EMPIRICAL STUDY ON THE SOLUTIONS FOR RENDERING THE ACTIVITIES OF THE ROMANIAN AGRICULTURAL COMPANIES MORE EFFECTIVE

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Abstract

The characteristics of the current economic environment, where the fight for profit becomes harsher by the day, determine the autochthonous agricultural companies to face significant pressures, generated by the global food market. This is the effect of the compromises made in accepting, both at the level of international legislation and at the level of the final consumer, of synthetic products and genetically modified cultures. Also, the strong specialization completed by the technological and technical "flexibility" of the international companies imposes on Romanian organizations competitive restrictions concerning the sale prices of the products. In this context, a dynamic adaptation of the business plans is necessary, as the competitive market does not allow any deviation from the correct dimensioning of the resources invested into the activity, from the cautious management of the operational activity or the optimum level of work productivity. The present study aims, based on a sample of 40 BSE quoted companies, to analyze the extent to which organizational performance is determined by the volume of the investments, by the size of the stocks, by the degree of integration of the economic cycle, and by the level of work productivity. The specificity of the activity is taken into account in the analysis, as it decisively influences the considered factors. The results of the study reveal a positive association of the degree of integration of the economic cycle with the net profit, while a high weight of the stocks in the total assets determines a decrease in it. Higher productive investments, together with an increase in work effectiveness, imply achieving superior economic benefits. In order to obtain the results of the research, the following tools have been used: the ratio analysis, the multiple correspondences factor analysis, and the multiple linear regression analysis with category variables (ANCOVA). The data were processed using SPSS 19.0 statistic software.

Key words: economic effectiveness, degree of integration of the economic cycle, investment policies, work productivity

The Romanian economic environment faces, at present, high competitive pressures, generated by the diversity of the international supply of goods and services, and by the modification of the demand of the autochthonous consumers. These influences determined a significant remodeling of the structure of the Romanian economy, both at the level of the activity fields and at the profile of the economic agents.

In this context, major difficulties affect the Romanian agricultural sector and the food industry, and numerous traditional units had to, or were "coordinated" to stop their activity. This is the effect of compromises made in accepting, both at the level of international legislation and at that of the final user, of synthetic products and genetically modified cultures. Also, the strong specialization completed by the technological and technical "flexibility" of international companies, impose on Romanian companies competitive restrictions in what concerns the sales prices of the products. Romanian agricultural companies have to dynamically adapt their business plans, as the competitive market allows no deviation from the correct sizing of the resources invested in the activity, from the cautious management of the operational activity or the optimum level of work productivity. The sustainability of the economic activity depends, in essence, by obtaining profit to a volume that pays the investors in a satisfactory manner, as this is the only way to preserve their participation in the company's capital. The investment policy, reflected through the fixed asset ratio, brings a significant contribution to shaping the economic and financial performance level of the entity. An oversized investment volume, without a strict correlation to the productive needs, frequently encountered in Romanian companies, can deprive other poor activity areas of financial resources. An increase in the weight of the fixed assets in the total assets reflects a favorable situation when, in parallel, there is an increase of

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the sales figure, as an effect of the investment in new production capacities (Mironiuc, M., 2009). Most of the participation of the fixed assets into the total means used by the company, to the detriment of the floating assets, may determine a decrease in its flexibility, with major consequences on the possibility of adaptation to the changes in the external environment. This is caused by the low degree of liquidity that characterizes fixed assets, in comparison to other patrimony elements. Under these restrictions generated by the companies' need to adapt to the requirements of the market economy, the correct dimensioning of the staff schema is another variable that influences the level of the expected results. However, in this sense, conditions are set by the specificity of the performed activity and by the actuality of the technical equipment. Without denying the importance of the human factor, the increase in the work productivity, through the adoption of the newest technologies, is an essential condition for Romanian companies. The management of stocks of raw materials, finite materials and products, is an element that can separate the performance of a company from its bankruptcy, as from its sizing there come a series of competitive advantages or limitations to the activity. Determining the optimum stock size is an essential aspect of the management of floating assets. A stock is optimum from the viewpoint of its size when it is sufficient, at any moment, to the continuity of the operational cycle, without uselessly fixing capital into oversized stocks (Mironiuc, M., 2009, *apud* Dragota, V., 2003). The difficulty in making decisions in this field is increased by the intense fluctuations of the demand and offer of stock elements. Sometimes, deviations from the classical stock management policies are justified. They are determined by speculative actions concerning supply and sales prices, which may provide punctual competitive advantages for the company. The harsh competition on the national and international food market revealed the need to have control, over as many segments as possible, of the economic cycle of the products. We refer to the decision facilities of a company that controls both the upstream segment, that of obtaining the inputs, and the downstream segment, of capitalizing upon the obtained products. Eliminating intermediate segments provides increased control over the production costs, thus determining the possibility to adopt a flexible policy concerning the sales prices. The integration of the economic cycle provides evident benefices, such as lower dependency on third parties, control over the product quality, obtaining higher financial results, to mention just a few. However, this strategy of

extending the size of the business implies a series of risks, which may generate difficulties in the optimum development of the activity. In this sense, we can notice the occurrence of malfunctions in the process of adopting, transmitting, and control of the management decisions. Also, covering the necessary financial resources is a major obstacle in applying such business organization policies.

These are just a few elements that fully justify the opportunity to analyze the factors that influence the performance level of economic entities in the agricultural field. The resulting econometric models offer the possibility to quantify the influence of the factors, representing, at the same time, solutions for predicting the expected results and a true management instrument for superior decision support.

MATERIAL AND METHOD

Taking specialized literature into account, the present study aims to identify the factors that determine the increase in the effectiveness of the activity of Romanian agricultural companies. From a methodological perspective, using a deductive-inductive reasoning, an attempt is made to dimension the effectiveness of the activity, by considering both the economic results recorded by agricultural companies during a fiscal year, and the influence of the capital market. The positivist approach concerns the suggestion and validation of work hypotheses, using empirical results (Smith, M., 2003). Therefore, the study suggests the following work hypotheses:

Hypothesis 1: *The integration of the economic cycle, by making investments and insuring a good management of the stocks necessary for the operational activity, determines an increase in the economic results of the agricultural companies quoted in the Bucharest Stock Exchange.*

Hypothesis 2: *The increase in the work productivity in agricultural companies with different levels of integration of the economic cycle determines an increase in the economic results.*

In order to validate the work hypotheses, the objectives of the present study consisted in identifying a profile of effectiveness in activity, based on the determining factors, and estimating their influence on effectiveness. To validate these hypotheses, the study suggests a series of variables, synthesized in *Table 1*. In order to test the existence of a significant association between the degrees of integration of the economic cycle and the performance of the agricultural companies, a series of category variables will be used, synthesized and explained in *Table 2*. Of these, the variables corresponding to the structure of the asset and the earnings per share are obtained based on the discretization of the variables in *Table 1*. In the study, the target population is represented by companies in the agricultural field, quoted in the Bucharest Stock Exchange (BSE). Of the studied population, a sample made up of 41 companies was extracted, of which 17 had the main activity field *Animals breeding*, and 24 companies had the main

activity field *Plants growing*. For the considered variables, the data corresponding to each company was processed from the financial statements reported in the fiscal year 2010. For data analysis, the study used the *ratio analysis*, *the multiple correspondences factor analysis* and *the multiple linear regression analysis with category variables*, based on the ANCOVA models.

Table 1

Analyzed variables

Variable symbol	Meaning	Computing method
EPS	Earnings per share	Net result/ Number of shares
W	Work productivity	Production of the fiscal year / Average number of employees
Af/At	Fixed asset ratio	Fixed assets/ Total assets
St/At	Stock ratio	Stocks/ Total assets

Table 2

Analyzed category variables

Variable symbol	Categories	Intervals
EPS	1 = EPS Low 2 = EPS Medium 3 = EPS High	1: EPS ≤ 12 lei/act. 2: 12 lei/act < EPS ≤ 25 lei/share 3: EPS > 25 lei/share
Af/At	1 = Ai/At Low 2 = Ai/At Medium 3 = Ai/At High	1: Af/At ≤ 30% 2: 30% < Af/At ≤ 60% 3: Af/At > 60%
St/At	1 = St/At Low 2 = St/At Medium 3 = St/At High	1: St/At ≤ 25% 2: 25% < St/At ≤ 50% 3: St/At > 50%
Integration degree	1 = "Just the main object" 2 = " One more object from downstream or upstream" 3 = " Full integration"	
Activity field	1 = "Plants growing" 2 = "Animals breeding"	

Ratio analysis is a widely used financial analysis method, which consists in computing and interpreting determinant indexes through reporting positions or position sets in the financial statements corresponding to the same fiscal year, for evaluating the financial state of a company. The existence of associations between the levels of integration of the economic cycle and the earnings per share categories is proven based on the *multiple correspondences factor analysis*. This is a multi-varied analysis method for the study of the associations between three or more category variables (Lebart, M.J., Piron, M., Morineau, A., 2006). The estimation of the influence of the financial and non-financial factors on the effectiveness of the company's activity (quantified by *EPS*) implies using *the multiple linear regression analysis with category variables*. This analysis allows estimating and explaining the values of the dependent variable based on the values of the independent variables taken into consideration (Jaba, E., 2002). In the study, the regression equation model is of the form:

$$EPS = \beta_0 + \beta_1 \cdot St/At + \beta_2 \cdot Ai/At + \beta_3 \cdot Integration_3 + \beta_4 \cdot Integration$$

RESULTS AND DISCUSSIONS

Following the analysis of the data collected from the sample, the main results lead to the identification of significant association between a series of financial and non-financial factors and the levels of the earnings per share (*EPS*), as an indicator that measures the effectiveness of the activity of agricultural companies. These associations shape effectiveness profiles, based on the structure ratios of the total asset and earnings per share, per activity field, according to the degree of integration of the economic cycle; the profiles are synthesized in the diagrams in *Figure 1* and *Figure 2*. The diagram in *Figure 1*, obtained using the *multiple correspondences factor analysis*, stresses the existence of significant associations between the result per share recorded by the BSE quoted agricultural companies and the indicators specific to investments and stock management, per activity field. For the analyzed sample, we notice that the companies whose main activity field is animals breeding, high *EPS* values are recorded, in the conditions of a medium fixed asset ratio and a minimum stock level. It is important to notice that, for the same low dimension of the stock rate, a weight of over 60% of the fixed assets in the total assets determines a major decrease in the result per share, reaching values under 12 lei/share. This situation signals again the need to make strictly productive investments, using as sector benchmark, for dimensioning the fixed asset ratio, the interval 30% – 60%. Insuring superior results with a low stock weight in the total assets (St/At ≤ 25%) reflects, besides an appropriate commercial policy, a situation of stability of the product sale market and of the raw materials specific to the analyzed sector.
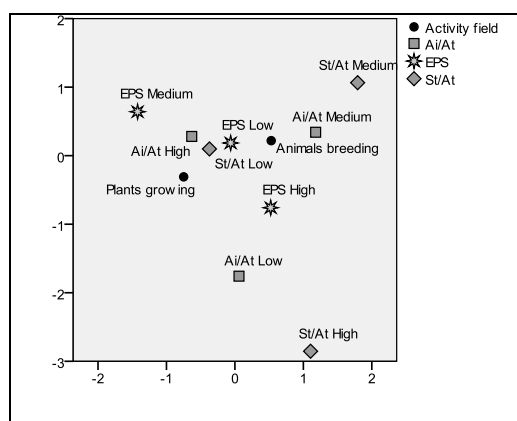
Figure 1 **Effectiveness profile of the BSE quoted agricultural companies, based on the structure ratios of the total asset and the earnings per share, per activity field**

For the agricultural companies whose activity field is plants growing, high *EPS* is obtained for a minimum fixed asset ratio (Af/At ≤ 30%) and a low weight of the stocks in the total assets (St/At ≤ 25%). This image suggests a higher effectiveness in the activity of companies that use leased lands (these are not acknowledged in the balance from an accounting point of view), compared to the entities that own land. It is true that this situation can be temporary, and with the land market opening for non-residents, the effect of this ratio may act in the reverse direction. The low dimension of the stock rate shows their optimum management, with the purpose of fixing as few financial resources as possible. The analysis must not exclude the influence of particular situations that characterize the analyzed area: the seasonal character of the activity (the closing of the fiscal year corresponds to an "interruption" of the operational activity), the high fluctuation of the prices for the obtained products (the stock volume may vary according to the price level). From the point of view of the degree of integration of the economic cycle, at the level of the analyzed sample, we can notice, based on the diagram in *Figure 2*, a significant influence of the total integration on the effectiveness of the activity of agricultural companies. At least in the case of companies in the field of animals breeding, we can see that the inclusion into the economic cycle of the activities of insuring feed, as well as processing, selling, and placement of the finite product obtained, significantly contributes to increasing effectiveness and recording high *EPS* values, as a sign of attractiveness on the capital market. However, for the companies mainly oriented towards growing plants, the impossibility to capitalize upon the obtained crops through their own efforts or the inability to insure the raw materials necessary for obtaining the crops, determine low economic results, with an unfavorable impact on the effectiveness of the

activity and implicitly on their attractiveness at the level of the capital market. In order to quantify the influence of the determining factors (stock management, increasing work productivity and the degree of integration of the economic cycle) on the effectiveness of the activity, *Table 3* synthesizes a series of statistics regarding the regression model suggested in the study, considering a degree of trust of 90%.

Based on the data in *Table 3*, it is possible to evaluate that 31.9% of the *EPS* variance recorded for the sample is explained by the variance of the factors considered in the study. The rather high value of the determination ratio (R^2) reveals the importance of the policies concerning stock management, the increase in work productivity and of the degree of integration of the economic cycle on the effectiveness of the activity of the BSE quoted Romanian companies in the agricultural field. Therefore, we can notice that in the conditions in which the company has no component of the integration of the economic cycle, form the point of view of supply or capitalization upon production and without considering the influence of the other factors (productivity or stock management), it will not obtain profit (*EPS*=-663.30 lei/share).

In contrast, a company with total integration has an *EPS* of 133 lei/share higher than a company with no degree of integration, if the influence of the other factors remains constant. We can draw the conclusion that the integration of the economic cycle leads, on the one hand, to a better management of the economic results of the agricultural company, with an impact on the effectiveness of its activity and implicitly on the increased attractiveness on the capital market. From the perspective of the influence of productivity and stock management, it is possible to notice that providing agricultural companies with the raw materials necessary to perform their activity (feed, for those in the field of breeding

animals, and increasing the storage capacity for those in the field of growing plants) significantly contributes to increasing the activity effectiveness. Therefore, for an increase by 1% of the stock level ratio, the *EPS* level will rise by 4.92 lei/share. In the case of work productivity, its increase in time determines an exponential raise of *EPS*.
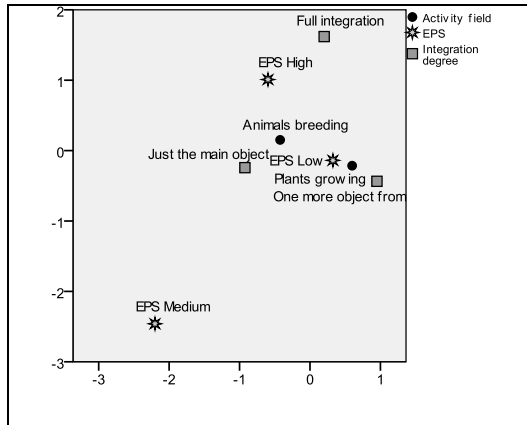

Figure 2 **Effectiveness profile of the BSE quoted agricultural companies, per activity field, according to the degree of integration of the economic cycle**

Table 3

Estimations of the parameters of the regression model suggested in the study

Parameter	B	Std. Error	t	Sig.
Intercept	-6,633	3,143	-2,110	,042
St/At	4,928	1,622	3,039	,004
ln(W)	,464	,260	1,786	,082
[Integration=3]	1,330	,716	1,859	,071
[Integration=2]	,307	,735	,418	,678
[Integration=1]	0^a	.	.	.

a. This parameter is set to zero because it is redundant.
b. R Squared = .319

An increase of *W* by 1000 lei per employee determines an increase of the activity effectiveness for agricultural companies by 1.59 lei/share (where 1.5904 is exponential 0.464).

CONCLUSIONS

In the study, the results obtained from analyses lead to meeting the research objectives and validating the two suggested work hypotheses. Therefore, an effectiveness profile of the company's activity has been identified, based on the degree of integration of the economic cycle, on the stock management, optimization, and productive investment policies. At the same time, the influence of work productivity and stock management on the activity effectiveness has been measured.

The results of the study stress the fact that insuring a high degree of integration of the economic cycle significantly contributes to increasing the effectiveness of the company's activity, with an impact on the economic results of the agricultural companies and implicitly on the increase of their attractiveness on the capital market. Also, the appropriateness of the investment and stock management policy to the specificity of the activity field, to the purpose of rendering the Romanian agricultural companies more flexible, is a condition for their endurance on the competitive market and for obtaining economic benefits. The need for improving the technology is again stressed, in this major sector of the national economy, as the increase in work productivity is a factor that significantly influences the level of economic and financial results.

The limitations of the study come from the relatively small size of the analyzed sample, mainly caused by the size of the Romanian capital market and by the current economic context, but future research directions aim to perform comparative analyses, at a European level or for other branches.

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