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DETERMINANTS OF THE RESULT OF ECONOMIC ACTIVITY OF AGRICULTURAL BUSINESSES OF LEGAL ENTITIES IN THE CZECH REPUBLIC

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Abstract

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This article deals with the result of economic activity of agricultural businesses of legal entities in the Czech Republic within the period of the years 2004–2010. First, the main factors that affect the result of economic activity are identified, and subsequently their effect is quantified. The analysis is based on sectional data from the databases of the Creditinfo company monitor and HBI Czech Republic; on average, 2314 businesses were examined within each year. The analysis showed a significant effect of only some factors, which were indicated as the main determinants of the result of economic activity. In the long-term, the decisive factors affecting the result of economic activity of agricultural businesses of legal entities in the Czech Republic can be considered to be primarily the level to which the business is equipped with assets and capital, and the capital intensity in general.

result of economic activity, agricultural business, legal entity, assets, capital

As stated by Čechura (2012) or Žídková *et al.* (2011), Czech agriculture has, in the course of the past two decades, undergone significant changes, which can be considered to include both the accession of the Czech Republic into the European Union, as well as the acceptance of Common Agricultural Policy. However, these changes had a significant impact on the structure, scope and effectiveness of agriculture in the Czech Republic. However, Bašek, Kraus (2011) state that Czech agricultural businesses still have significant reserves in productivity and effectiveness as compared to agricultural businesses of highly developed EU states. If these reserves were successfully reduced, it would undoubtedly lead to an increase in the competitiveness of Czech production, and not only within the European Union.

The issue of the effectiveness of agriculture, both in the Czech Republic as well as on a European level, is very closely related to the subsidy system and agricultural policy of individual states. Křístková, Habrychová (2011) state that direct payments fulfill a significant role in the economy of the Czech Republic, in view of the creation of the GDP. Nevertheless, they also show their limited effect on the income of households of farmers, which indicates their low effectiveness in this area. Similarly, Beranová, Basovníková (2011) also state that the actual inputs into agriculture are utilized ineffectively and therefore the subsidy system fulfills a significant role in the effectiveness of Czech agriculture. Without subsidy aid, agricultural businesses would evidently face even more significant economic problems.

The efficiency and effectiveness of agricultural businesses is dependent on many factors. In view of the size of farms, Blazejczyk-Majka *et al.* (2011), as part of research in regard to EU member states, state that greater effectiveness is achieved by large agricultural businesses as compared to small businesses. Nevertheless, in view of the nature of production, they also further emphasize the significance of climatic conditions in regard to production and its effectiveness. Relatively constant

production conditions, i.e. without fluctuations in weather and such, ensure greater effectiveness of production regardless of the size of the business.

A precondition for the productivity of agricultural businesses in general is thus primarily the effective expending of the individual factors of production, as the cornerstone of competitiveness of businesses within a market economy. Bervidová (2009) states that labor (as one of the factors of production) is the driving force of economic development, as it enables the creation of conditions not only for the reproduction of itself, but it also creates conditions and resources for the development of the other factors of production. She also expects that with the development of information technologies, this factor of production will become scarce and of course also financially demanding. This factor of production is monitored within a business by way of personal costs and its effectiveness is monitored by way of the achieved productivity of labor.

A no less important role within the business is held by capital as a factor of production. Rosochatecká *et al*. (2008) state that the capital (financial) structure of a business is comprised of the individual sources of financing on which the asset basis of the business is based. A positive result of economic activity, as one of a business's own sources of financing, is thus a precondition for investing, economic growth of the business and thus for the competitiveness of the business as such. However, it must be expended effectively, i.e. with costs as low as possible. Costs of capital thus represent not only one of the important determinants of the result of economic activity, but they also evidence the ability of the business to effectively manage business capital. Determining the costs of capital enables not only the assessment of sources of financing within the business, but also the assessment of their utilization.

MATERIALS AND METHODS

The objective of this article is to identify the main determinants of the result of economic activity for the current accounting period (REA) and the operating result of economic activity (OREA) of agricultural businesses of legal entities in the Czech Republic and to quantify their effect.[1]

The main objective is fulfilled by way of the following partial objectives:

1. the identification of the main determinants of the result of economic activity for the current accounting period and the operating result of economic activity on the basis of the theoretical definition of the analyzed issue and the general structure of REA and OREA;
2. the quantification of the effect of the main determinants and the assessment of its development in regard to the result of economic activity for the current accounting period and the operating result of economic activity, on the basis of regression analysis;
3. the derivation of models containing only factors that significantly affect the result of economic activity for the current accounting period and the operating result of economic activity, with the utilization of regression analysis.

The analytical portion is based on data of agricultural businesses of legal entities in the Czech Republic in the period of 2004–2010. The data were obtained from databases of the Creditinfo company monitor, HBI Czech Republic and from the publicly accessible database administrated by the State Agricultural Intervention Fund (hereinafter the "SZIF"), containing information on the amount of direct payments, provided to businesses of legal entities.

On the basis of those databases, a set of sectional data was created, including legal entities with predominant activity in agriculture; according to the OKEČ classification, this is OKEČ 01. However, because the databases do not contain complete information on all companies, primarily because of their non-publication by the economic entities themselves on the pages of the Commercial Register, the database had to be adjusted for the purposes of further analysis. The data were aggregated from several different information sources and the resulting table contained more than sixteen thousand entries. The first necessary step was conducting an examination of the consistency of the contained data. In view of the requirement for the preservation of the time differentiation of the data, redundant data were found in the database, such as, for example, descriptive and contact information regarding a business that received subsidies in more than one accounting period. Data on businesses were classified according to identification number (IČ). Further, data were arranged according to the start of the accounting period and each business was matched with data on the total amount of SAPS subsidies received according to the identification number (IČ). On the basis of such data, the hectare area of individual agricultural businesses was subsequently determined, specifically by way of the ration of the received SAPS subsidy and its unit rate in the given year. For the subsequent examination, only the data of companies with accounting statements for a minimum of 6 months within the given accounting period were utilized.

1 The theoretical definition of the result of economic activity and of the main factors that enter into such variable, as well as the specifics of the individual factors affecting the economic activity of a business, is provided, for example, by Grünwald, Holečková (2007), Kislingerová, Hnilica (2005), Marinič (2008), Synek (2003a), Synek (2003b), Valach (1999) or Valach (2006).

In view of the nature of the data, these are sectional data[2] in individual years of the analyzed period. In view of the diverse composition of the sample in individual years, it was not possible to put together a balanced data panel in such a form so that it would indicate the truly relevant and trustworthy correlations. In the case of the compilation of a data panel, information regarding a great number of businesses, whose inclusion the authors consider essential in view of the defined object of examination, would be lost.

For the quantification of correlations between variables, a regression model in power form is utilized, specifically:

$$y = \beta_0 \times x_1^{\beta_1} \times x_2^{\beta_2} \times \ldots x_n^{\beta_n} \times \varepsilon,$$

where

y ..... the explained variable,

$x_1, \ldots, x_n$ .... are explanatory variables (determinants of REA and OREA),

$\beta_0, \ldots, \beta_n$ ... are regression parameters (parameters of the model estimated by way of the ordinary method of least squares),

ε ..... is the stochastic (random) element including errors of the model.

The assumptions of all regression models were verified, i.e. $E(ut) = 0$, $Var(ut) = \sigma 2 < \infty$, $Cov(ui,uj) = 0$ for $i \neq j$, $Cov(xit,ut) = 0$, $h(X) = k$, i.e. nonrandom matrix X has linearly independent columns and ut has normal distribution. In some cases some assumptions are broken, however, Ordinary least squares method might be employed to estimate the parameters and the model can be used in application. Finally, statistical and econometric verification was processed, i.e. verification of statistical significance, multicollinearity, autocorrelation of residuals, heteroskedasticity, normality etc. The models have good features and might be employed in appropriate analysis.

The estimated regression parameters simultaneously represent the coefficients of flexibility of the individual variables. Therefore, on the basis of those, a relative correlation between the explained variable and the explanatory variables can be inferred. Specifically, coefficients of elasticity show a percentage change in the explained variable in the case of a 1% change in the explanatory variable.

The quantification of the effect of the factors on the result of economic activity for the current accounting period and the operating result of economic activity is conducted with the utilization of Gretl econometric software.

RESULTS AND DISCUSSION

In the following text, the main determinants of the result of economic activity for the current accounting period (REA) and the operating result of economic activity (OREA) are first identified, and subsequently their effect on the selected results of economic activity is quantified and discussed. The analysis itself is conducted for agricultural businesses of legal entities in the Czech Republic within the period of the years 2004–2010. On average, 2314 businesses were analyzed within each year.

1. Identification of Main Determinants of REA and OREA

It is undoubtedly possible to find many factors affecting the production, economic results and position of agricultural businesses. The main determinants of the result of economic activity can be considered to be primarily the following:

- level to which the business is equipped with assets;
- level to which the business is equipped with capital, the capital structure and costs of capital;
- area of agricultural land on which the businesses farm;
- number of employees (monitored through personal costs);
- region in which the business operates;
- subsidies.

These determinants can be considered to be essential in the creation of the result of economic activity primarily in view of the following assumptions:

- The level to which the business is equipped with assets and capital – in general, it can be stated that the capital and asset structure of agricultural businesses is given both by the production focus of the business, as well as by the legal form. In terms of the capital intensity, animal production can be characterized as being more intense in terms of capital. Its operation is associated with high demands primarily in the area of tangible fixed assets. The high intensity of capital in such production also leads to the affecting of the capital structure within the business, where specifically the area of animal production tends to be encumbered more often with outside capital. On the other hand, plant production, as compared to animal production, does not show such high capital intensity. The main factor of production in this case is land, which, however, in the majority of agricultural businesses does not constitute a high level of capital intensity, as 90% of it is rented. Requirements for machinery equipment for plant production are also increasing, but still do not reach such capital intensity as is the case

2 The issue of time series, sectional data, panel data and possible approaches to their processing are set out, for example, by Gujarati (1988), Dougherty (2002), Hsiao (2003), Baltagi (2008), Cipra (2008) or Arellano (2010).

for animal production. Every business is oriented toward such a capital structure (Nývltová, Marinič, 2010) that fulfills the basic precondition for doing business, i.e. the achievement of maximum profit for the owners. For this reason, the structure of a business must be designed with the goal of its optimization, i.e. with sufficient capital being ensured with minimal costs expended for it. The capital structure and its distribution within the business thus significantly affects the ability of a business to achieve profit.

- Area of agricultural land – the predominant majority of farmed land (about 86%, Ministry of Agriculture, 2010) is not owned by agricultural businesses, but rather is rented land. Such fact is reflected in the cost ration of production, and primarily also in the assessment of agricultural businesses in regard to the granting of loans, where such factor of production is not owned by the business and thus cannot increase the value of assets in the case of the assessment of financial health, in terms of the option of granting a loan, as one of several financial resources. The area of agricultural land on which businesses farm is very closely tied to another factor affecting the result of economic activity, that being subsidies. Specifically, the issue pertains to the amount of single area payments (hereinafter referred to as "SAPS"), which are provided to businesses depending on the size of the hectare area registered in the LPIS (Land Parcel Information System) land registry. This type of subsidies is termed as so-called operating subsidies, which are accounted for within a business's accounting in the operating revenues of the business and thus constitute an item that very significantly affects the operating result of economic activity and subsequently also the capital structure of the business (it is reflected into the value of equity capital). The provision of SAPS subsidies additionally represents minimum costs for the applicant (the precondition for the receipt is only the fulfillment of certain conditions of activity) and there is no countervalue required by the provider (as is the case, for example, for subsidies relating to a specific investment activity, where a minimum required rate of return must be fulfilled, expressed most often as an internal rate of return percentage that the investment must fulfill in order to qualify for aid.
- Labor – as one of the factors of production, it enables the creation of conditions not only for the reproduction of itself, but it also creates the conditions and resources for the development of the other factors of production.
- Region – in view of the form of the data, the effect of regional location is not included in the models, even despite the fact that it can be considered one of the main factors affecting the economic results of agricultural businesses. Nevertheless, its inclusion in the analysis is expected in subsequent research.

2. Quantification of the Effect of the Main Determinants on REA

The following text first sets out the brief characteristics of the analyzed businesses in view of the result of economic activity within the current period. Subsequently, the results of regression analysis of sectional data are then set out and discussed, which describes the effect of individual determinants on such variable. Tab. I contains the basic characteristics of the sectional data within the individual years of the analyzed period (i.e. the number of businesses, the average of the result of economic activity, the decisive divergence and the variation coefficient), and, further, the quantified effect of the main determinants (i.e. the estimated parameters, the P-value and the coefficient of determination for each model) affecting the result of economic activity for the current accounting period. Model 1 shows the effect of all of the defined determinants on the result of economic activity for the current period, while model 2 contains only the factors whose effect can be considered significant not only from an economic perspective, but also from a statistical perspective.

Tab. I shows that the number of businesses in the sample differed in the individual years. The lowest number of businesses were included in the sample in the year 2004, the number being 1756, and the highest number of them in the year 2009, the number being 2718 businesses. The average result of economic activity for the current accounting period in individual years also fluctuated. The highest average value of REA was achieved in the year 2007, specifically being CZK 2710 thousand. The lowest average value of REA was achieved in the year 2009, when the average result of economic activity actually achieved negative values, specifically CZK -310 thousand. The unfavorable result of economic activity in that year can be linked to the world economic crisis, which also significantly impacted agricultural businesses of legal entities in the Czech Republic. The high values of the variation coefficient further indicate the significant heterogeneity of the analyzed businesses. In view of the fact that the analyzed sample of businesses should correspond to the structure of agricultural businesses of legal entities in the Czech Republic, it may be assumed that the heterogeneity within this group of businesses does truly exist. Nevertheless, the causes of such heterogeneity are not the objective of this article, and thus, no further attention will be paid to them here.

The results of model 1 (see Tab. I) show that the effect of the main determinants on the result of economic activity for the current accounting period is not the same in all the years of the analyzed period. Additionally, the anticipated effect of the main factors affecting REA, as stated above, was not established in all cases as statistically significant (the P-value as compared to the selected level of significance).

The estimated parameters shows that an improvement in the level to which a business is equipped with assets or capital definitely has a positive impact on the result of economic activity for the current accounting period. REA is further positively affected by the amount of fixed assets, equity capital and the area of agricultural land. A decline in the result of economic activity is, according to the model, caused by an increase in current assets, registered capital, outside resources and personal costs. The effect of direct payments per unit of land (SAPS) was not clearly established according to the model. In some years, obtaining them appears to be effective, but not in other years. However, in view of the statistical significance of the estimated parameters, this factor cannot be considered to be decisive in the creation of the result of economic activity for the current accounting period. Such fact can primarily be a result of the nature of SAPS subsidies, which, within the reporting of the business, are reflected in operating revenues and thus they directly affect the operating result of economic activity. REA for the current period is thus not affected directly by the value of SAPS, but rather indirectly. However, despite that, the operating result of economic activity among agricultural businesses represents the main category of REA. In general, it may be stated that on the basis of the results of model 1, SAPS definitely do not increase the effectiveness of agricultural businesses of legal entities in regard to REA.

The above thus indicates the effect of the identified determinants of the result of economic activity for the current accounting period within the analyzed period. Nevertheless, in view of not only an economic perspective, but also a statistical perspective, it is appropriate to adjust these basic models, which is also evidence by the values of the coefficient of determination. Specifically, the coefficient of determination in individual years achieves relatively low values (it fluctuates within a range of 0.2932–0.5057), which indicates a not very good structure of the models. Therefore, in the next step, models were derived that contain only such factors for which a significant effect on REA can be established both from an economic perspective, as well as from a statistical perspective. The values of the coefficient of determination of these models achieve values within a range of 0.4126–0.6425, which indicates an improvement of the models from this perspective as well. However, in all cases, the reaction of the result of economic activity for the current accounting period is inflexible to changes of the individual factors, meaning that a 1% increase in the given factor causes an increase or decrease of the REA of less than 1%.

It is evident from the results of model 2 (see Tab. I) that the main determinants of the result of economic activity for the current period within the years 2004–2010 can be considered to be primarily the level to which the business is equipped with assets and capital. Nevertheless, the effect of the partial components of assets and capital fluctuates between the analyzed years. Within the individual years, other factors can also be considered significant, but from a long-term point of view, their effect is not all that significant when compared to the level to which businesses are equipped with capital and assets, or they can rather be associated with partial structural or economic changes in the given year.

Model 2 also shows changes in the structure of the main determinants of the result of economic activity for the current accounting period within the analyzed period. In view of the level to which businesses are equipped with assets, it may be stated that within the first part of the analyzed period, i.e. within the years 2004–2007, REA was determined primarily by the amount of structure of current assets, while in the second part of the analyzed period, i.e. within the years 2008–2010, REA was determined primarily by the structure and amount of fixed assets. In 2006, a significant effect of the level to which businesses are equipped with assets was actually not even established. The estimated parameters further show that if there is an increase in current assets, an increase in the result of economic activity occurs, while if there is an increase in fixed assets, a decline in REA occurs. It is possible to explain such fact primarily through the nature of the assets of the business themselves. Fixed assets are of a long-term nature, meaning that they maintain their value within the business in the course of several reproduction cycles (Grünwald, Holečková, 2007). Their wear and tear is then reflected in the form of depreciation in the costs of the business, which directly affect REA. Depending on the selected method of depreciation of long-term assets, the business thus has an opportunity to affect REA. On the other hand, in the case of current assets, a change in their form occurs in the course of one reproduction cycle. The value of current assets thus passes directly into consumption, which is caused by their short-term nature. An increase in current assets, which thus pass into the value of production in a one-time manner, leads to an increase in REA.

Model 2 further shows the disproportional effect of equity capital and registered capital on REA. The parameters show that if there is an increase in equity capital, an increase in the result of economic activity for the current accounting period occurs, but with an increase of the registered capital, a decrease in the REA occurs. The registered capital constitutes one of the components of equity capital and thus represents own resources put into the business. Its amount is dependent on the selected legal form of the agricultural business. The registered capital does not serve for the development of the business, but rather, it represents a necessary "financial base" for the creation of the business, consisting of all monetary and non-monetary contributions of the partners/shareholders. Its development does not usually change in the course of the lifecycle of the business. In the event that a change in its amount occurs, this is a case of development relating to

external financing (Grünwald, Holečková, 2007). If the business functions properly, the value of equity capital is higher than the value of the registered capital. This fact can then explain the negative impact of an increase in registered capital on REA. However, because the registered capital is reflected into the value of equity capital, it is rather appropriate to identify its resulting effect with this determinant. The effect of outside capital was only established as significant in two years of the analyzed period (in 2005 and 2009). It can thus be assumed that REA is determined more by internal factors rather than by external factors.

As far as the size of the business as one of the anticipated determinants of REA is concerned, in this case expressed by way of the area of agricultural land and the amount of personal costs (as a factor relating to the number of employees), a significant effect was not established. In the case of the size of agricultural land as well as the number of employees, the nature of the activity of the businesses is of course also important. Among businesses focusing primarily on plant production, REA will likely be more affected by the area of agricultural land than among businesses focusing only on animal production. The amount of personal costs then also relates to the nature of production of businesses as well as the climatic region in which the business is located. However, these factors (or the classification of the analyzed businesses according to sector or region) are not examined in more detail in this article, and thus, more detailed conclusions will not be drawn in this regard either.

Last but not least, the anticipated effect of subsidies on REA was not fully established either. Regression analysis established a significant effect of direct payments (SAPS) only in the year 2004. It can thus be stated that the effectiveness of such subsidy instrument is not very effective as far as agricultural business of legal entities are concerned.

3. Quantification of the Effect of the Main Determinants on OREA

The following text first sets out the brief characteristics of the sample, and then, further, the results of regression analysis, specifically within a structure similar to the structure of the analysis of the effect of the main determinants on the result of economic activity for the current accounting period.

Tab. II contains the basic characteristics of the sectional data within the individual years of the analyzed period (i.e. the number of businesses, the average of the operating result of economic activity, the decisive divergence and the variation coefficient), and, further, the quantified effect of the main determinants (i.e. the estimated parameters, the P-value and the coefficient of determination for each model) affecting the operating result of economic activity.

The structure of agricultural businesses of legal entities included in the analysis of the effect of the main determinants on the operating result of economic activity is the same as in the case of the analysis of the result of economic activity for the current accounting period. As far as the average values of the operating result of economic activity are concerned, the lowest value was achieved in the year 2009, specifically CZK 182 thousand, while the highest value was achieved in the year 2007, specifically CZK 3519 thousand. The values of the operating result of economic activity indicate the effectiveness of such activity within the entire analyzed period. In view of the amount of REA and OREA (see the previous commentary), it may be stated that the positive operating result of economic activity was decreased within the entire analyzed period by the level of financial activity, or by the extraordinary events within the individual years. The high values of the variation coefficient once again indicate the heterogeneity of the analyzed businesses.

Model 1 (see Tab. II) shows the effect of the identified determinants on the operating result of economic activity. The model clearly evidences that the operating result of economic activity is positively affected by the level of current assets, equity capital, outside resources and the size of agricultural land. However, not all of these correlations apply without exception. In the case of current assets, equity capital and outside resources, there is an evident change in their impact on the operating result of economic activity. Toward the end of the analyzed period, their effect is reflected negatively in the OREA, meaning that with an increase in the said factors, a decline in the OREA occurs. In the case of current assets, such fact can be associated with the nature of the individual types of current assets, primarily with the value of work in progress. Work in progress binds to itself the corresponding part of production costs, but those are not actualized. The negative effect of individual financial resources within the business, expressed in the form of equity capital and outside capital, on the REA, is caused primarily by the costs associated with their utilization. The setting up of an optimum capital structure is the focus of a number of scientific studies. The utilization of individual sources of financing is thus clearly associated with the costs allotted to capital, specifically both equity capital as well as outside capital. In the event that an optimum capital structure is not set up within the business, an increase in equity capital or outside capital leads to an increase in costs relating to their utilization and the subsequent impact on REA has a negative nature. Costs for outside capital are expressed in the value of cost interest within company reporting. In the case of costs of equity capital, it is necessary to conduct sophisticated calculations that are based on various methods, reflecting primarily the nature of the company and certain preconditions for their utilization (e.g. the Gordon growth model, the CAPM model, the arbitrage pricing model, the market model, and others). In the case of other determinants, a negative effect on OREA is seen. Specifically, with an increase

I: *Factors affecting the result of economic activity for the current accounting period*

Year	2004		2005		2006		2007		2008		2009		2010	
number of businesses	1 756		1 923		2 305		2 592		2 628		2 718		2 273	
REA – average	2 079.78		1 269.71		1 150.97		2 709.45		1 519.82		–309.00		1 162.44	
REA – std. deviation	5 276.59		6 268.79		4 447.39		7 266.25		8 317.83		20 497.71		9 132.41	
REA – var. coefficient (%)	253.71		493.72		386.41		268.19		547.29		6 633.48		785.63	
Model 1:	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**
constant	–2.651180	0.0000	28.936200	0.2575	36.254700	0.1481	–40.235800	0.1977	–3.329910	0.9285	3.584710	0.8638	–18.606600	0.6571
assets	–0.224831	0.3895	0.330124	0.4836	0.168229	0.6814	0.425209	0.1852	1.264170	0.0013	1.684800	0.0004	1.174790	0.0014
fixed assets	–0.034148	0.7246	–0.089041	0.6445	–0.087691	0.5903	–0.145374	0.2963	–0.403424	0.0158	–0.697315	0.0017	–0.371042	0.0207
current assets	0.295189	0.0483	0.620367	0.0144	0.206284	0.3285	0.422526	0.0120	0.146280	0.4445	–0.260022	0.2518	–0.115245	0.5361
equity capital	0.349096	0.0000	0.351616	0.0008	0.510872	0.0000	0.329352	0.0000	0.370764	0.0003	0.399311	0.0011	0.268920	0.0038
registered capital	–0.069174	0.0010	–0.181252	0.0000	–0.218740	0.0000	–0.142813	0.0000	–0.194561	0.0000	–0.217771	0.0000	–0.150490	0.0000
outside resources	0.213940	0.0283	–0.081466	0.5574	0.123790	0.3095	–0.018082	0.8284	–0.358937	0.0014	–0.211254	0.0626	–0.109006	0.1985
personal costs	0.004560	0.9444	–0.184742	0.0128	–0.029844	0.6771	–0.038268	0.4852	–0.102295	0.1021	–0.000163	0.9981	–0.019552	0.8075
SAPS	0.349061	0.0000	–4.112400	0.2170	–4.733290	0.1392	4.800840	0.2224	0.126076	0.9782	–0.668133	0.7929	2.082860	0.6800
agricultural land			4.290360	0.1984	4.840370	0.1313	–4.650380	0.2381	0.005106	0.9991	0.671430	0.7923	–2.010230	0.6908
coefficient of determination	0.4206		0.3314		0.3612		0.5057		0.3739		0.2932		0.3254	
Model 2:	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**
constant	–2.908770	0.0000	–0.911522	0.0000	1.345720	0.0000	–1.404530	0.0000	–1.370480	0.0000	–0.154499	0.5943	–0.414514	0.1706
assets									0.649684	0.0000	0.284137	0.0017	0.461668	0.0000
fixed assets									–0.257885	0.0000	–0.190460	0.0000	–0.080824	0.0837
current assets	0.338146	0.0000	0.371491	0.0000			0.589389	0.0000						
equity capital	0.247756	0.0000	0.458611	0.0000	0.770605	0.0000	0.459116	0.0000	0.569481	0.0000	0.602073	0.0000	0.473946	0.0000
registered capital	–0.080603	0.0000	–0.196597	0.0000	–0.228053	0.0000	–0.157119	0.0000	–0.182615	0.0000	–0.174716	0.0000	–0.162368	0.0000
outside resources			0.143775	0.0005							0.135382	0.0064		
personal costs														
SAPS	0.372300	0.0000												
agricultural land														
coefficient of determination	0.4225		0.5107		0.4291		0.6425		0.4696		0.4126		0.4604	

Source: own calculation

II: *Factors affecting the operating result of economic activity*

Year	2004		2005		2006		2007		2008		2009		2010	
number of businesses	1 756		1 923		2 305		2 592		2 628		2 718		2 273	
OREA – average	2 900.27		1 922.19		1 730.83		3 517.24		2 300.46		181.47		1 881.43	
OREA – std. deviation	6 182.54		6 481.36		5 254.44		8 255.79		9 235.57		15 345.15		9 406.38	
OREA – var. coefficient (%)	213.17		337.19		303.58		234.72		401.47		8 456.12		499.96	
Model 1:	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**
constant	–2.253220	0.0000	24.725700	0.2365	22.6236	0.2857	–14.822700	0.5892	9.177330	0.7662	8.051100	0.6107	4.148630	0.9012
assets	–0.252805	0.2251	0.489194	0.1868	–0.09109	0.7743	0.324990	0.2402	0.913484	0.0040	1.212540	0.0007	1.422570	0.0000
fixed assets	–0.044399	0.5741	–0.209423	0.1489	–0.114651	0.3203	–0.118552	0.3228	–0.284272	0.0349	–0.357239	0.0232	–0.389913	0.0041
current assets	0.391427	0.0013	0.388875	0.0576	0.371097	0.0830	0.543476	0.0002	0.110601	0.4784	–0.193214	0.2657	–0.209432	0.1910
equity capital	0.354829	0.0000	0.310039	0.0003	0.406999	0.0000	0.311944	0.0000	0.356489	0.0000	0.271259	0.0055	0.132705	0.0932
registered capital	–0.070659	0.0000	–0.155407	0.0000	–0.132203	0.0000	–0.133238	0.0000	–0.179228	0.0000	–0.193050	0.0000	–0.131371	0.0000
outside resources	0.289919	0.0003	0.029071	0.8011	0.245972	0.0176	0.069203	0.3451	–0.175814	0.0551	–0.052429	0.5679	–0.042435	0.5562
personal costs	–0.062988	0.2229	–0.033270	0.5780	0.022874	0.6993	–0.159770	0.0009	–0.046775	0.3585	0.008994	0.8678	0.015718	0.8191
SAPS	0.292137	0.0000	–3.479080	0.2015	–2.91003	0.2822	1.627950	0.6379	–1.293480	0.7365	–1.106120	0.5658	–0.708467	0.8603
agricultural land			3.560440	0.1917	2.99013	0.2701	–1.484580	0.6683	1.419960	0.7121	1.119150	0.5620	0.712244	0.8597
coefficient of determination	0.5282		0.4044		0.4204		0.5662		0.4268		0.3756		0.400953	
Model 2:	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**	**coefficient**	**P-value**
constant	–2.459430	0.0000	–1.015560	0.0000	–0.334490	0.077	–1.020500	0.0000	–0.757357	0.0055	–0.129020	0.5858	–0.472001	0.0665
assets									0.456988	0.0000	0.524306	0.0000	0.621925	0.0000
fixed assets									–0.248504	0.0000	–0.097711	0.0104	–0.083733	0.0378
current assets	0.314783	0.0000	0.638153	0.0000	0.460251	0.0000	0.494128	0.0000						
equity capital	0.251576	0.0000	0.370461	0.0000	0.376279	0.0000	0.418780	0.0000	0.560194	0.0000	0.420028	0.0000	0.343388	0.0000
registered capital	–0.084710	0.0000	–0.180252	0.0000	–0.165740	0.0000	–0.145862	0.0000	–0.161928	0.0000	–0.167640	0.0000	–0.151320	0.0000
outside resources	0.130390	0.0000			0.094311	0.0000	0.117632	0.0000	0.172289	0.0000				
personal costs														
SAPS	0.288948	0.0000												
agricultural land														
coefficient of determination	0.5283		0.6195		0.5664		0.6775		0.5393		0.5108		0.5481	

Source: own calculation

in fixed assets, registered capital or personal costs, a decline in the operating result of economic activity occurs. The impact of SAPS on OREA is not definite within the analyzed period, but, nevertheless, a result indicating their ineffectiveness prevails.

As has already been stated, in view of the statistical significance of the estimated parameters, the estimated models cannot be considered the best. The lesser information capability of model 1 is also evidenced by the coefficient of determination, which, for the individual models, fluctuates within a range of 0.3756–0.5662. In view of the above, it is appropriate, in this case too, to adjust the model into a form that accepts the requirements for both economic as well as statistical significance. Model 2 thus contains only the factors that are significant from both of these viewpoints. An improvement in the quality of the model is also evidenced by the values of the coefficient of determination, which, in this case, range within an interval of 0.5108–0.6775. Further, the parameters of all of the models show an inflexible reaction of the operating result of economic activity on changes of the individual factors, i.e. that with an increase of the given factor by 1%, there is an increase or decrease of OREA by less than 1%.

Model 2 (see Tab. II) contains the parameters and their P-values, which express the effect of factors significantly affecting OREA. Similarly as in the case of the result of economic activity for the current period, also in the case of the operating result of economic activity, its most significant determinants can be indicated as the level to which the business is equipped with assets and capital. Also, for OREA, similar correlations were established as in the case of REA. It can thus be stated that in regard to asset structure, a shift of effects from current assets toward fixed assets occurred within the analyzed period (with the marginal year being 2008). Further, in this case as well, there is a clear opposite effect of the change of equity capital and registered capital (an increase in equity capital has a positive impact on the operating result of economic activity, while registered capital has a negative impact). In this case, the effect of outside resources is not significant either within the entire analyzed period, but, nevertheless, when compared to REA, it is evident that OREA is affected more by the structure and amount of outside resources. Nevertheless, in the last years of the analyzed period, this effect was not established. Further, similarly as in the case of REA, a significant effect of the size of the business (expressed in terms of the area of agricultural land and personal costs) on the operating result of economic activity was not established. Last but not least, the effect of subsidies on a unit of land (SAPS) was shown to be significant, once again, only in the year 2004. Therefore, in that year, the obtaining of subsidy aid can be considered effective in view of the creation of OREA.

CONCLUSION

The objective of this article was to identify the main determinants of the result of economic activity for the current accounting period and the operating result of economic activity of agricultural businesses of legal entities in the Czech Republic in the period of the years 2004–2010 and to quantify their effect. The analysis itself was based on sectional data obtained from databases of the Creditinfo company monitor and HBI Czech Republic. The calculations were conducted with the utilization of Gretl econometric software.

The main determinants of the result of economic activity in general were indicated to be the level to which the business is equipped with assets, the level to which the business is equipped with capital, the capital structure and costs of capital, and further, the size of the business in view of the area of agricultural land and the number of employees and, last but not least, also the region in which the business operates and obtained subsidies. The effect of these determinants was quantified, but a significant effect was only confirmed for some of them.

Regression analysis of sectional data established the level to which the business is equipped with assets and capital as the most significant determinants of the result of economic activity for the current accounting period.

The results of quantitative analysis further indicated similar results in the assessment of the operating result of economic activity and its determinants. Such fact is given primarily by the nature of the assessed businesses (agricultural businesses of legal entities), where it is specifically the operating result of economic activity which constitutes the main component of REA. In this case as well, the main determinants can be indicated to be the level to which the business is equipped with assets and capital. Therefore, in both conducted analyses of the result of economic activity, the asset and capital structure of the business can equally be considered to be the main determinant. The issue of the level to which a business is equipped with capital, or the capital structure of the business, is a matter that is dealt with by numerous financial managers. In setting it, the basis is the optimization of the capital structure, i.e. the achievement of such a ratio of debt and equity capital at which the costs of capital are minimized. However, the optimization of the capital structure is not an entirely simple matter, as there are a number of factors that affect it and which also include the asset structure of the business. Therefore, both these determinants of the result of economic activity are very closely correlated and, in the outcome, can definitely be considered to be the most significant determinants. For more precise results, it would be appropriate to conduct a more detailed analysis of the asset and capital structure, which would answer the questions of the relationship of optimum capital structure, asset structure and the result of economic activity.

This analysis is currently being dealt with by this group of authors.

Other factors show similar tendencies as in the case of the result of economic activity for the current accounting period. On the other hand, the effectiveness of direct payments in the creation of the result of economic activity for the current accounting period and the operating result of economic activity, as well as the size of the business, was not established as being significant. Nevertheless, even so, the effect of these factors on the creation of the result of economic activity can be anticipated. More detailed and perhaps more precise results in this area could be provided by an analysis conducted with a focus on the size of agricultural businesses, their production focus and regional location, which is planned as part of further research of this group of authors.

SUMMARY

The objective of this article is to identify the main determinants of the result of economic activity for the current accounting period (REA) and the operating result of economic activity (OREA) of agricultural businesses of legal entities in the Czech Republic and to quantify their effect. The analytical portion is based on data of agricultural businesses of legal entities in the Czech Republic in the period of 2004–2010. The data were obtained from databases of the Creditinfo company monitor, HBI Czech Republic and from the publicly accessible database administrated by the State Agricultural Intervention Fund (hereinafter the "SZIF"), containing information on the amount of direct payments, provided to businesses of legal entities.

The analysis showed a significant effect of only some factors, which were indicated as the main determinants of the result of economic activity. The main determinants of the result of economic activity in general were indicated to be the level to which the business is equipped with assets, the level to which the business is equipped with capital, the capital structure and costs of capital, and further, the size of the business in view of the area of agricultural land and the number of employees and, last but not least, also the region in which the business operates and obtained subsidies.

Therefore, in both conducted analyses of the result of economic activity, the asset and capital structure of the business can equally be considered to be the main determinant. The issue of the level to which a business is equipped with capital, or the capital structure of the business, is a matter that is dealt with by numerous financial managers. In setting it, the basis is the optimization of the capital structure, i.e. the achievement of such a ratio of debt and equity capital at which the costs of capital are minimized. In the long-term, the decisive factors affecting the result of economic activity of agricultural businesses of legal entities in the Czech Republic can be considered to be primarily the level to which the business is equipped with assets and capital, and the capital intensity in general.

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