customer financing is provided as a normal component of sales activities) and investment activities (e.g., receivables from the sale of an investment) should be excluded as they do not represent normal recurring operating transactions.

Example:

Taking the initial data from the Balance Sheet and Income Statement (Appendix 1,2,3), let's determine receivables turnover.

Table 47

The analysis of receivables turnover

Indicators	**Previous year**	**Current year**	**Absolute difference (+;-), lei**
Sales Revenues	18491002	21835176	+3344174,0
Average value of receivables	1549857,5	3166149,5	+1616292,0
Receivables Turnover	***11,93***	***6,90***	***-5,03***
No. of days	31	53	+22

The calculations made show that the receivables turnover ratio has decreased significantly from 11,93 (31 days) in previous year to 6,90 (53 days) in current year. Though, the

receivables turnover ratio decrease reflects worse operating performance.

The *accounts payable (liabilities) turnover ratio* and number of days payables are outstanding can be computed in a similar fashion as

Payables Turnover = Total operating expenses / Average Accounts Payable

Average No.Days Payables Outstanding=365 / Payables Turnover,

where *total operating expenses represent the sum of cost of goods sold, selling expenses, general and administrative expenses, other operating expenses and income tax expenses.*

Although accounts payable are liabilities rather than assets, their trend is significant as they represent an important source of financing for operating activities. The time spread between when suppliers must be paid and when payment is received from customers is critical for wholesale and retail firms with their large inventory balances. The relationship among accounts payable, accounts receivable, and inventories will be seen shortly when we examine the operating and cash cycles.

Example:

The analysis of liabilities turnover will be done in comparison with previous year using the horizontal procedure. The initial data are taken from Balance Sheet and Income Statement (Appendix 1,2,3).

Table 48

The analysis of liabilities turnover

Indicators	**Previous year**	**Current year**	**Absolute difference (+;-), lei**
Total operating expenses	17771500	22144353	+4372853
Average value of liabilities	2371070,5	2053483	-317577,5
Liabilities Turnover	***7,495***	***10,783***	***+3,288***
No. of days	49	34	-15

The calculations made in Table 45 show that the liabilities turnover ratio increase by 3,288 (15 days) in current year in comparison with previous one.

An important role in the estimation and analysis of the financial situation of the enterprise has the indicator Net Working Capital. It implies the sum of current assets that were financed by the enterprise's own sources. In economic practice there exist 2 methods of Net Working Capital calculation:

1. ***Net Working Capital = Current Assets – Short-term Liabilities;***
2. ***Net Working Capital = Owner's Equity + Long-term Liabilities – Long-term Assets = Permanent Capital – Long-term Assets.***

It is no less important to study the working capital turnover ratio in order to use the current assets in a more efficient way.

The *working capital turnover ratio*, defined as

Working capital Turnover = Sales Revenues / Average Working Capital.

It is a summary ratio that reflects the amount of working (operating) capital needed to maintain a given level of sales. Only operating items should be used to compute this measure. Short-term debt, marketable securities, and excess cash should be excluded, as they are not required for operating activities.

The level and trends of turnover ratios provide information as to the validity of this assumption. Declining turnover ratios, indicating longer shell time for inventory and/or slower collection of receivables, could be indicators of reduced demand for a enterprise's products or of sales to customers whose ability to pay is less certain. This might signal one or more of the following:

1. The enterprise's income may be overstated because reserves are required for obsolete inventory or uncollectible receivables.
2. Future production cutbacks may be required.
3. Potential liquidity problems may exist.

The inverse of working capital turnover ratio (times 365) is sometimes used as a crud approximation of the financial cycle.

The commercial cycle of an enterprise is the sum of the number of days it takes to sell inventory and the number of days until the resultant receivables are converted to cash. If a enterprise operates without credit, it also represents the total number of days cash is tied up in operating assets.

To the extent an enterprise uses credit, the length of the financial commercial cycle is reduced. Subtracting the number of days of payables outstanding from the commercial cycle results in the enterprise's financial cycle, the number of days an enterprise's cash is tied up by its current commercial cycle. The financial cycle captures the interrelationship of sales, collections, and trade credit in a manner that the individual numbers may not. The shorter the cycle, the more efficient the enterprise is operations and cash management.

Example:

Following exhibit presents the commercial and financial cycles. This analysis illustrates the importance of examining the relationship among financial cycle components (Appendix 1,2,3).

Table 49

The analysis of the commercial and financial cycle

Indicators	Previous year	Current year	Absolute difference (+;-), lei
1. Average value of inventories, lei	2057241,5	1549784,5	-507457
2. Average value of receivables, lei	1549857,5	3166149,5	+1616292,0
3. Average value of liabilities, lei	2371070,5	2053483	-317577,5
4. Inventory Turnover	6,277	10,337	+4,06
4.1. No. of days	*58*	*35*	*-23*
5.Receivables Turnover	11,93	6,90	-5,03
5.1. No. of days	*31*	*53*	*+22*
6. Commercial cycle [r.5.1+r.4.1]	***89***	***88***	***+1***
7. Liabilities Turnover	7,495	10,783	+3,288
7.1. No. of days	*49*	*34*	*-15*
8. Financial cycle [r.6-r.7.1]	***40***	***54***	***+14***

Inventory turnover improved over this period, receivables turnover declined sharply. It reflects a poor operating performance. As a result, both the commercial cycle and financial cycle lengthened considerably over the period.

6.3. Liquidity Ratios Analysis

Liquidity ratios are probably the most commonly used of all the business ratios. They are ratios that come off the Balance Sheet and hence measure the liquidity of the enterprise as on a particular day i.e. the day that the Balance Sheet was prepared.

Liquidity ratios provide information about an enterprise's ability to meet its short-term financial obligations. Companies will generally pay their interest payments and other short-term debts with current assets. Therefore, it is essential that an enterprise have an adequate surplus of current assets in order to meet their current liabilities. If an enterprise has only illiquid assets, it may not be able to make payments on their debts.

They are of particular interest to those extending short-term credit to the enterprise. The creditors may often be particularly interested in these because they show the ability of the business to quickly generate the cash needed to pay the bills. This information should also be highly interesting, since the inability to meet the short-term debts would be a problem that deserves the immediate attention. Liquidity ratios are commonly examined by banks when they are evaluating a loan application. Once you get the loan, your lender may also require that you continue to maintain a certain minimum ratio, as part of the loan agreement. For that reason, steps to improve the liquidity ratios are sometimes necessary.

To measure an enterprise’s ability to meet such short-term obligations, various ratios have been developed.

In economic process the following liquidity ratios are applied:

Current Ratio measures an enterprise’s ability to pay their current obligations. The greater extent to which current assets exceed current liabilities, the easier an enterprise can meet its short-term obligations. It is regarded as a test of liquidity for a company. Short-term creditors prefer a high current ratio since it reduces their risk. Shareholders may prefer a lower current ratio so that more of the enterprise’s assets are working to grow the business. Typical values for the current ratio vary by enterprise and industry. For example, enterprises in cyclical industries may maintain a higher current ratio in

order to remain solvent during downturns, therefore its safety level is from 2,0 to 2,5.

The Current Ratio is obtained by dividing the Total Current Assets of an enterprise by its Total Current Liabilities:

Current Ratio = Total Current Assets/ Total Current Liabilities

Example:

Taking the initial data from the Balance Sheet (Appendix 2), let's determine Current Ratio.

Table 50

The liquidity ratios calculation

Indicators	**Previous year**	**Current year**	**Absolute difference (+;-)**	**Safety level**
A	1	2	3	4
Current ratio	2,35	5,57	+3,22	2,0 – 2,5

The enterprise has 5,57 lei of Current Assets to meet 1,00 lei of its Current Liability in current year more by 3,22 than in previous one.

After calculating the Current Ratio for an enterprise, you should compare it with other companies in the same industry. A ratio lower than that of the industry average suggests that the company may have liquidity problems. However, a significantly higher ratio may suggest that the company is not efficiently using its funds. A satisfactory Current Ratio for a company will be within close range of the industry average.

Quick Ratio. Sometimes an enterprise could be carrying heavy inventory as part of its current assets, which might be obsolete or slow moving. Thus eliminating inventory from

current assets and then doing the liquidity test is measured by this ratio. The ratio is regarded as an acid test of liquidity for an enterprise. It expresses the true 'working capital' relationship of its cash, accounts receivables, prep aids and notes receivables available to meet the enterprise's current obligations. Like the Current Ratio, to have an Acid Test Ratio within close range to the industry average is desirable. Its safety level is from 0,8 to 0,7.

This ratio is obtained by dividing the Total Quick Assets of an enterprise by its Total Current Liabilities. The current assets used in the quick ratio are cash, accounts receivable and short term investments.

Quick Ratio = Total Quick Assets/ Total Current Liabilities,

where ***Quick Assets = Total Current Assets – Inventory – Other Current Assets.***

Example:

Taking the initial data from the Balance Sheet (Appendix 2), let's determine Quick Ratio.

Table 51

The liquidity ratios calculation

Indicators	Previous year	Current year	Absolute difference (+;-)	Safety level
A	1	2	3	4
Quick ratio	1,66	4,46	+2,80	0,7 – 0,8

The enterprise has 4,46 lei of Quick Assets to meet 1,00 lei of its Current Liability in current year, more by 2,80 than in previous one.

Cash Ratio is the most conservative liquidity ratio. It excludes all current assets except the most liquid: cash and cash equivalents. The cash ratio is an indication of the

enterprise's ability to pay off its current liabilities if for some reason immediate payment were demanded. Its safety level is from 0,2 to 0,25.

The formula of Cash Ratio is:

Cash Ratio = Cash / Total Current Liabilities.

Example:

Taking the initial data from the Balance Sheet (Appendix 2), let's determine Cash Ratio.

Table 52

The Cash Ratio calculation

Indicators	**Previous year**	**Current year**	**Absolute difference (+;-)**	**Safety level**
A	1	2	3	4
Cash ratio	0,97	1,24	+0,27	0,2 – 0,25

The enterprise has 1,24 lei of Cash to meet 1,00 lei of its Current Liability in current year, more by 0,27 than in previous one. The level of this ratio much more overcomes its safety level.

The current, acid test and cash ratios should be put side-by-side to help us to understand what is happening to the business.

Additionally, all the ratios have increased over the two year period, meaning that the enterprise has a stronger liquidity position than it had before. Normally that is a good thing. So, the ratios of the enterprise attained the optimal level in previous year (the enterprise was able to obtain long-term and short-term credits, being solvent). On the other hand, the liquidity ratios overrun their safety level in current year, meaning that the assets of the enterprise have an irrational structure.

Liquidity analysis, moreover, is not independent of activity analysis. Poor receivable or inventory turnover limits the usefulness of the current and quick ratios. Obsolete inventory or uncollectible receivables are unlikely to be sources of cash. Thus, levels and changes in short-term liquidity ratios over-time should be examined in conjunction with turnover ratios.

We still need to know whether previous year ratios and current year one are good results, though.

For this enterprise, there has been a major turnaround between the two years as the ratios have increased. Look at the accounting information from the appendix and you can see that whilst the business has increased its sales by 18,08% over the two years, its stocks have raised by 54,19%; debtors have decreased by 58,52%.

As always, we have to point out that we only have two years' worth of data so any conclusions we can draw have to be done cautiously.

At the end, it can be said that the following liquidity ratios are all designed to measure an enterprise's ability to cover its short-term obligations. These tools will be invaluable in making wise investment decisions.

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8. APPENDIXES

Appendix 1

Balance Sheet

31 December 2009 (lei)

No.	ACTIV	Cod rd.	At the end of the current year (La finele perioadei de gestiune curente)	At the end of the previous year (La finele anului de gestiune precedent)
1.	2	3	4	5
1.	Long-term Assets (Active pe termen lung)			
1.1	Intangible Assets (Active nemateriale)			
	Intangible Assets (Active nemateriale) (111,112)	010	9212	7962
	Amortization of intangible assets (113)	020	(8120)	(6747)
	Book value of intangible assets (Valoarea de bilant a activelor nemateriale) (rd.010-rd.020)	030	1092	1215
1.2	Long-term Tangible assets (Active materiale pe termen lung)			
	Tangible Assets in Process (Active materiale în curs de execuţie) (121)	040	58747	58747
	Land (Terenuri) (122)	050		
	Fixed Assets (Mijloace fixe) (123)	060	36570550	35395669
	Natural Resources (Resurse naturale) (125)	070		
	Depreciation and depletion of Long-term tangible assets (Uzura şi epuizarea activelor materiale pe termen lung) (124, 126)	080	(20422762)	(18952947)
	Book value of Long-term Tangible assets (Valoarea de bilanţ a activelor materiale pe termen lung) (rd.040+rd.050+rd.060+rd.070-rd.080)	090	16206535	16501469
1.3	Long-term financial assets (Active financiare pe termen lung)			
	Long-term Investments in Unrelated Parties (Investiţii pe termen lung în părţi nelegate) (131)	100	100542	4970058
	Long-term Investments in Related Parties (Investiţii pe termen lung în părţi legate) (132)	110	-	-
	Changes in value of Long-term Investments (Modificarea valorii investiţiilor pe termen lung) (133)	120		
	Long-term Receivables (Creanţe pe termen lung) (134)	130		
	Deferred Tax Assets (Active amânate privind impozitul pe venit) (135)	140	69680	-

	Long-term Prepayments Made (Avansuri acordate) (136)	150		
	Total s.1.3 (rd.l00+rd.ll0±rd.l20+rd.l30+rd.l40+rd.l50)	160	170222	497058
1.4	Other Long-term Assets (Alte active pe termen lung) (141,142)	170		
	Total chapter 1 (rd.030+rd.090+rd.l60+rd.l70)	180	16377849	1699742
2.	Current Assets (ACTIVE CURENTE)			
2.1	Inventories (Stocuri de mărfuri şi materiale)			
	Materials (Materiale) (211)	190	1473048	1729566
	Livestock for Raising and Fattening (Animale la creştere şi îngrăşat) (212)	200		
	Low-value and Short-life Items (Obiecte de mică valoare şi scurtă durată) (213-214) .	210	100977	134006
	Work-in-Process (Producţie în curs de execuţie) (215)	220	42938	22974
	Products (Produse) (216)	230	240768	311716
	Goods (Mărfuri) (217)	240	22468	36021
	Total s. 2.1 (rd.l90+rd.200+rd.210+rd.220+rd.230+rd.240)	250	1880200	2234283
2.2	Short-term Receivables (Creanţe pe termen scurt)			
	Short-term Trade Receivables (Creanţe aferente facturilor comerciale) (221)	260	1419669	772180
	Allowance for Doubtful Debts (Corecţii la datorii dubioase) (222)	270	( )	( )
	Short-term Receivables from Related Parties (Creanţe ale părţilor legate) (223)	280		
	Short-term Prepayments Made (Avansuri acordate) (224)	290	87809	18524
	Short-term Receivables on Settlements with the Budget (Creanţe privind decontările cu bugetul) (225)	300	25748	44965
	VAT Recoverable (Taxa pe valoarea adăugată de recuperat) (226)	310	247568	359567
	Short-term Receivables from Employees (Creanţe ale personalului) (227)	320	16111	11572
	Short-term Receivables on income Accrued (Creanţe privind veniturile calculate) (228)	330	17977	34288
	Other Short-term Receivables (Alte creanţe pe termen scurt) (229)	340	41790	1947
	Total s. 2.2 (rd.260-rd.270+rd.280+rd.290+rd.300+ rd.310+rd.320+rd.330+rd.340)	350	1856672	1243043
2.3	Short-term Investments (Investiţii pe termen scurt)			
	Short-term Investments in Unrelated Parties (Investiţii pe termen scurt în părţi nelegate) (231)	360		

	Short-term Investments in Related Parties (Investiţii pe termen scurt în părţi legate) (232)	370		
	Decrease in Value of Short-term Investments (Diminuarea valorii investiţiilor pe termen scurt) (233)	380	( )	( )
	Total s. 2.3 (rd.360+rd.370-rd.380)	390		
2.4	Cash (Mijloace băneşti)			
	Cash in Hand (Casa) (241)	400	11934	4410
	Settlements Account (Conturi curente in moneda nationala) (242)	410	39357	238290
	Foreign Exchange Account (Conturi curente in valuta straina) (243)	420	2599982	541391
	Other Cash (Alte mijloace băneşti) (244, 245, 246)	430		
	Totals.2.4 (rd.400+rd.410+rd.420+rd.430)	440	2651273	784090
2.5	Other Current Assets (Alte active curente) (251,252)	450	15199	10224
	TOTAL chapter 2 (rd.250+rd.350+rd.390+rd.440+rd.450)	460	6403344	4771641
	TOTAL GENERAL-ASSET (rd.l80+rd.460)	470	22781193	21271383
	PASIV			
3.	Owner's Equity (CAPITAL PROPRIU)			
3.1	Statutory and Additional Capital (Capital statutar şi suplimentar)			
	Statutory Capital (Capital statutar) (311)	480	9850332	9850332
	Additional Capital (Capital suplimentar) (312)	490		
	Unpaid Capital (Capital nevărsat) (313)	500	( )	( )
	Withdrawn Capital (Capital retras) (314)	510		
	Total s.3.1 (rd.480+rd.490-rd.500-rd.510)	520	9850332	9850332
3.2	Reserves (Rezerve)			
	Legal reserves (Rezerve stabilite de legislaţie) (321)	530	40733	7935
	Statutory Reserves (Rezerve prevăzute de statut) (322)	540	2035472	1819653
	Other Reserves (Alte reserve) (323)	550	5553169	6810163
	Total s. 3.2 (rd.530+rd.540+rd.550)	560	7629374	8637751
3.3	Retained Earnings (Deficit) (Profit nerepartizat (pierdere neacoperită))			
	Adjustment on Results of Prior Periods (Corectarea rezultatelor perioadelor precedente) (331)	570		
	Retained Earnings (deficit) of Prior Years (Profitul nerepartizat (pierderea neacoperită) al anilor precedenţi) (332)	580	2121748	215819
	Net Profit (loss) of the Reporting Period (Profitul net (pierderea) al perioadei de gestiune) (333)	590		
	Used Profit of the Reporting Period (Profit utilizat al anului de gestiune) (334)	600	( )	( )
	Total s. 3.3 (±rd.570±rd.580±rd.590-rd.600)	610	2121748	215819

3.4	Non-Owner's Equity (Capital secundar)			
	Differences on Revaluation of Long-term Assets (Diferenţe din reevaluarea activelor pe termen lung) (341)	620		
	Subsidies (Subvenţii) (342)	630		
	Total s. 3.4 (±rd.620+rd,630)	640		
	TOTAL chapter 3 (rd.520+rd.560±rd.610±rd.640)	650	19601454	18703902
4.	Long-term Liabilities (DATORII PE TERMEN LUNG)			
4.1	Long-term Financial Liabilities (Datorii financiare pe termen lung)			
	Long-term Bank Credits (Credite bancare pe termen lung) (411,412)	660		
	Long-term Loans (Împrumuturi pe termen lung) (413)	670		
	Other Long-term Financial Liabilities (Alte datorii financiare pe termen lung) (414)	680		
	Total s.4.1 (rd.660+rd.670+rd.680)	690		
4.2	Long-term Accrued Liabilities (Datorii pe termen lung calculate)			
	Long-term Lease Liabilities (Datorii de arendă pe termen lung) (421)	700		
	Long-term Deferred Income (Venituri anticipate pe termen lung) (422)	710		
	Target Financing and Receipts (Finanţări şi încasări cu destinaţie specială) (423)	720		
	Long-term Prepayments receipts (Avansuri primite) (424)	730		
	Deferred Tax Liabilities (Datorii amânate privind impozitul pe venit) (425)	740	334844	226233
	Other Long-term Accrued Liabilities (Alte datorii pe termen lung calculate) (426)	750	126001	318001
	Total s. 4.2 (rd.700+rd.710+rd.720+rd.730+rd.740+rd.750)	760	460845	544234
	Total chapter 4 (rd.690+rd.760)	770	460845	544234
5.	Short-term Liabilities (DATORII PE TERMEN SCURT)			
5.1	Short-term Financial Liabilities (Datorii financiare pe termen scurt)			
	Short-term Bank Credit (Credite bancare pe termen scurt) (511,512)	780		
	Short-term Loans (împrumuturi pe termen scurt) (513)	790		
	Current Portion of long-term Liabilities (Cota curentă a datoriilor pe termen lung) (514)	800		
	Other Short-term Financial Liabilities (Alte datorii financiare pe termen scurt) (515, 516)	810		
	Total s. 5.1 (rd.780+rd.790+rd.800+rd.810)	820		

5.2	Short-term Trade Liabilitiea (Datorii comerciale pe termen scurt)			
	Short-term Trade Liabilities (Datorii privind facturile comerciale) (521)	830	2090401	1111753
	Short-term Liabilities to Related Parties (Datorii faţă de părţile legate) (522)	840		
	Short-term Prepayments Received (Avansuri primite) (523)	850	2121	3358
	Total s. 5.2 (rd.8304+rd.840+rd.850)	860	2092522	1115111
5.3	Short-term Accrued Liabilities (Datorii pe termen scurt calculate)			
	Liabilities to Employees on Remuneration of Labor (Datorii privind retribuirea muncii) (531)	870	338107	338690
	Liabilities ti Employees for other Transactions (Datorii faţa de personal privind alte operaţii) (532)	880	2293	5919
	Liabilities on Insurance (Datorii privind asigurările) (533)	890	103986	171977
	Liabilities on Settlements with the Budget (Datorii privind decontările cu bugetul) (534)	900	176290	278521
	VAT and Excise Tax Accrued (Datorii preliminare) (535)	910		
	Non-budgetary Liabilities (Datorii privind plăţile extrabugetare) (536)	920		32798
	Liabilities to Founders and Other Co-founders (Datorii faţă de fondatori şi alţi participanţi) (537)	930		
	Provisions for Future Expenses and Payments (Rezerve pentru cheltuieli şi plăţi preliminare) (538)	940		
	Other Short-term Liabilities (Alte datorii pe termen scurt) (539)	950	5696	90231
	Total s. 5.3 (rd.870+rd.880+rd.890+rd.900+rd.910 +rd.920+rd.930+rd.940+rd.950)	960	629372	908136
	TOTAL chapter 5 (rd.820+rd.860+rd.960)	970	2718894	2023247
	TOTAL GENERAL-PASIV (rd.650+rd.770+rd.970)	980	22781193	21271383

Appendix 2

Balance Sheet

31 December 2010. (lei)

No.	ACTIV	Cod rd.	At the end of the current year (La finele perioadei de gestiune curente)	At the end of the previous year (La finele anului de gestiune precedent)
1.	2	3	4	5
1. 1.1	Long-term Assets (Active pe termen lung) Intangible Assets (Active nemateriale) Intangible assets (111,112)	010	2754	9212
	Amortization of intangible assets (113)	020	(1726)	(8120)
	Book value of intangible assets (Valoarea de bilant a activelor nemateriale) (rd.010-rd.020)	030	1028	1092
1.2	Long-term Tangible assets (Active materiale pe termen lung) Tangible Assets in Process (Active materiale în curs de execuţie) (121)	040	58747	58747
	Land (Terenuri) (122)	050		
	Fixed Assets (Mijloace fixe) (123)	060	36748755	36570550
	Natural Resources (Resurse naturale) (125)	070		
	Depreciation and depletion of Long-term tangible assets (Uzura şi epuizarea activelor materiale pe termen lung) (124, 126)	080	(22736572)	(20422762)
	Book value of Long-term Tangible assets (Valoarea de bilanţ a activelor materiale pe termen lung) (rd.040+rd.050+rd.060+rd.070-rd.080)	090	14070930	16206535
1.3	LONG-TERM FINANCIAL ASSETS (ACTIVE FINANCIARE PE TERMEN LUNG) Long-term Investments in Unrelated Parties (Investiţii pe termen lung în părţi nelegate) (131)	100	100542	100542
	Long-term Investments in Related Parties (Investiţii pe termen lung în părţi legate) (132)	110	1000000	-
	Changes in value of Long-term Investments (Modificarea valorii investiţiilor pe termen lung) (133)	120		
	Long-term Receivables (Creanţe pe termen lung) (134)	130		
	Deferred Tax Assets (Active amânate privind impozitul pe venit) (135)	140	67590	69680
	Long-term Prepayments Made (Avansuri acordate) (136)	150		

	Total s.1.3 (rd.l00+rd.ll0±rd.l20+rd.l30+rd.l40+rd.l50)	160	1168132	170222
1.4	Other Long-term Assets (Alte active pe termen lung) (141,142)	170		
	Total chapter 1 (rd.030+rd.090+rd.l60+rd.l70)	180	15240090	16377849
2. 2.1	Current Assets (ACTIVE CURENTE) Inventories (Stocuri de mărfuri şi materiale) Materials (Materiale) (211)	190	933438	1473048
	Livestock for Raising and Fattening (Animale la creştere şi îngrăşat) (212)	200		
	Low-value and Short-life Items (Obiecte de mică valoare şi scurtă durată) (213-214) .	210	114785	100977
	Work-in-Process (Producţie în curs de execuţie) (215)	220	57422	42938
	Products (Produse) (216)	230	76721	240768
	Goods (Mărfuri) (217)	240	37003	22468
	Total s. 2.1 (rd.l90+rd.200+rd.210+rd.220+rd.230+rd.240)	250	1219369	1880200
2.2	Short-term Receivables (Creanţe pe termen scurt) Short-term Trade Receivables (Creanţe aferente facturilor comerciale) (221)	260	920189	1419669
	Allowance for Doubtful Debts (Corecţii la datorii dubioase) (222)	270	( )	( )
	Short-term Receivables from Related Parties (Creanţe ale părţilor legate) (223)	280		
	Short-term Prepayments Made (Avansuri acordate) (224)	290	309468	87809
	Short-term Receivables on Settlements with the Budget (Creanţe privind decontările cu bugetul) (225)	300	26309	25748
	VAT Recoverable (Taxa pe valoarea adăugată de recuperat) (226)	310	239686	247568
	Short-term Receivables from Employees (Creanţe ale personalului) (227)	320	4182	16111
	Short-term Receivables on income Accrued (Creanţe privind veniturile calculate) (228)	330	20152	17977
	Other Short-term Receivables (Alte creanţe pe termen scurt) (229)	340	2955641	41790
	Total s. 2.2 (rd.260-rd.270+rd.280+rd.290+rd.300+ rd.310+rd.320+rd.330+rd.340)	350	4475627	1856672
2.3	Short-term Investments (Investiţii pe termen scurt) Short-term Investments in Unrelated Parties (Investiţii pe termen scurt în părţi nelegate) (231)	360		
	Short-term Investments in Related Parties (Investiţii pe termen scurt în părţi legate) (232)	370		

	Decrease in Value of Short-term Investments (Diminuarea valorii investiţiilor pe termen scurt) (233)	380	( )	( )
	Total s. 2.3 (rd.360+rd.370-rd.380)	390		
2.4	Cash (Mijloace băneşti) Cash in Hand (Casa) (241)	400	7482	11934
	Settlements Account (Conturi curente in moneda nationala) (242)	410	162630	39357
	Foreign Exchange Account (Conturi curente in valuta straina) (243)	420	1551877	2599982
	Other Cash (Alte mijloace băneşti) (244, 245, 246)	430		
	Totals.2.4 (rd.400+rd.410+rd.420+rd.430)	440	1721989	2651273
2.5	Other Current Assets (Alte active curente) (251,252)	450	316293	15199
	TOTAL chapter 2 (rd.250+rd.350+rd.390+rd.440+rd.450)	460	7733278	6403344
	TOTAL GENERAL-ASSET (rd.l80+rd.460)	470	22973368	22781193
	PASIV			
3. 3.1	Owner's Equity (CAPITALPROPRIU) Statutory and Additional Capital (Capital statutar şi suplimentar) Statutory Capital (Capital statutar) (311)	480	9850332	9850332
	Additional Capital (Capital suplimentar) (312)	490		
	Unpaid Capital (Capital nevărsat) (313)	500	( )	( )
	Withdrawn Capital (Capital retras) (314)	510		
	Total s.3.1 (rd.480+rd.490-rd.500-rd.510)	520	9850332	9850332
3.2	Reserves (Rezerve) Legal reserves (Rezerve stabilite de legislaţie) (321)	530	40733	40733
	Statutory Reserves (Rezerve prevăzute de statut) (322)	540	3760070	2035472
	Other Reserves (Alte reserve) (323)	550	5553169	5553169
	Total s. 3.2 (rd.530+rd.540+rd.550)	560	9353977	7629374
3.3	Retained Earnings (Deficit) (Profit nerepartizat (pierdere neacoperită)) Adjustment on Results of Prior Periods (Corectarea rezultatelor perioadelor precedente) (331)	570		
	Retained Earnings (deficit) of Prior Years (Profitul nerepartizat (pierderea neacoperită) al anilor precedenţi) (332)	580		2121748
	Net Profit (loss) of the Reporting Period (Profitul net (pierderea) al perioadei de gestiune) (333)	590	1930392	
	Used Profit of the Reporting Period (Profit utilizat al anului de gestiune) (334)	600	( )	( )
	Total s. 3.3 (±rd.570±rd.580±rd.590-rd.600)	610	1930392	2121748

3.4	Non-Owner's Equity (Capital secundar) Differences on Revaluation of Long-term Assets (Diferenţe din reevaluarea activelor pe termen lung) (341)	620		
	Subsidies (Subvenţii) (342)	630		
	Total s. 3.4 (±rd.620+rd,630)	640		
	TOTAL chapter 3 (rd.520+rd.560±rd.610±rd.640)	650	21134701	19601454
4. 4.1	Long-term Liabilities (DATORII PE TERMEN LUNG) Long-term Financial Liabilities (Datorii financiare pe termen lung) Long-term Bank Credits (Credite bancare pe termen lung) (411,412)	660		
	Long-term Loans (Împrumuturi pe termen lung) (413)	670		
	Other Long-term Financial Liabilities (Alte datorii financiare pe termen lung) (414)	680		
	Total s.4.1 (rd.660+rd.670+rd.680)	690		
4.2	Long-term Accrued Liabilities (Datorii pe termen lung calculate) Long-term Lease Liabilities (Datorii de arendă pe termen lung) (421)	700		
	Long-term Deferred Income (Venituri anticipate pe termen lung) (422)	710		
	Target Financing and Receipts (Finanţări şi încasări cu destinaţie specială) (423)	720		
	Long-term Prepayments receipts (Avansuri primite) (424)	730		
	Deferred Tax Liabilities (Datorii amânate privind impozitul pe venit) (425)	740	209579	334844
	Other Long-term Accrued Liabilities (Alte datorii pe termen lung calculate) (426)	750	240996	126001
	Total s. 4.2 (rd.700+rd.710+rd.720+rd.730+rd.740+rd.750)	760	450575	460845
	Total chapter 4 (rd.690+rd.760)	770	450575	460845
5. 5.1	Short-term Liabilities (DATORII PE TERMEN SCURT) Short-term Financial Liabilities (Datorii financiare pe termen scurt) Short-term Bank Credit (Credite bancare pe termen scurt) (511,512)	780		
	Short-term Loans (împrumuturi pe termen scurt) (513)	790		
	Current Portion of long-term Liabilities (Cota curentă a datoriilor pe termen lung) (514)	800		
	Other Short-term Financial Liabilities (Alte datorii financiare pe termen scurt) (515, 516)	810		
	Total s. 5.1 (rd.780+rd.790+rd.800+rd.810)	820		

5.2	Short-term Trade Liabilitiea (Datorii comerciale pe termen scurt) Short-term Trade Liabilities (Datorii privind facturile comerciale) (521)	830	298391	2090401
	Short-term Liabilities to Related Parties (Datorii faţă de părţile legate) (522)	840		
	Short-term Prepayments Received (Avansuri primite) (523)	850	5275	2121
	Total s. 5.2 (rd.8304+rd.840+rd.850)	860	303666	2092522
5.3	Short-term Accrued Liabilities (Datorii pe termen scurt calculate) Liabilities to Employees on Remuneration of Labor (Datorii privind retribuirea muncii) (531)	870	505096	338107
	Liabilities ti Employees for other Transactions (Datorii faţa de personal privind alte operaţii) (532)	880	2279	2293
	Liabilities on Insurance (Datorii privind asigurările) (533)	890	94976	103986
	Liabilities on Settlements with the Budget (Datorii privind decontările cu bugetul) (534)	900	482075	176290
	VAT and Excise Tax Accrued (Datorii preliminare) (535)	910		
	Non-budgetary Liabilities (Datorii privind plăţile extrabugetare) (536)	920		
	Liabilities to Founders and Other Co-founders (Datorii faţă de fondatori şi alţi participanţi) (537)	930		
	Provisions for Future Expenses and Payments (Rezerve pentru cheltuieli şi plăţi preliminare) (538)	940		
	Other Short-term Liabilities (Alte datorii pe termen scurt) (539)	950		5696
	Total s. 5.3 (rd.870+rd.880+rd.890+rd.900+rd.910 +rd.920+rd.930+rd.940+rd.950)	960	1084426	629372
	TOTAL chapter 5 (rd.820+rd.860+rd.960)	970	1388092	2718894
	TOTAL GENERAL-PASIV (rd.650+rd.770+rd.970)	980	22973368	22781193

Appendix 3

Income Statement

from 1 January 2010 to 31 December 2010

Indicators	Cod rd.	Current Period (Perioada de gestiune)	Corresponding period of previous year (Perioada corespunzătoare a anului precedent)
Sales Revenue (Venituri din vanzari) (611)	010	21835176	18491002
Cost of Sales (Costul vânzărilor) (711)	020	16020315	12910263
Gross Profit (Loss) (Profitul brut (pierdere globală)) (rd.010-rd.020)	030	5814861	5580739
Other Operating Incomes (Alte venituri operaţionale) (612)	040	1867564	1285950
Marketing and Selling Expenses (Cheltuieli comerciale) (712)	050	207105	193093
General and administrative Expenses (Cheltuieli generale şi administrative) (713)	060	3680803	3335183
Other Operating Expenses (Alte cheltuieli operaţionale) (714)	070	1734632	1121804
Result from Operating Activity (Rezultatul din activitatea operaţională: profit (pierdere)) (rd.030+rd.040-rd.050-rd.060-rd.070)	080	2059885	2216609
Result from the Investing Activity (Rezultatul din activitatea de investiţii: profit (pierdere)) (621-721)	090	26020	(263700)
Result from the Financial Activity (Rezultatul din activitatea financiară: profit (pierdere)) (622-722)	100	345985	421568
Result from the Economic Financial activity (Rezultatul din activitatea economico-financiară: profit(pierdere)) (± rd.080 ± rd.090 ± rd.100)	110	2431890	2374477
Extraordinary Result (Rezultatul excepţional: profit (pierdere)) (623-723)	120		
Profit (loss) before tax (Profitul (pierderea) perioadei de gestiune până la impozitare) (±rd.110±rd. 120)	130	2431890	2374477
Tax Expenses (Cheltuieli (economii) privind impozitul pe venit) (731)	140	501498	211157
Net Profit (Profit net (pierdere netă)) (± rd.130 ± rd.140)	150	1930392	2163320

Appendix 4

Additional data

Indicators	Previous year	Actual reporting year	
		plan	effective
1. Output, thousand lei	18552,0	19500,0	22135,0
2.Average number of employees, persons	354	300	290
3.Average number of workers, persons	297	230	239
4.Total number of man-days worked by all workers, thousand man-days	65,8	64,8	63,5
5. Total number of man-hours worked by all workers, thousand man-hours	454	455	450

Sub redacţia autorului,
Tel. 069182160