

ANALYSIS MODEL FOR RETURN ON CAPITAL EMPLOYED

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Abstract

At the microeconomic level, the appreciation of the capitals' profitability is a very complex action which is of interest for stakeholders. This study has as main purpose to extend the traditional analysis model for the capitals' profitability, based on the ratio "Return on capital employed". In line with it the objectives of this work aim the identification of factors that exert an influence on the capital's profitability utilized by a company and the measurement of their contribution in the manifestation of the phenomenon. The proposed analysis model is validated on the use case of a representative company from the agricultural sector. The results obtained reveal that in a company there are some factors which can act positively on the capitals' profitability: capital turnover, sales efficiency, increase the share of sales in the total revenues, improvement of the expenses' efficiency. The findings are useful both for the decision-making factors in substantiating the economic strategies and for the capital owners who are interested in efficiency of their investments.

Keywords: profitability, capital employed, profitability ratios, financial analysis

JEL classification : D24, L25

1.Introduction

In the market economy the economic decisions are based on the rational behaviour of the economic operators who primarily aim to maximize the utility function of the capital employed within the business in order to obtain the highest profit.

The appreciation of the capital employed profitability is a complex action that concerns the relationships with the business environment, the efficiency expected by investors, the dynamics of company's performance etc.

The economic-financial analysis provides the means for studying the profitability through measurement of its level and identification of factors that can lead to the modification of the companies' economic performance. In this way the policy makers benefit from useful information for substantiating their decisions concerning mobilisation of internal resources and opportunities raised from the external environment to increase profitability.

The analysis of the capitals' profitability has to begin with the total capitals managed by a company and the profit obtained from their utilisation. The relative measurement of the profitability is also important because using profitability rates, companies could have the necessary information for comparing the cost of capitals with the results expected by stakeholders.

This paper presents an extended analysis model for the profitability of the total capitals utilized by the business using the ratio "Return on capital employed" (ROCE). This indicator measures how well a company is using its money to generate returns. On this turn ROCE depends on indicators "Return on sales" (ROS) and "Capital turnover ratio" (CTR). The initial expression of model is broken down in order to assess the influence of other factors that could act through Return on sales

The presented case study is based on the financial situations of a representative agricultural holding of the Alba County (Romania) and it was useful in validating the analysis model proposed. The research results reveal that in the analyzed period the company had increased the capitals' profitability and the influence factors point out the action directions for further improvement of profitability.

The nature of ROCE, its calculation and analysis serve as a reliable measure of corporate performance. It helps investors see through growth forecasts, being a very useful tool in calculating the efficiency and profitability of capital investments in company, and for identification of those areas which are central for maintenance and growth of resources and performance.

The analysis model proposed in the paper is original and it contributes especially to the development of the economic practice in the area of the management of the capitals' profitability on the short term. Its novelty consists in developing the classical analysis model of the Return on the capital employed. The classical model decomposes the ratio in two factors namely "Return on sales" and "Capital turnover ratio", for which the contributions to the profitability formation are measured. The new model extends the analysis scheme with other elements which can impact on the profitability: "Sales on total revenue" and "Expense to revenue ratio". For achieving the goals of the

paper the economic-financial analysis techniques were used: dynamic indicators for studying the trends of the economic variables, relative indicators to make comparisons between economic entities, the DuPont analysis method for identifying the influence factors, financial statement analysis and ratio analysis.

2. Literature review

Profitability represents one of the expression forms of economic efficiency having a high synthesis power. It includes all the economic-financial aspects of companies and is a reference indicator in substantiating the decisional actions and for the corporate behavioural orientation in order to satisfy the stakeholders' interests [4]. This is why the specific literature supplies many studies concerning the profitability analysis.

Often the profitability is associated with the notion of economic performance, which is evaluated in accordance with a benchmark level of the objectives and expected results [2]. However, we consider that the meaning of the two notions is not the same. The profitability is not only an essential component of the economic performance, it represents the final purpose of the companies' functioning and the principal condition for their economic existence and maintenance in the competitive market economy.

Achieving of a high profitability in the long run requires a stable financial equilibrium, which has to ensure the permanent compensation and coverage of the debts by current revenues [5]. For this reason the sales intervene in the majority of the analysis models of profitability.

It is normal that the modality of formation and utilisation of own or borrowed capitals influences the companies' profitability. From this perspective there are some studies that present the relationship between capital structure and the companies' profitability [10], [9] or relationship between efficiency level of working capital management and profitability [6].

The appreciation of the profitability can be made with either the absolute amount of profit or using the relative figures as profitability ratios. The use of ratios allows the analyst to develop a set of statistics that reveal key financial characteristics of the organization under scrutiny. Profitability ratios are designed to measure the earning power and profitability recorded by the company [7].

The rate of Return on capital employed is a central concept in financial analysis. The level of this rate highlights the financial performance and helps to assess the desirability of a project and to make decisions on the valuation of firms [8]. Return on capital employed was used by Bardia S.C. (2008) for examining whether the companies have been able to create value for their shareholders.

3. Developing the analysis model for Return on capital employed

Considered as one of the most important indicators for appreciating the profitability at the microeconomic level, "Return on capital employed" expresses the firm's capacity to obtain profit from its own capitals and borrowed ones, which have been invested in activity. For shareholders the level of ROCE indicates how well the firm's management can create value in order to recompense them. Approaching the indicator as a form of profitability measured before taxing, the ROCE expression is [1]:

$$ROCE = \frac{GP}{CE} \quad (1)$$

where: GP represents gross profit;
CE - capital employed;

In order to study the action of the other significant elements for the profitability manifestation, the formula of Return of capital employed is expressed with the indicators „Return on sales" (ROS) and „Capital turnover ratio" (CTR). They are factors that exert a direct action on ROCE. The firm's profitability will increase concomitant with improvements of efficiency in the production and commercialisation activity. A favourable impact has also the rapidity with which the utilised capitals can contribute to achieving a certain amount of sales.

$$ROCE = \frac{GP}{S} \cdot \frac{S}{CE} = ROS \cdot CTR \quad (2)$$

where: S represents sales (turnover);
CTR - capital turnover ratio (S/CE).

Having in view the other efficiency aspects that can influence the manifestation in time of the profitability, the rate "Return on sales" is decomposed in the indicators: "Sales on total revenue-SR" and "Expense to revenue ratio-ERR".

For many of the firms the sales represent the business' key, so that they developed a sales-focused corporate culture. In this line, the indicator Sales on total revenue shows the measure in which a firm achieves its revenue by selling the goods and services. Expense to revenue ratio is an efficiency ratio that reveals the quality of resource management provided from the modality of controlling expenses.

$$ROCE = \frac{1 - \frac{E}{R}}{\frac{S}{R}} \cdot CTR \quad (3)$$

$$ROC = \frac{1 - ERR}{SR} \cdot CTR$$

where: E represents expenses;
R - total revenue;

In following, the relations for factors analysis are developed in dynamic to study the phenomenon evolution and its specific manifestation forms.

The modification of profitability due to the concomitant action of all factors:

$$\Delta ROCE = ROCE_1 - ROCE_0$$

1. Influence of the changes in the Capital turnover ratio:

$$\Delta ROCE(CTR) = ROS_0 \cdot \Delta CTR$$

2. Influence of variation in the rate Return on sales:

$$\Delta ROCE(ROS) = \Delta ROS \cdot CTR_1$$

by which:

- 2.1. Influence of variation of indicator Sales on total revenue:

$$\Delta ROCE(SR) = \left(\frac{1 - ERR_0}{SR_1} - \frac{1 - ERR_0}{SR_0} \right) \cdot CTR_1$$

- 2.2. Influence of modification of the Expense to revenue ratio:

$$\Delta ROCE(ERR) = \frac{-\Delta ERR}{SR_1} \cdot CTR_1$$

The presented analysis model allows a more analytical assessment of some economic elements which impact the formation and manifestation of the capitals' profitability in a given period of time.

The classical analysis method considers that the variation of the Return on capitals employed is provided by the action of two direct factors, namely, Capital turnover ratio and Return on sales. In comparison with it, the model proposes to introduce two supplementary factors that act on the phenomenon through Return on sales indicator.

4. Results and discussions

In order to highlight the information power of the analysis model presented in the paper, this is used for studying the capitals' profitability for one firm which functions in the animal branch in the Alba County (Romania).

The company selection was made based on the main financial indicators in comparison with those of the other firms in the same branch. Studied data concerns the activity of the selected companies for 1999-2009. All firms have as common characteristics the type of activity and a number of employees greater than 10 for a period of at least on year. Information was provided by a publicly database which contains the greatest catalogue of Romanian companies (www.totalfirme.ro).

The economic-financial situation of the firm and its positioning against the average indicators of the animal sector at the county level is presented in the table 1.

Table 1. Position of the selected company in animal branch, Alba County, 1999-2009

Indicators	Mean	Maxim	Minim	Sector average	Firm selected/Sector average
Sales (RON)	96353469	3.04E+08	5124263	9123806	10.6
Revenues (RON)	1.05E+08	3.33E+08	5366668	10244670	11.5
Expenses (RON)	95345983	3.16E+08	5018232	9556750	10.0
Net income (loss) (RON)	7976155	19372083	41794	582563	13.7
Employees, persons	430.6	838	190	55.1	7.8
Inventory (RON)	15421292	57472184	580075	1805226	8.6
Cash and bank accounts (RON)	827703.7	1241602	181484	153568.1	5.4
Receivables (RON)	11366219	48479039	8966	1267227	8.9
Total capitals (RON)	61171038	1.86E+08	4261524	4978334	12.3
Social capital (RON)	11342397	36481776	3747880	1278060	8.9

Source: www.totalfirme.ro

From table 1, it can be observed that within the analysed period the selected firm had significant economic power, running its activity with an average number of employees of 430 persons; that means it had ensured over 7.8 times more work places against the sector average. The average sales was 96.3 millions lei having a continuously increasing trend from the minimum level of 5.1 millions in 1999 until the present maximum level of 304 millions lei. The net income of company had an average of 7.9 millions lei registering a maximum of 19.3 millions lei (2007) and a minimum of 0.04 millions lei (2003). The total capitals were of an average of 61.1 millions with the highest value of 186 millions lei (2008) and the lowest value of 4.2 millions (2000).

In the case of all financial indicators of the selected company, their amount was greatly above the average level of the sector: sales of the company were 10.6 times greater, the profit was bigger by 13.7 times and the capitals employed were higher than sector average by 12.3 times. The evolution of the main indicators of results is presented in the figure 1.

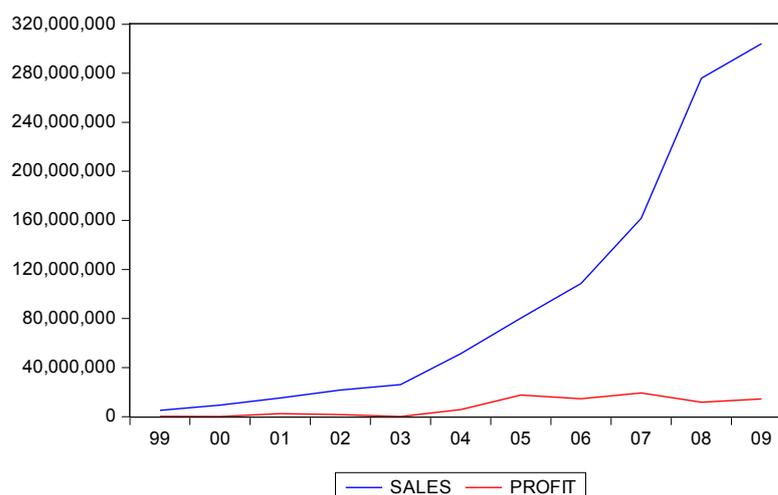


Figure 1. Dynamic of the financial results indicators, 1999-2009

In order to make the dynamic analysis of the profitability, the financial statements of the representative company in the animal production branch were used. Utilizing the financial ratios method, some indicators with significance for capitals' profitability analysis were calculated. The data are presented in table 2.

Table 2. The economic-financial situation of company, 2008 and 2009

Indicators	Symbol	2008	2009	Absolute changes	Dynamic 2009/2008
Gross profit	GP	13567740	17234825	3667085	127.0
Sales (RON)	S	275904837	304178862	299054599	110.2
Revenues (RON)	R	294830658	333377017	328010349	113.1
Expenses (RON)	E	281262918	316142192	311123960	112.4
Total capitals (RON)	TC	186132192	174144952	169294436	93.5
Return on sales (%)	ROS	4.9	5.7	0.8	116.3
Capital turnover ratio	CTR	1.48	1.75	0.27	117.6
Expense to revenue ratio (%)	ERR	0.954	0.948	-0.006	99.4
Sales on total revenue (%)	SR	93.6	91.2	-2.4	97.4
Return on capital employed (%)	ROCE	7.3	9.9	2.6	135.6

Source: www.totalfirme.ro; data calculated

The application of the analysis model led to the following results presented in synthesis in table 3.

Table 3. Contribution of influence factors to profitability' variation

Specification	Symbol	Impact of factor son the capitals' profitability (%)
$\Delta ROCE = 2.6\%$		
Influence factors		
Capital turnover ratio	$\Delta ROCE(CTR)$	1.3
Return on sales (%)	$\Delta ROCE(ROS)$	1.4
Sales on total revenue (%)	$\Delta ROCE(SR)$	0.2
Expense to revenue ratio (%)	$\Delta ROCE(ERR)$	1.2

The analysis of the economic-financial situation of the agricultural holding reveals that the company managed well its resources in the short term. The sales had increased with 10.2% and profit with 27%, although the total capital employed had diminished with 6.5%. The profitability of capitals used in production had increased from the level of 7.3% in 2008 to 9.9% in 2009. This means that during the two years the firm improved its potential of economic-financial growth with 2.6%, proving the existence of a real capacity to valorise with efficiency all capitals and create value added for stakeholders.

In the analysed period the revenues had a growth rate higher than the growth rate of expenses that being a favourable aspect which led to the reduction of Expense to revenue ratio with -0.6%. An unfavourable aspect was the modification of the sales structure; in 2009 the share of sales in the total revenues was lower with -2.4% compared with the indicator level in the previous year.

The results obtained by the application of the dynamic model highlight the contribution of some factors to the increase of capitals' profitability. The two direct influence factors have exerted a positive impact on ROCE. The indicator Capital turnover ratio acted positive and determined an increasing of ROCE with 1.3%. Also, the rate of sales efficiency influenced favourable the firm's profitability so that Return on sales generated a growth of ROCE with 1.4%.

The modification of the revenues structure, although it consisted in reducing the share of sales in the total revenues, it did not have a negative impact and led to a capitals' profitability increase by 0.2%. Improvement of the expenses' efficiency, suggested by the reducing of the Expense to revenue ratio increased profitability with 1.2%.

5. Conclusions

The factors by which a firm's capitals' profitability depends are numerous and they are related with the totality of the internal and external constraints. In order for a company to be seen by its partners as an opportunity and a viable alternative concerning the capital allotment, it has to be attractively in the long term for its shareholders. It has to suggest the perspective of good functioning and efficient management of resources, providing in this way its capacity to create value.

The factors analysis model operationalized on the case of a company from the agricultural production branch has put in evidence some essential aspects that have to substantiate the managerial decisions for the profitability increase.

An important condition for improving the economic-financial potential of a firm is the efficient management of all the production factors used in activity. Profitability will increase if the firm is able to use with rationality its resources, so that from the revenues obtained it covers all expenses and achieves profit. In this sense, the indicator Expense to revenue provides a suggestive picture for the efficiency of expenses, having a direct impact on the profitability.

Considering the permanent relation of a company with the competitive environment of the market, an important factor that could stimulate its growth of the economic potential is the efficiency of commercialisation activity. The indicator Return on sales suggests that efficiency will grow along with improvement in resource administration, this being dependent both on reducing the expenses to revenues ratio and on increasing the sales' share in the total revenues.

An important contribution to the growth of the economic potential has the rapidity with which the capitals used in production generate value. A high level of indicator Capital turnover ratio suggests utilisation with a better efficiency of capitals and an increased potential of earning for investors. Having a better use of invested capitals (own and borrowed) the firm's capacity to generate profit will be improved and the profitability increases.

The implications resulting from the action of the various influence factors on the profitability constitute some constraints related to the specificity of the economic environment where firms act, they being also the main directions on which the managers should concentrate. The identification of the influence factors, knowing the sense of their action and their relationship, creates the conditions for monitoring them and taking decisions based on rational economic-financial criteria.

The originality of this research consists in completing the classical analysis model for the Return on capital employed with two new influence factors, namely "Sales on total revenue" and "Expense to revenue ratio". We intend that a future research to test the appropriateness of the model on an important number of representative companies in an economic sector. In this way it can identify some main directions concerning the profitability increasing at the whole sector level of economy.

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