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THE SELF-FINANCED DEVELOPMENT IN DIFFERENT AGRICULTURAL ENTERPRISING MODELS

Written by:
Zsuzsanna Széles

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Name of PhD School: **Management and Business Administration PhD School**

Science branch of School: **Management and Business Administration**

Head of School: Dr. István Szűcs
               professor, director of institute, MTA doctor
               SZIE, Institute of Economic Research Methodology

Consultant: Dr. István Szűcs
             professor, director of institute, MTA doctor
             SZIE, Institute of Economic Research Methodology

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  Approved by head of school   **Approved by consultant**

INTRODUCTION

The performance of the Hungarian agriculture has significantly dropped after the change of regime and market orientation and its current performance on most areas stays also below the potential level that could be reached due to Hungary's favourable natural conditions. One tool of increasing the performance is to provide the proper level of financial resources, which is important for all business establishment for the continuous running. Providing the sector with an appropriate level of capital and credit is an essential condition for the Hungarian agriculture to be competitive and market oriented. Those factors that determine the agricultural financing have specific characteristics. Most of the capital required in the agriculture is locked for a long run and used not only in one period of time.

The basic factors of production are the natural resources, the labour, the manager and the capital. In my dissertation I highlighted the capital among other factors of production and I analysed the capital structure of the agriculture, and within that I examined the role of the equity capital. The "self-financed development" mentioned in the title includes the analysis of the equity capital and the private factors of the production capital (e.g.: arable land). The equity capital is a part of the company's capital, which is not to be repaid. It can come both from external and internal resources: from the registered capital, from the retained profit, from state support, and it can be increased by issuing new shares, increasing the registered capital, fusing with another company or by an acquisition. The bigger the rate of the company's equity capital is, the bigger financial independence it has. A significant rate of the equity capital makes the company more resistant to a crisis. As it is the private property which is reduced in case of a loss, the company can more easily cope with temporary difficulties if the rate of the equity capital is high. The primary private resource is the called-up share (that can be increased with additional external capital or with other financial contribution), which is increased in every year by the retained profit. The agricultural enterprises are established with a low level of capital and usually they are not able to raise this level considerably.
Self-financing means that the company's developments are financed from the company's own (private) resources. Due to the characteristics of rural economy, the ability of self financing is very low among the agricultural enterprises.

One of the characteristics of these enterprises is that unlike in other enterprises the capital reserves a part of the private capital, contains the investment support, and this may disfigure the analysis.

On writing this dissertation I was trying to carry out the objectives laid down in my work-plan of research by using the methods drawn up there as well.

The **first objective** of my research was to summarise the scientific literature and during that I dealt with the company's income and with the financial resources required for obtaining this income. In the course of processing the scientific literature I have highlighted the presentation and evaluation of the current publications relating to the agricultural enterprises' current conditions and changes.

My **second objective** was to illustrate the performance of the Hungarian agriculture after the political transformation, and to examine what effect had and has the private resource on the tendency of the main index-numbers analysing the economic structure. In the course of the examination I have illustrated the agriculture's contribution to the GDP, and in recent years its role in the foreign trade, employment, investments and consumption. I have also mentioned

the role of the foreign capital and its regional differences. I have analysed the production of the Hungarian agriculture and I have also made a comparison between the agricultural production (volume) of Hungary, Europe, and the world.

The **third objective** of the research was to present the volume and the combination of the private and external resource in the Hungarian agriculture and to uncover the reasons of changes in the recent years. Within the private resource how its combination has changed and what shifting took place among the single elements. Regarding that a further objective of my research was to analyse the profitability of the total and the private capital in the examined period of time.

The **fourth objective** of my research was to examine the volume of the private capital and the differences between the combinations of the private capital according to regions, to enterprising models and to production trends between 2002 and 2004. Also my aim was to examine the relationship between the private capital and the profit and within that in differently sized models (SGM and agricultural land) in the examined period of time. On making the calculations I have used the database of the agricultural test unit's information system run by the Agricultural Research Institute.

Attaining the objectives mentioned above I received a lot of help from my consultant, from the experts of the Agricultural Research Institute and from my head of institute. This way I would like to express my thanks to them and to everyone else who helped my work with reflection and advice.

1. SUBJECT AND METHOD

Science is about improving the knowledge, its aim is the research and its result is to create knowledge. The research can be a primary research creating new information or secondary research which is using the existing information. [TOMCSÁNYI, 2000]

The objectives and the methods of the scientific work related to information and communication are demonstrated on Table 1.

Table 1
The characterisation on the components on the information user (knowledge-improving) research work

Type of research	*Outside knowledge creating* *Knowledge discovery*	*Inside knowledge creating* *Knowledge discovery, creative*
Primary research	**Fact discovery** - mostly inductive - creating new information	**Meditative, pensive** **-** mostly deductive - knowledge creating, heuristic
Secondary research	**Collecting existing information** - documenting, systematising - comparing (analytical) researching in the scientific literature	**Induced intellectual** - knowledge improving-combinative - knowledge synthesising

Source: P. TOMCSÁNYI (2000): General research methodology, Budapest, Szent István University, National Agricultural Quality Institute, (p. 14)

In this chapter I would like to present the workflow, the applied means and methods in order that the experiments can be repeated and the result can be checked.

It is very important that a scientific experiment can be repeated. In case of interdisciplinal and sociological researches it is not the result which is important to repeat, but the methodological resolution. It is essential the applied methodology of the social and economic researches, as due to the fact that the conditions are continuously changing the research can not be repeated under the same circumstances and only some specific method can be repeated. The result should be explained also as a function of the circumstances. [SOMOGYI, 2002]

In the course of my research I used secondary information. I collected and systematised the existing information and I added my own suggestions. In the first part of the Findings chapter I analysed the agricultural production, the investments, the ratio between the prices of agricultural and industrial products, the number of the agricultural enterprises, the land development, the agricultural employment and the capital equipment supply I used the information collected by the Central Statistical Office (CSO) and I often used the data of ECOSTAT.

For presenting the regional differences of land development I used TSTAR 2000 (Settlement Statistical Database System) as a source of my analysis. This database contains a lot of useful information and I used the followings:
- the number of individual farms,
- the total quantity of the agricultural land used by the individual farms,
- the number of economic organisations,
- the total quantity of agricultural land used by the economic organisations.

On analysing the financial circumstances and the credit structure of the agricultural enterprises based on the partnership tax returns collected by the State Tax Authority (APEH), I worked using the database created the Agricultural Research Institute (ARI), the facts and figures of the Hungarian National Bank and also the financial data of several enterprises processed by the CSO. Unfortunately 2002 was the last year that the CSO proceeded the financial data, so according to the meaning of that I could only draw conclusions until 2002 (although in certain cases I could calculate the data for 2003 from the database of ARI).

I also made some analysis using the test farm system database of the ARI. To maintain a common agricultural policy the members of the EU run a business administration information system based on representative data collection. The main objective of this system is to provide information. Data providing is binding for the EU members to the European Commission. The EC is the primary user of the basic analysis made from the FADN data (Farm Accountancy Data Network), but the summarised data are available for anyone. The farms selected according to the specific factors join to the network voluntarily, they employ unified book-keeping and they make their data available for agricultural policy purposes. The duties of the ARI are to maintain and control the operation of the network, to check, process and analyse the data and to release the results. The Ministry of Agriculture and Rural Development finance and control the work of the system. [KOVÁCS – KESZTHELYI, 1999]

The FADN was introduced in the EU in 1965. After the CAP reform of 1992 there were significant changes in the FADN. On implementing the reforms an information system was built which were suitable for valuing the followings correctly [KOVÁCS – KESZTHELYI, 1999]:
-   the supports' and the price system's effect on the agricultural enterprises' earnings according to the type of enterprising model and the site conditions;
-   the exploration of the farms' possibilities in the adoption to the new conditions
 -   measuring the reform's effect on the farm structure (short and long-term duties, cash-flow, etc.).

The building of the test farm system was launched in 1996 in Hungary, but the country-wide network has been built since only 2001.

I based my analysis on the test farm system data collected by the ARI and within that I used the figures of three years. The combination of the sample's elements according to years and types of enterprising models can be found in Table 2. Currently the test far system represents more than 90000 farms. The figures of the farms in the sample I used had been weighted before I made the analysis.

The weight index shows that how many farms are represented by one farm from the sample in the similar group of the base set. So these are not the farms from the survey's sample that are described by the result, but the mass they represent. [KOVÁCS, 2003]

When creating the weight index-numbers of 2002 the results the results of the General Agricultural Registration in 2002 were used and when calculating the weight index-numbers of 2003 and 2004 the results of the Registration of the Economy Structure in 2003 were used.

Table 2
The number of the enterprises in the Hungarian test farm system

Years	Individual enterprises	Joint enterprises	Together
	Number (piece)		
2002	1401	492	1893
2003	1429	466	1895
2004	1483	434	1917

Source: Own writing

Figures that I examined: The equity capital, the pre-tax profit, the profitability of the total capital and the profitability of the equity capital, which were examined according to the size categories determined by the standard gross margin (1000 Ft) and the agricultural land (per 1 hectare). When determining the SGM we start from the gross margin.

Gross margin (GM): the difference of the production value of the productive and service sector and the variable cost. So it contains the profit of the sector and it provides margin regarding the whole economy (not by single branches) on the fix costs. It can be calculated both on a single unit of the sector and on the whole sector. [KESZTHELYI – KOVÁCS, 2004]

Standard gross margin (SGM): it is the normative (counted with the average weather and farm conditions) GM determined primarily on a single unit of the agricultural productivity (1 hectare, 1 animal). If we multiply the specific SGM value of the productive activity by the extent of the activity in the particular farm and then we sum up the products of these multiplication, we will get the total SGM of the economy. This value expresses the long-term income producing the capacity of the enterprises as a function of the capital equipment supply, the production structure and the site conditions. Therefore the production policy of the particular economy can be described with the share rate of the SGM values produced by certain activities and branches of activities in the test farm system's SGM. [KESZTHELYI – KOVÁCS, 2004]

Standard gross margin = standard production value – standard variable cost
[BÉLÁDI et al, 2000]

The SGM figures are refreshed in very 5 years, Currently we use the values calculated from the test farm system's book-keeping from 1999, 2000 and 2001.

The methods used during the analysis:

Trend calculation

The analytical trend calculation is the most often used way of the trend calculation. The permanent tendency of the time series can be expressed by certain well-fitting function. In the course of fitting the function, similarly to the regression calculation, using the least square method we search for the trend best fitting to the values of the time series. So the analytical trend is the specific function, where the differences of the square amounts between the values of the same dates in the time series and the function's own values is the least. [SZŰCS, 2004]

$$\sum (y_i - \hat{y}_i)^2 \Rightarrow \min .$$

where y_i : the ith power of the time series

$\hat{y}_i$: the value of the trend with the ith date

(i=1,…n)

During the trend calculation I used the following types of function:

- linear trend,
- exponential trend

The trend calculation is very similar to a regression model with two variables, in which the result variable is the value of the time series, the explanatory variable is the trend variable representing the progress of time. Now I will mention two of the differences between the regression analysis with two variables and the analytical trend calculation [G. RAPPAI, 2001]:

- while in the regression model theoretically the order of observations can be changed at will, the order in the trend calculation is defined (determined by the time);
- theoretically the value of the explanatory variable of the regression model is free, the value of the trend variable in the trend function is usually interpreted on the set of the whole numbers, so the difference between the values following each other is usually 1.

In my research I also made some regression calculations, this will be detailed later on.

When choosing a type of trend they were important points of view if I am searching for the reason on the rate of the pace of increase, and that how long is the time of series I have. I made lots of calculations, I approached the individual questions from different points of view, but because of the limited size of this dissertation I will present only the ones that have perceivable result.

Linear trend

The basic tendency can be expressed by a linear function if the development of the time series is steady and the rate of the time change is permanent.

The general form of the linear function:

where $\hat{y}$: the value of the trend

x : the values of the time changes equidistant from each other

a and b: the unknown parameters of the function

The aim is to estimate the parameters that can be determined with the standard equations. The standard equations are the equations where the $\sum (y_i - \hat{y}_i)^2 \Rightarrow \min .$ function's primary partial derivates are equalised with 0. [SZŰCS, 2004]

I used the linear trend calculation when analysing the volume of the agricultural production and when examining the gross production index of the Hungarian agricultural products.

Exponential trend

We use it I the relative change of the examined time series and the pace of the change is about permanent. We often use it in social-economic time series. A row of the economic growth's index-numbers, the tendency of the population or in time of inflation almost all current price index-numbers – in a limited interval – show an exponential increase (or decrease), that is why they can be described with the exponential trend. [HUNYADI – VITA, 2002]
The equation of the exponential function:

$$\hat{y} = ab^x$$

Where a : the trend value belonging to the x=0 period of time,
        b : the average pace of time change
        x=n+1,n+2,…n+k : n indicates the number of examined periods

I created the equation of the exponential trend on the price index-numbers of the industrial products used in the agricultural production and that of the agricultural production.

Cluster analysis

For analysing the regional land development of the individual enterprises and economic organisations I use the hierarchic cluster method. The cluster analysis is a dimension reductive method. The variables allocated to the observed unit are those original dimensions, by we would like to group the observations the way that the observations belong to a specific group, are close to each other along all variables, but at the same time they are far from all other groups and clusters. The key point in the cluster analysis is the distance. The distance can be defined in the Euclidean space, but the distance can be also measured by an optimal association index-number, the way that the strong association means closeness and the weak association means a great distance. In the course of the analysis I chose the centralised cluster method and I squared the Euclidean distance. The hierarchic cluster analysis is based on the idea that as a first step every entity to be clustered is out into an own cluster one by one. So first we have as many clusters as many elements are in the sample. In the second step the program creates a new cluster from the two elements that are closest to each other. In the third step two options can be found. In the first case the program finds an element that is close to the cluster with the two elements and enlarges it to a cluster containing three elements. The second option is that it finds two other elements close to each other and creates another cluster containing two elements. This process goes on until all of the elements are put in a cluster. [SZÉKELYI – BARNA, 2004]

The Between-groups linkage method the Within-Groups method take every element clustered and to be clustered into consideration when determining the distance of clusters. The centralised cluster method manages the distance of clusters in a relatively simple way. It determines the distance of two clusters as the distance between the averages of the elements from the two clusters. [SZÉKELYI – BARNA, 2004]

I used the cluster analysis when examining the cultivable land owned by the individual enterprises and the joint enterprises and when examining the regional correlations of the profitability of he equity capital.

Correlation and regression calculation

The correlation calculation is to measure the closeness of the relationship between two quality criterions. It shows that a factor's effect on another factor may be led back really to the effect of the factor and not to the chance. The correlation coefficient is one of the methods to measure the closeness of the relationship.
The relationship between the examined variables can be deterministic, when the relationship between cause and effect is obviously determined and it can be stochastic when the outcome depends on the chance. [HARNOS, 1993]
In the following I will examine the type and the closeness of the relationship between the profitability variables using the correlation and the regression analysis.

The closeness of he relationship between two profitability variables is determined by the correlation coefficient (R). The closeness of this relationship can be [HARNOS, 1993]:
– loose, if $R \leq 0{,}4$;
– moderately close, $0{,}4 \leq R \leq 0{,}7$;
– close, if $0{,}7 \leq R \leq 0{,}9$;
– fairly close, if $R \geq 0{,}9$.
These are the standard values I used when examining the relationships.

I grouped the test farm units according to SGM and I calculated the correlation coefficient in the size categories based on the specific size and type of enterprising model in the examined years. In certain cases I wrote the equation of the regression straight and also drew the regression straight.

On making the analysis I used the SPSS software.

2. FINDINGS

2.1 The determinant factors of the self-financed development in the Hungarian agriculture

Examining the years of 1990 the performance of the Hungarian agriculture decreased by 20-30 percent compared to the end f the 80's. On the graph (Figure 1) it can be seen that the Hungarian agricultural production was the lowest in 1993, and then it improved a bit and in 2000it significantly declined again. In 2001 there was a 15,8 percent increase compared to 2000 and the decrease of 4,4 percent in 2002 was caused by the unsteady performance of cultivation. After the fairly poor year of 2003, 2004 was the year of an outstanding agricultural performance, and 2005 also came close to this level.

The agricultural production, and due to its decreasing rate within the national economy, the deal position of the agricultural enterprises and the production became "poorer" because of the decline of the agricultural investments between 1992 and 1997, which spoiled the circumstances of the self financed development as a self-inductive process.
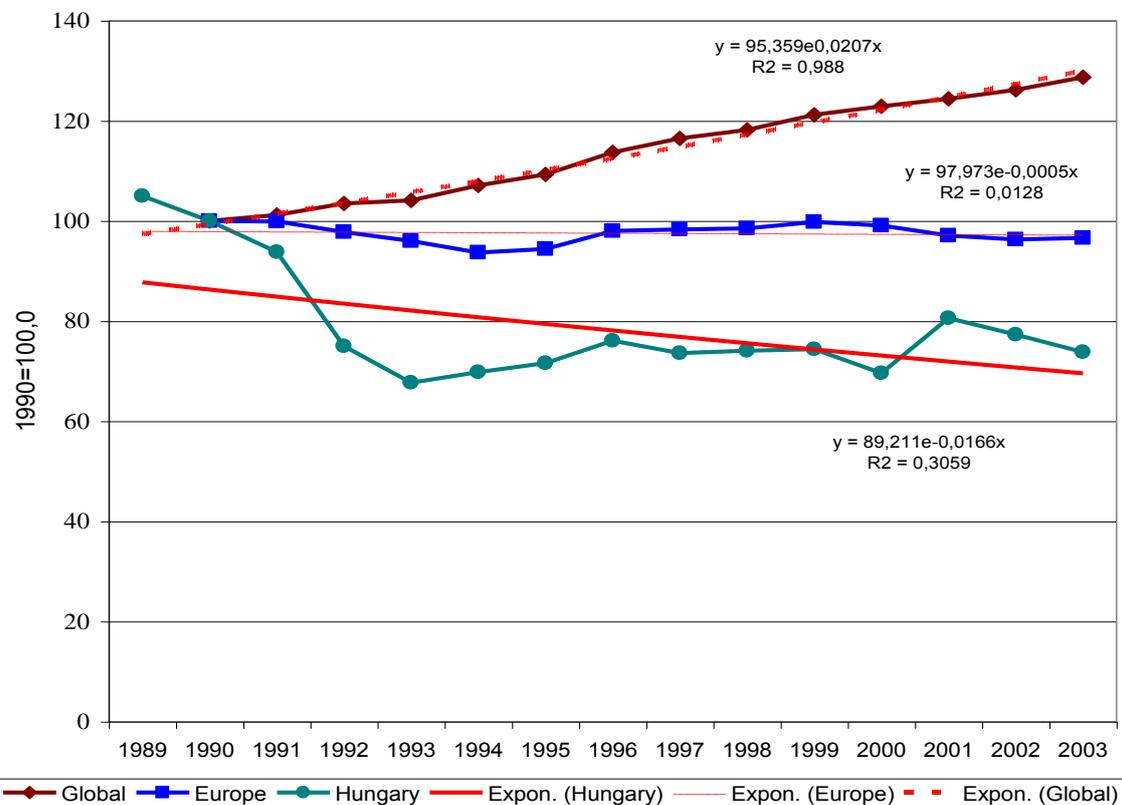
Figure 1: The volume of the Hungarian agricultural production between 1989 and 2003
Source: Based on the data from The Structural changes of the agriculture in the 90's, CSO Budapest, 2003, (p.8); Agricultural Statistical Annual 2003, CSO Budapest, 2002 (p.21.); International Statistical Annual 2004, CSO Budapest, 2004 (p.234)

In case of the world, Europe and Hungary I fit an exponential trend on the volume of the agricultural production and I got the following equations:

World:

$y = 95,359 * 0,021^x$

The average yearly trend increase is 2,1%.

Europe:

$y = 97,973 * 0,999^x$

The average yearly increase of the exponential trend fit to the European agricultural production is 0,999 which shows a minimal decrease. The fitting of the trends is the closest in this trend calculation.

Hungary:

$y = 89,211*0,984^x$

There is some similarity between the agricultural production of Hungary and Europe with regard to the pace of the average yearly increase (decrease), which is currently 1,6 percent.

It can be stated that the exponential trend shows an increase of 2,1 percent in the global production, during the same period of time the European production stayed on its level, while in Hungary it showed a decrease of 1,6 percent.

2.1.1. Investments

The agriculture's profitability is fairly influenced by the factors that how much investment the sector has and that how much it can accumulate. [BORSZÉKI, 2003]

The more and more increase in the agriculture from the beginning of the 80's, together with the social-economic transformation's effects on the agriculture, cause a dramatic decline of production after the transformation. But at the same time the strategic objectives required the sector's stability, what is more its growth, and the biggest difficulty of this was the low level of technical development. [The Hungarian agriculture after the political transformation according to the figures, 2003]

Examining the last 50 years, the level of the investment was the biggest in 1987, and this value declined to 26 billion by 1990 and to 16 billion forints by 1992. [KAPRONCZAI, 2003]

Even if calculated with the current prices the investments decreased at the beginning of the 90's, although in the second half of the decade an increase was experienced, even in 2003 the real value of the investments did not reach the half of he level of 1989. [BORSZÉKI, 2003]

This can be seen on Figure 2.
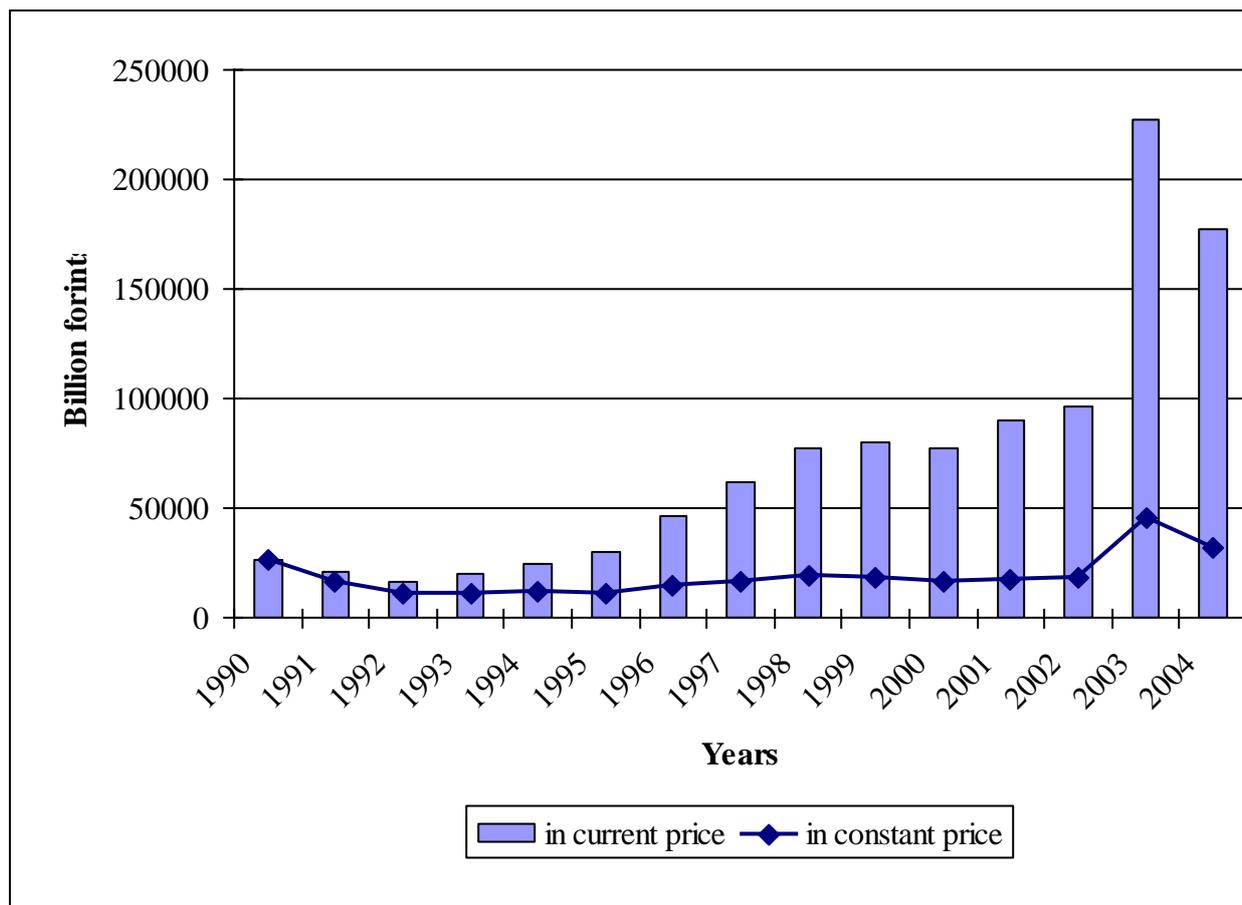
Figure 2: Agricultural investments in current and constant prices
Source: Based on the figures from the Hungarian Statistical Handbook 2004, CSO, 2005,
(p.183); Hungarian Statistical Handbook 2003, CSO, 2004. (p.185); Hungarian Statistical
Handbook 2002, CSO, 2003. (p.189); Agricultural Statistical Annual 2002, CSO, 2003. (p.20)

The tendencies of the agricultural investments of the last ten years prove one thing for sure:
the biggest looser of the market and political transformation was the agrarian sector. This was
the result partly of the unfavourable market conditions for the agriculture and also the result
of the weak and inconsequent agricultural policy that undertook objectives extinguishing each
other. This is mostly connected with the fact that the development of 600-700 billion forints
was not realised, the agriculture declined along a spiral: due to the postponements of the
developments and additional supply the market adaptability became weaker; the economic
index numbers of the effectiveness and the compatibility measured in kind deteriorated; the
income sources exhausted; and this served as a proper theoretical base of inflating the state
supports. [KAPRONCZAI, 2003]

When evaluating the circumstances of the self-financed development the investments should
be taken into consideration, as it is not only the size of the investments which should be
examined, but the question that which group of the smallholders received the investments
(small, middle or big enterprises) and if they could use the money effectively.

2.1.2. The parity
I examined the price index-numbers of the industrial products used in the agricultural
production and of the agricultural production from 1960 and I fitted exponential trend on both
rice indexes. In both cases the fitting of the trend is close and it can be seen that while the

prices of the industrial products shows an increase of 8,6 percent, that of the agricultural products is only 6,9 percent.

The change of the producers' price and the cost price and the parity calculated from them is one of the main determinants in the agriculture. Both price index-numbers are the determinants of the agricultural incomes, so they have an influence on the self-financed development. While the increase of the producers' prices is favourable, the increase of the cost prices is unfavourable for the agriculture. If the prices of the agricultural inputs are high and if the producers' prices do not follow this increase, the position of the self-financed development deteriorates and the farmers need to invoke more and more external resources.

2.2. The difficulties of the self-financed production in the Hungarian agricultural enterprising models

In the statistics the agricultural enterprises are divided into two groups: joint and individual enterprises. The number of organisations operating in the agriculture, game economy, sylviculture, and in the fishery between 1995 and 2003 increased by more than 50 percent, and within that there is an increase of 57 percent among the joint ventures and an increase of 50 percent among the individual enterprises. The highest increase was experienced among those joint ventures without a legal personality; an increase of 70 percent was registered.

On examining the ratio of the joint enterprises operating in the agriculture, game economy, sylviculture, and in the fishery it turns out that they have a proportion of 3-3,5 percent within the national economy. On examining the specific types of the enterprising models one by one, it can be said that the proportion of the limited liability companies is 3,4-3,7 percent, the proportion of the share companies increased from 6,2 to 8,5 percent, the rate of the deposit companies decreased from 2,3 to 2,2 percent and the rate of the co-operatives decreased from 31 to 28,3 percent between 1999 and 2004.

The influx of the foreign capital increased in the 90's, but even today it is not significant in the agriculture. If we take the foreign capital flowed in, it can be said that in 2001 and 2002 the 3,2-3,3 percent of the foreign enterprises in the national economy operated in the agriculture.

The next diagram (Figure 3) shows the distribution of the foreign capital in the agriculture by regions. Most of the foreign capital went to the Western-Transdanubia in 2003 (similar tendencies could be seen in the years before), as with an outstanding 34 percent this is the greatest amount. The second and the third are the Southern-Transdanubia and Central-Hungary, but they are already far behind the first. The smallest values were experienced on Northern-Hungary and on the Northern Great Hungarian Plain.
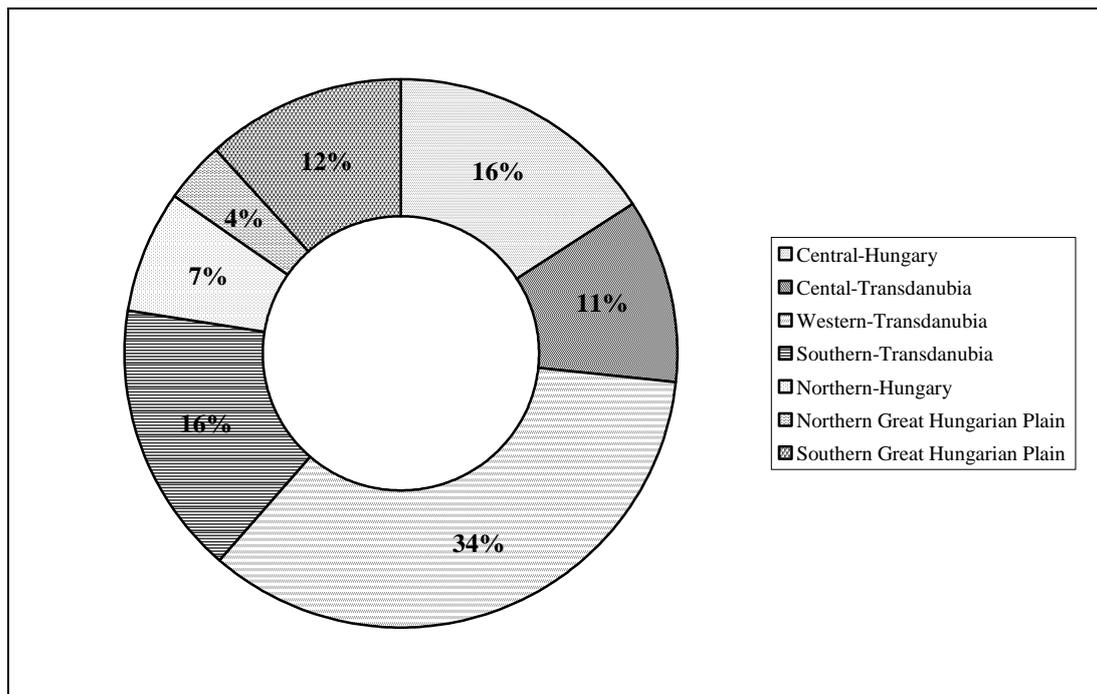
Figure 3: The distribution of the foreign agricultural enterprises by regions, 2003
Source: Handbook to the Hungarian regions 2004. CSO, 2005, (p. 2)

The existence of infrastructure, the cease of the land commerce's limits, etc. are important for the foreign capital. The role of the equity capital is essential here as well, while there are a lot of farms having small arable land, that are not able to run effectively, they do not receive external resources, as they do not have funds, so probably they do not get foreign capital. The foreign capital goes to the regions where the necessary conditions are guaranteed. The farmers having small arable land do not want to sell their own land. This has two reasons: one of them is that the elderly farmers insist on their land, the second is that they wait hoping that the selling price will be higher.

2.1.1. Uncertainty in the land development

After the political transformation the Hungarian enterprise structure has changed significantly. Between 191 and 2003 the number of the limited liability companies more than quadrupled in the national economy, the number of co-operatives decreased. On Figure 4 we can see the change of the agricultural land's volume used by the co-operatives from 1990 to 2001. A continuous decrease can be seen, in 1990 62,1 percent of the country's arable land was used by the co-operatives (5113000hectares) and this rate decreased to 9,2 percent (855000 hectares) by 2001.

With regard to the self-financed development the size (volume) is determinant, as the farms having small arable land do not have a significant amount of equity resource and this way they hardly get external resources.
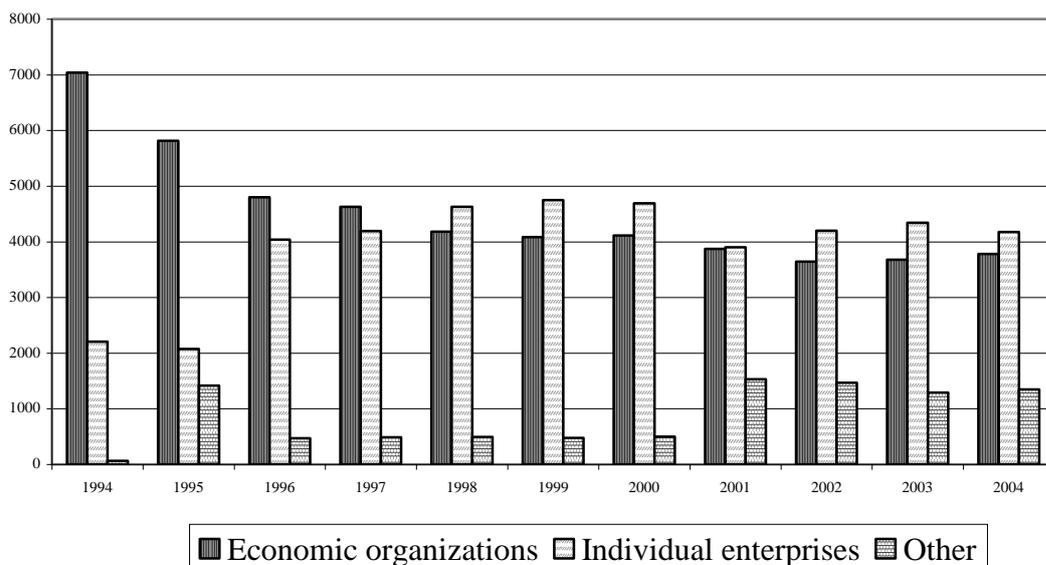
Figure 4: The distribution of the agricultural land according to type of enterprising model from 1994 to 2004
Source: Agricultural Statistical Annual 2003 (2004), Budapest, CSO, (p. 35.)

The decrease in the size of the economic organisations was caused by the decrease of the co-operatives' number in the first half of the examined period of time, currently this rate is stagnating. On the other hand from 1994 to 1995 the number of the individual enterprises increased unexpectedly. **This is against the self-financed development, because the number of those individual enterprises having small arable land increased. It is more effective to cultivate a bigger-sized land, the utilisation of the machines is better and also we can apply for more support.**

While the average size of the arable land in the smallest size category is about 4 hectares, this value in the biggest size category is more than 1000 hectares.

Table 3
The average quantity of the arable land in the economic organisations according to the size categories between 2001 and 2003

Size category in hectare	The average area of a farm in hectare		
	2001	**2002**	**2003**
Less than 10 hectares	3,9	4,1	3,9
11-50	28,6	27,2	26,8
51-100	71,9	72,6	72,0
101-300	200,3	204,2	191,6
Above 300	2138,6	2231,5	1896,4
Together	666,3	627,3	517,6

Source: Own writing

I examined the land development of the individual enterprises and the economic organisations with hierarchic cluster analysis based on the TSTAR 2000 database. The land development of the enterprises is the quantity of the arable land expressed in hectare in one enterprise. In case of the joint agricultural enterprises the Central. And Western-Transdanubia make one cluster and the Middle-Transdanubia with Northern-Hungary make another. Going farther Central-Hungary and the Southern Great Hungarian Plain make another cluster. With regard to the

individual enterprises we get a completely different picture. The first cluster contains Central- and Western-Transdanubia, the second contains Southern-Transdanubia and Northern-Hungary. **The northern part of the Great Hungarian Plain does not make a cluster with other regions either with regards to the joint or the individual agricultural enterprises.**

On examining the regions' agriculture according to way of cultivation the plough-land shows a uniform distribution. In case of garden area we can see some differences: the biggest rate is in Central- and Northern-Hungary. With regards to the orchards the differences are even bigger, the Northern Great Hungarian Plain stands out highly, then the second is Central-Hungary with a small backwardness. In case of vineyards the first two places are the Southern Great Hungarian Plain and the Central-Transdanubia. Examining the lawn area at the first three places are the Northern- and Southern Plain and Northern-Hungary with about the same rate. Most of the reedy area is on the Southern-Transdanubia and Central-Hungary has most of the fishponds.
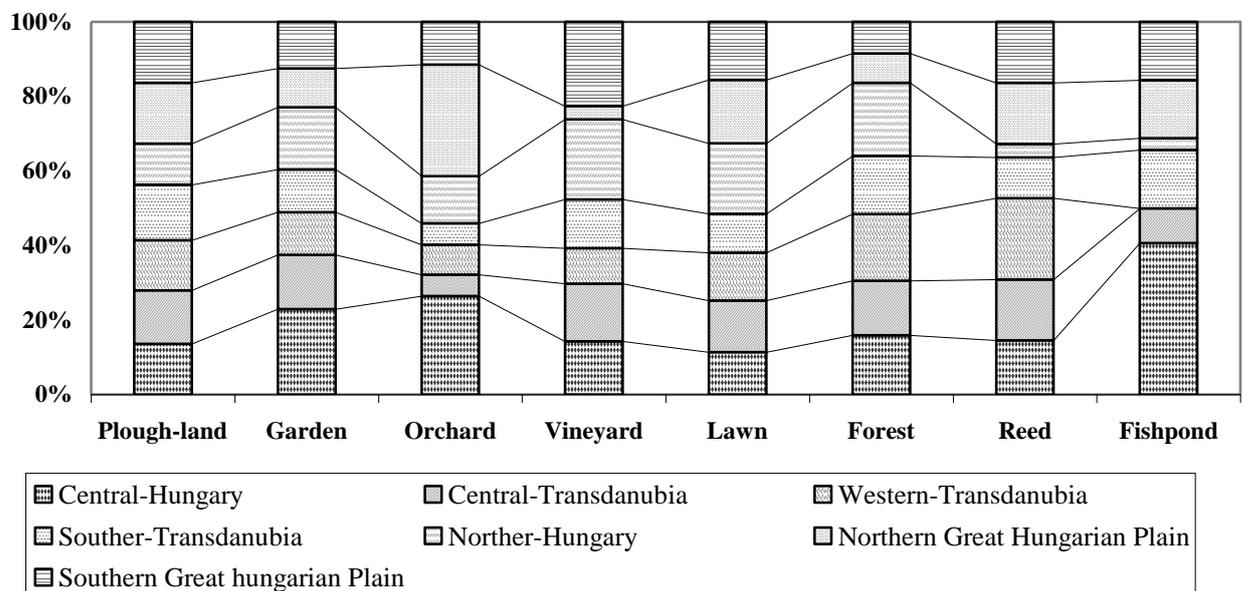
Figure 5: Arable land, crop land, 31 May 2004
Source: Own writing based on the data from FRISSNÉ TÓTH I. (2005): Handbook to the Hungarian regions 2004, Budapest, CSO, (p. 32)

2.2.2. The agricultural employment

The rate of the active earners in the Hungarian agriculture between 1990 and 2004 decreased from 14,2 percent to 5,2 percent. Due to this significant decrease the productivity of live labour increased, but this did not have influence on the evolution of the self-financed development's conditions.

The increase of the average age of the farmers is against the self-financed development, as this group of people avoid risks.

Comparing the number of the enterprises and of the employees it can be said that the number of employees per one enterprise increases in every region. This is the highest in the Southern Great Hungarian Plain in all the three years and it is the least in Northern- and Central-Hungary.

Table 4
The number of employees in one enterprise by regions

Regions	Employees on one enterprise (enterprise/employee)		
	2002	**2003**	**2004**
Central-Hungary	12,09	9,80	8,57
Central-Transdanubia	19,32	16,55	15,88
Western-Transdanubia	15,12	13,02	13,43
Southern-Transdanubia	17,39	16,63	14,44
Northern-Hungary	11,96	12,80	10,89
Northern Great Hungarian	17,29	19,22	17,68
Southern Great Hungarian	33,95	25,91	25,00
Together	18,61	16,69	15,45

Source: Own calculation

2.2.3. The capital equipment supply in the agriculture

The gross accumulation of the capital equipment serving the agricultural production either directly or indirectly was continuously increased between 2001 and 2003, it was 156,7 billion forints in 2004, which calculated in current price is equal to the 66 percent of 2003. As joining the EU the support system essentially influencing the value of the agricultural investments has changed, the volume of the supportable investments has decreased, its value has significantly dropped. The self-financed development fundamentally influences the supply of agricultural capital equipment. Due to the decline of the agricultural production the stock of the capital equipment also deteriorated.

2.2.4. The income conditions of the agricultural enterprises

It is the characteristic of agriculture that it has a smaller profitability than other sectors, and the return of the capital is slower and due to the natural conditions it is more risky.

From 1994 to 2003 the rate of the equity capital within the total capital decreased from 70 to 50 percent. On the other part of the Figure we can see the volume of the equity capital in the recent years and also its combination. The rate of the called-up share within the equity capital has decreased, the rate of the production result reserve and of the capital reserve has increased and the rate of the composable evaluation reserve from 2001 has also been increasing.
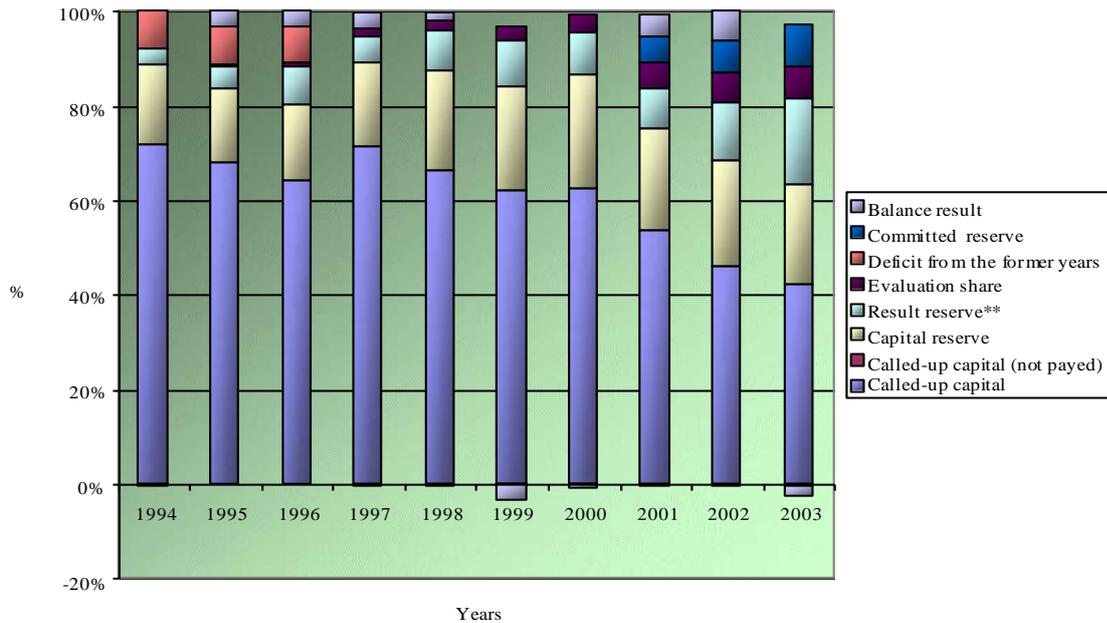
Figure 6: The structure of the equity capital in the Hungarian agriculture
Source: Own writing based on the main figures of the agricultural and food-industrial organisations' management having double-entry book-keeping from 1994 to 2000. Budapest, ARI, 2002 (p. 11); The main figures of the agricultural and food-industrial organisations' management having single or double-entry book-keeping from 1998 to 2003, Budapest, ARI, 2005 (p. 17)

The index of the agricultural capital transfer shows a great indebtedness in 1999, then after a decrease it has stagnated on 54-55 percent since 2000.
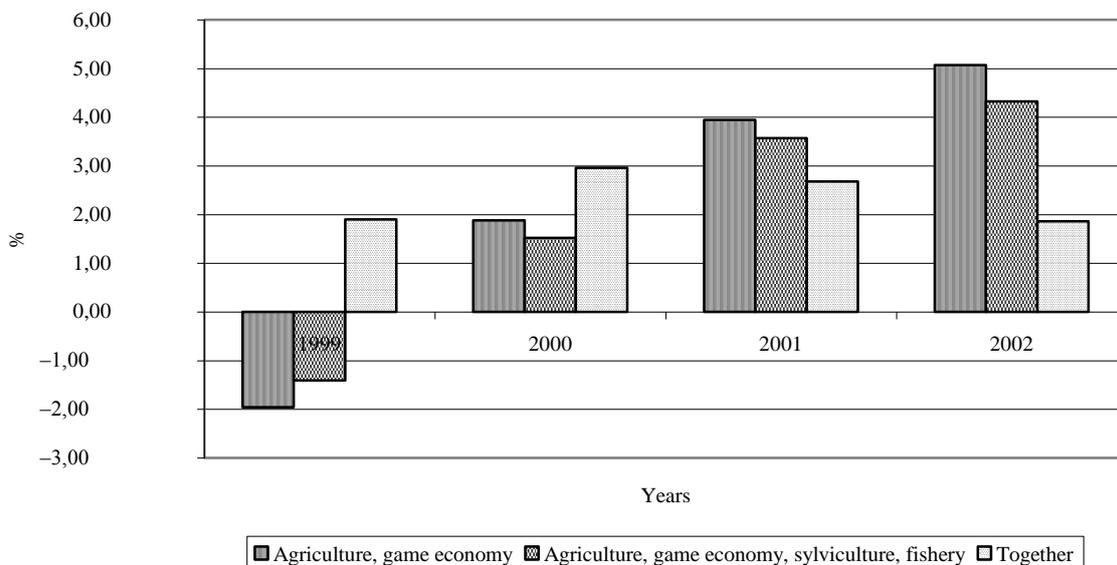
Figure 7: The profitability of the equity capital in the enterprises having double-entry book-keeping
Source: Own writing based on the figures of The financial figures of the companies from 1999 to 2000 (2004) Budapest, CSO

The profitability of the equity capital improved until 1995, that of the total capital improved until 1997. From 1997 the profitability shows a decreasing tendency and the operation of the equity capital has also showed a deficit until 1999, this improved from 2000. A tendency similar to the profitability of the total capital can be seen. In 2002 a value of 4-5 percent was registered, which is a significant improvement comparing to the value of –2 percent in 1999, but according to my calculations the profitability of the equity capital will be also negative by 2003 with a value of –2,1 percent.

2.2.5. The credit structure in the agriculture

The capital transfer index-numbers of the specific sectors are extremely different. It can be said generally in every sector that in the first 90's the utilisation level of the external capital was low, then a tendency of continuous increase was experienced until 1999. In that year the agricultural capital transfer-index reached the level of 50 percent. In the following years this value decreased a bit and since then it has stagnated at about 45 percent.

On Appendix 31 we can see the structure of the loans outstanding registered by the Hungarian National Bank, but these statistics do not contain the 50 billion sum of credit which was provided for the agriculture by the co-operative banks (15-20 billion forints) and the sum of credit that the family farms received from the Hungarian Bank of Development. According to the figures of the Hungarian National Bank in 1995 6,49 percent of the sum of credit given to the non-financial companies was granted to the agriculture. This rate, with smaller fluctuations, shows a value of 6,33 percent by the end of the third quarter of 2005. From 1995 the volume of credit provided for the agriculture increased until the middle of 1998, the highest value in this period of time was 9,9 percent, and then it has showed a decreasing tendency. In the first quarter of 2004 it touched bottom with 5,81 percent, then in the same period of the following year stayed below 6 percent and from that time on it has showed continuous increase. After 2003 the sum of the short-term credits has significantly decreased due to the stopping of the interest support. Today the warehouse credits make the bigger proportion of the short term credits, in which case the interest support is also available.

■ **Forint credits over the year**   ■ **Non-recurring and overdraft credits**
■ **Other credits within the year**   ■ **Currency credits within the year**
■ **Currency credits over the year**
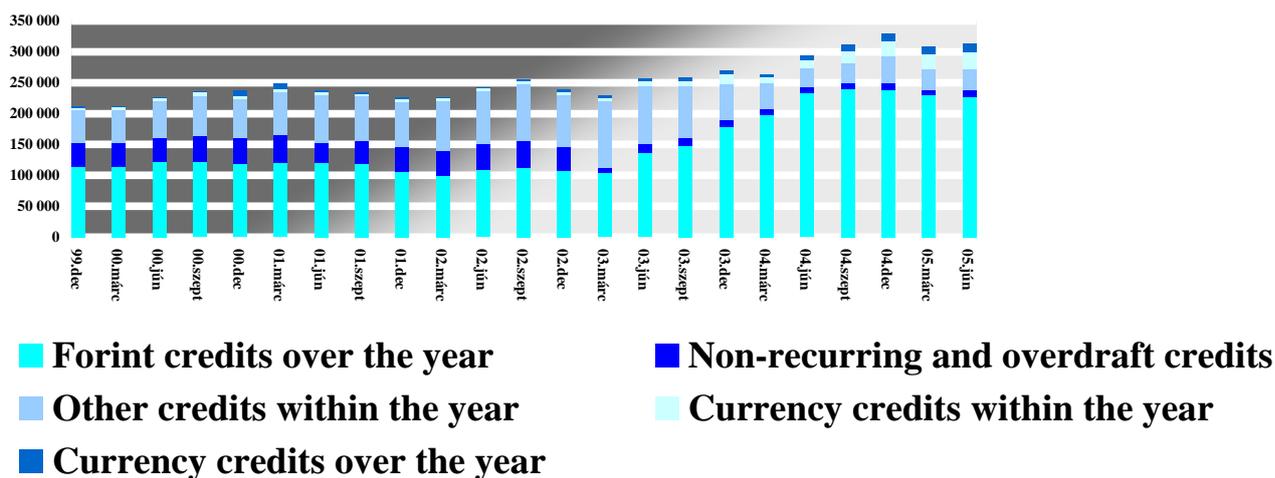
Figure 8: The agricultural enterprises' sum of credit (million Ft)
Source: Based on the figures of the Producers' prices and the companies' credit interests between 2001 and 2004, from HVB Bank, Department of Economy and on the data of the HNB

2.2.6. The results of the test farm analysis

When analysing the self-financed development I made factual calculations using the figures of the test farm system from three years (2002, 2003 and 2004).The "Subject and Method" section contains the most important figures of the sample and the methodological description of the analysis. When analysing the sample I divided the agricultural enterprises into private and joint enterprises and I examined their profitability one by one. After having analysed them according to years and regions I subdivided the enterprises into different size categories of SGM and different groups of field of activity.

We can see in table 5 that if examining the individual and the joint enterprises together, between 2002 and 2004 the number of the examined enterprises decreased in the groups of the smallest size categories, and this is due to the fact that the number of the private farms declined. The number of the joint enterprises in the same size category increased by almost 7 percent. In the biggest size categories an opposite tendency can be seen between the two types of enterprising model. In case of the private farms the decrease of the number of the enterprises having the smallest value of SGM can have two different reasons: on the one hand they got into the higher size category which is also presented by the table, on the other hand they become joint enterprises as, this can be also seen, the rate of the joint enterprises in the smallest category increased.

Table 5
The combination of the examined farms according to the farm size (%), between 2002 and 2004

Years	Farm size		
	All farms		
	<=4000	>4000-15000	>15000	Összesen
2002	35,45	35,02	29,53	100
2003	33,25	37,63	29,13	100
2004	32,24	40,90	26,86	100
	Private farms		
	<=2500	>2500-7000	>7000	Összes
2002	28,62	39,97	31,41	100
2003	25,33	39,61	35,06	100
2004	23,67	37,69	38,64	100
	Joint enterprises		
	<=25000	>25000-80000	>80000	Összesen
2002	32,93	26,83	40,24	100
2003	34,76	27,47	37,77	100
2004	39,86	27,42	32,72	100

Source: Own calculation

The CSO has also calculated the value of SGM of the Hungarian agricultural enterprises.
I also examined the samples according to the type of the enterprising models.
Among the examined enterprises the rate of the farms growing field crops is the highest, it makes almost the half in case of the private farms and we get a very similar result on examining the joint enterprises. In the area of private farms the rate of the specialised farms in the sample stays below 10 percent except the farms growing field crops. The rate of the farms with diverse activity is 25,13 percent, but this is divided into three subgroups. I personally did not examine these altogether, as the number of the elements in the sample would have been low and it would not have given a correct result.

Table 6
The combination of the farms in the sample according to field of activity

Field of activity	Private farms		
	2002	2003	2004
	(%)		
Specialised on growing field crops	49,68	43,58	45,67
Specialised on hortculture	1,94	2,02	2,83
Specialised on plantation	6,91	12,23	10,87
Specialised on keeping mass forage-eating animals	7,13	8,25	7,66
Specialised on keeping fodder-eating animals	9,22	1,47	6,52
Mixed togethes	25,13	32,44	26,45
	Joint enterprises		
Specialised on growing field crops	42,53	44,05	47,39
Specialised on hortculture	*	*	*
Specialised on plantation	5,81	7,71	10,90
Pecialised on keeping mass forage-eating animals	10,17	9,03	7,11
Specialised on keeping fodder-eating animals	15,98	14,76	10,90
Mixed togethes	24,90	24,45	23,46

* rate below 1 percent
Source: Own calculation

The relationship between the equity capital and the pre-tax profit

The self-financing may have several resources, like the foundation capital, the result of functioning, or the reorganisation of the property. Relating to the self-financing several question come up, but unfortunately it is impossible to answer all of them in one dissertation, that is why I narrowed down the area to be examined to analysis of the relationship between the equity capital and the pre-tax profit. In the former chapters I examined the combination and the volume of the equity capital on the whole Hungarian agriculture, but I did not have specific data, so I needed the test farm database for the further analysis.

In order that I could demonstrate the distorting effect of the capital reserve containing the development supports I composed the corrigated equity capital and the non-corrigated equity capital per hectare (Table 7).

The corrigated equity capital = the equity capital − the development supports included in the capital reserve.

Table 7
The equity capital and the corrigated equity capital of the individual enterprises on 1 hectare according to the fields of activity

Field of activity	Equity capital (1000 Ft/hectare)			rrigated equity capital (1000 Ft/hecta		
	2002	2003	2004	2002	2003	2004
Specialised on growing field crops	297,6507	403,2565	414,4667	286,2075	385,0566	401,6420
Specialised on horticulture	2702,9531	1350,0234	3087,1240	2632,0885	1286,4178	3062,9268
Specialised on plantation	1239,9813	1474,7344	1897,7506	1188,6774	1409,6925	1809,3978
Specialised on keeping mass forage-eating ani	384,3393	400,5271	423,9478	378,0897	382,1764	418,9042
Specialised on keeping fodder-eating animals	2169,9294	2465,7802	2325,6010	2124,5230	2367,8062	2243,5960
Mixed cultivation	392,5493	536,0194	541,1573	376,8768	521,5812	528,7873
Mixed animal keeping	534,6027	515,4106	476,6633	518,5013	513,0625	472,2841
Mixed cultivation and animal keeping	398,5577	525,6240	509,3696	392,9919	518,0890	497,6564
Mixed branches together	421,1190	529,3942	514,5195	409,5089	519,2105	503,9767

Source: Own calculation

Table 8
The difference between the equity capital and the corrigated equity capital expressed in the percentage of the equity capital

Field of activity	percentage of the equity capital		
	2002	2003	2004
Specialised on growing field crops	3,845	4,513	3,094
Specialised on horticulture	2,622	4,711	0,784
Specialised on plantation	4,137	4,410	4,656
Specialised on keeping mass forage-eating ani	1,626	4,582	1,190
Specialised on keeping fodder-eating animals	2,093	3,973	3,526
Mixed cultivation	3,993	2,694	2,286
Mixed animal keeping	3,012	0,456	0,919
Mixed cultivation and animal keeping	1,396	1,434	2,300
Mixed branches together	2,757	1,924	2,049

Source: Own calculation

In Table 8 we can see the difference between the equity capital and the corrigated equity capital in 1 hectare expressed in the percentage of the equity capital in the different years. We could also say that this is the rate the non-repayable agricultural development support influences the equity capital in the individual filed of activity.

Table 9
The profitability calculated based on the corrigated equity capital

Field of activity	The profitability of the corrigated equity capital (%)			The profitability of the equity capital (%)		
	2002	2003	2004	2002	2003	2004
Specialised on growing field crops	6,972	3,778	8,480	6,704	3,608	8,218
Specialised on horticulture	7,223	-3,657	0,345	7,033	-3,485	0,342
Specialised on plantation	1,264	3,122	1,291	1,212	2,984	1,230
Specialised on keeping mass forage-eating animals	7,285	1,243	7,875	7,166	1,186	7,782
Specialised on keeping fodder-eating animals	6,642	2,085	5,633	6,503	2,003	5,435
Mixed cultivation	0,750	0,783	1,545	0,720	0,761	1,510
Mixed animal keeping	5,739	-1,107	3,390	5,567	-1,102	3,359
Mixed cultivation and animal keeping	5,347	-3,232	5,740	5,272	-3,186	5,608
Mixed branches together	3,719	-1,218	3,736	3,616	-1,195	3,660

Source: Calculated based on the database of the ARI test farm system

On the elements of the profitability analysis is the pre-tax profit. I have chosen the pre-tax profit as when calculating the profitability index-numbers (total capital proportionate-profitability, the profitability of the equity capital, labour-profitability) this is the value which is usually used and this way the distorting effect of the change in the tax system can be eliminated.

And finally we will examine the profitability of the different type of enterprising models in the latest years. The value of the equity capital proportionate-profitability was the highest in 2001. There was a little difference between the different types of enterprising models this time, in 2002 also a small difference was experienced, but the profitability showed a 1,5-2 percent smaller value than the year before.
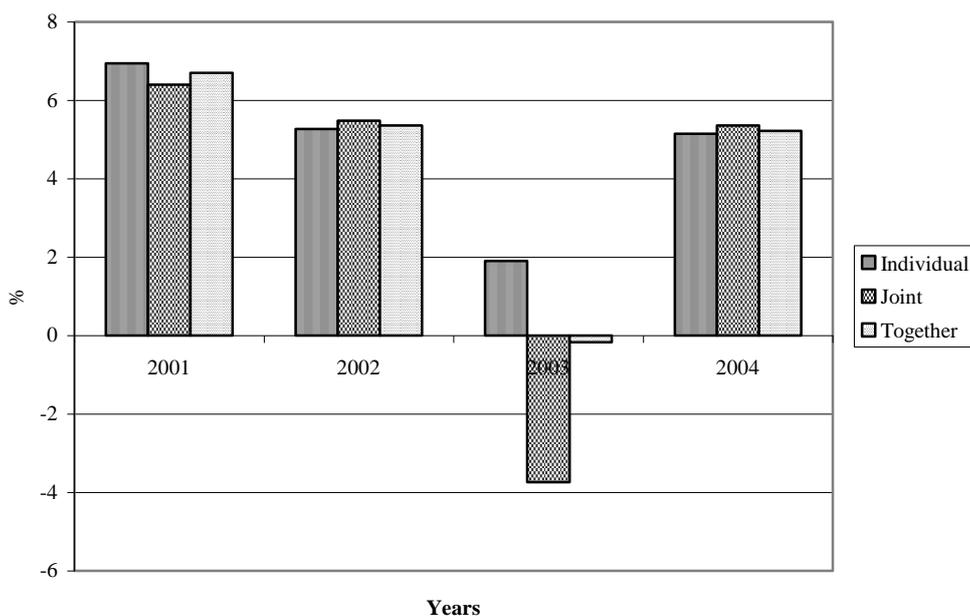
Figure 9: The profitability of the equity capital in the individual and the joint enterprises in the different years
Source: Own writing

I made further analysis on the individual and the joint enterprises searching for the answer to the question that how and in what extent the equity capital influences the volume of the pre-tax profit. I analysed the problem with a regression analysis, my independent variable was the equity capital per 1 hectare and the dependant variable was the pre-tax profit per 1 hectare.

Table 10
The results of the regression calculation in the different types of enterprising models

Types of enterprising model	The equation of the regression straight (if interpreted)	R
2002		
Individual enterprise	**Y = -5,053633 + 0,086312 * the equity capital per 1 hectare**	**0,59986**
Joint enterprise		0,36079
Together	**Y = -6,609570 + ,084843 * the equity capital per 1 hectare**	**0,58868**
2003		
Individual enterprise		0,07224
Joint enterprise		0,19809
Together		0,08635
2004		
Individual enterprise		0,17645
Joint enterprise		0,15856
Together		0,17648

Source: Own calculation
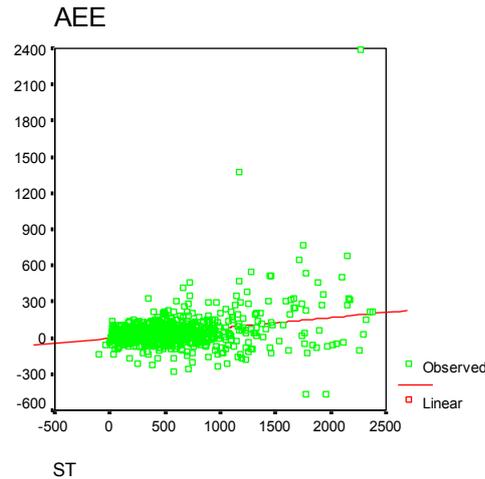
Figure 10: The relationship between the equity capital and the pre-tax profit per hectare of the individual enterprises in 2002

Source: Own writing

In case of the individual enterprises the increase of the own capital shows a moderately close relationship, as the result was disfigured by some outstanding values: the result of the equity capital per 1 hectare was examined between –5000 and 2500 thousand forints, the pre-tax profit per 1 hectare was examined between the values of –600 and 2400.

Table 11
The values of the correlation coefficient (R) in the different SGM categories

Years	Types of enterprising models according to the value of the SGM (1000 Ft)		
	Together		
	<=4000	>4000-15000	>15000
2002	0,13468	**0,82639**	**0,65852**
2003	0,36689	0,35269	0,24071
2004	**0,50834**	0,15331	0,19461
	Individual enterprises		
	<=2500	>2500-7000	>7000
2002	0,31514	**0,67726**	0,23253
2003	**0,78535**	0,35696	0,29112
2004	0,11519	**0,87173**	0,20552
	Joint enterprises		
	<=25000	>25000-80000	>80000
2002	0,03268	**0,75200**	**0,87508**
2003	**0,62806**	0,15813	0,74962
2004	0,37301	**0,54726**	0,15856

Source: Own calculation

The correlation coefficients of the individual years do not give a comprehensive view on the relationship between the equity capital and the pre-tax profit, so I tried to search for a relationship between the different size categories determined by the level of SGM. Based on the yearly results the conclusion could have been drawn that, seeing the figures of the former regression table, in case of the joint enterprises there is no practical relationship, but the figures of table 11 contradict this. It can be said in general that among the examined variables,

those are the middle size categories where a moderately close relationship can be demonstrated. The figures from 2003 show a bit different view, probably because of the poor agricultural performance. In that year a close relationship can be demonstrated between the pre-tax profit and the equity capital of the smallest individual and joint enterprises.

The calculations contain all of the figures, so it may happen, that the outstanding values disfigure the results. In case of the joint enterprises for example in 2002 the value of R is pretty high in the biggest size category. If we ignore 5 percent of the data, that is to say if we omit the outstanding values the relationship between the variables is still moderately close, but not to such an extent any more.

These are not only the type of enterprising models and the size (calculated based on the value of SGM), but the field of activity which essentially influence the result of the calculations. I counted the values of the correlation coefficient in the private farms divided into groups according to the field of activity and (Table 12) based on the results we can draw the conclusion that the relationship is loose in all field of activity.

Table 12
The values of the correlation coefficient (R) in the individual enterprises according to the field of activity

Farms	2002	2003	2004
	Years		
Specialised on growing field crops	0,25881	0,01036	0,14097
Specialised on horticulture	0,31204	0,07832	0,24501
Specialised on plantation	0,09639	0,34731	0,14865
Specialised on keeping mass forage-eating animals	0,39350	0,05088	0,06335
Specialised on keeping fodder-eating animals	0,35105	0,14109	0,05467
Farms with mixed activities	0,07710	0,025572	0,10655

Source: Own calculation

Similarly to the former analysis I made the same calculation on the joint enterprises. According to the calculations a relationship was found between the correlation coefficients of the different fields of activity. In 2002 the correlation coefficient of the farms specialised on fodder-eating animals showed a moderately close relation (0,65668) and there is also a fairly close relationship (0,74148) between the equity capital and the pre-tax profit of the farms with mixed activities. In 2003 the relationship was loose in every field of activity between the examined factors. In 2004 in case of the farms specialised on growing field crops, the farms specialised on keeping mass forage- and fodder-eating animals the correlation coefficient in the joint enterprise according to fields of activity.

Table 13
The values of the correlation coefficient in the joint enterprises according to the fields of activity

Farms	2002	2003	2004
		Years	
Specialised on growing field crops	0,28292	0,24668	**0,48899**
Specialised on horticulture	~~0,85002~~	-	~~0,96653~~
Specialised on plantation	0,11820	0,10861	0,12114
Specialised on keeping mass forage-eating animals	0,38809	0,02241	**0,45722**
Specialised on keeping fodder-eating animals	**0,65668**	0,29577	**0,53265**
Farms with mixed activities	**0,74148**	0,33596	0,26494

Source: Own calculation

The role of the result reserve
The result reserve is the variable element of the equity capital, which first of all shows the cumulated sum of the balance result of the former year's enterprising activity, the contribution of the former years' activity to the equity capital and it shows the effect to the equity capital. In case of profitable activity the reality of the result reserve is the net income free of all charges, staying in the enterprise, the increment value of the property. If the result reserve is negative, it shows a cumulated deficit reducing the equity capital.

First of all, as we did when examining the equity capital, we should examine what regional differences can be found in the values of the capital reserve per 1 hectare. During the investigation I faced the problem that the result reserve can not be interpreted on the individual enterprises of the test farm system, we can only determine the results on the joint enterprises. Among the joint enterprises the northern region of Hungary has the biggest backwardness, in 2004 it shows negative values.

My independent variable was the result reserve per 1 hectare and the dependant variable was the pre-tax profit per 1 hectare (Table 14).

Table 14
The values of the correlation coefficients in the joint enterprises according to the SGM categories

Years	Types of enterprising model according to SGM categories (1000 Ft)		
	Joint enterprises		
	<=25000	>25000-80000	>80000
2002	0,11533	**0,68068**	**0,65813**
2003	**0,81401**	0,14018	0,07335
2004	**0,66189**	**0,49170**	0,30515

Source: Own calculation

The results do not show the relationship between the result of the former and of the current year either, but probably this is due to the unfavourable weather conditions in 2003 and to the supports not paid in 2004. In 2002 the value was very low, which means that there is no relationship, but it can be said that there is a relationship between the examined variables in

the middle and big size categories. In 2003 a close relationship can be found between the enterprises of the smallest size category and in 2004 a moderately close relationship was found between the result reserve and the pre-tax profit of the enterprises of the small and middle size categories. It can be stated that the result reserve (the balance result of the former year) in a certain rate influences the pre-tax profit of the following year.

Cluster analysis on the profitability of the equity capital
Based on the profitability of the equity capital I examined the regions belonging together in the different years and also together. In the course of my analysis I used the figures of the individual enterprises. On analysing the data of the three examined years the region of the Central-Transdanubia, the southern part of the Great Hungarian Plain and the region of Northern-Hungary are closest to each other, and the northern part of the Great Hungarian Plain is the most far from the central point. This region is far from the central point in every year, probably because of the production structure. In 2003 four regions make a cluster, these are the three Transdanubian regions and the southern part of the Great Hungarian Plain. The regions of the Middle-Transdanubia are in the same group both in 2002 and in 2004. It can also be said that with regard to the profitability of the equity capital there is a relationship between Northern-Hungary and the Southern Great Hungarian Plain.

3. CONCLUSIONS

The rate of the agriculture within the national economy has gradually decreased since 1990. The main index-numbers of the agriculture are the agricultural contribution to the GDP, the rate of investments, the role of the agricultural employment. According to these and other index-numbers the performance of the agriculture has continuously decreased after the political transformation. But this is not a characteristic only of the Hungarian agriculture. We can also mention the political transformations in the Central-Eastern European countries, where it had a negative effect on those countries' agriculture, and due to this negative effect the production declined mainly in the middle 90's. In the course of writing this dissertation I have drawn the following conclusions:

- The investment is an important question when forming opinion on the situation of the self-financed development, as it is not only the volume of the investments which is important to examine, but the questions that which group of the farmers (small-, middle- or bigger-sized farms) got the investments and if they could use it effectively.

- The change of the producers' prices and of the input prices, and the parity calculated from them are the main determinants of the agricultural production. Both the agricultural producers' price index and the input price index are the determinant of the agricultural incomes, so it has an effect on the self-financed developments well. The increase of the producers' prices pushes the agriculture to a favourable direction, while the increase of the input prices pushes the agriculture to a less favourable direction. If the agricultural input prices are high and the producers' prices do not follow this increase, the farmers have less possibility on the self-financed development, and they need more and more external resources.

- On examining the distribution of the foreign capital in the agriculture and within that in the individual regions I found that most of the foreign capital arrived to the Western-Transdanubia, it stands in the first place with an outstanding value of 38 percent. The second and the third are the Southern-Transdanubia and Central-Hungary staying far behind the first. The smallest values are in Northern-Hungary and in the Northern Great Hungarian plain.

- The number of the individual enterprises increased, the number of the economic organisations decreased in the last decade. This fact has a negative effect on the self-financed development because the number of the individual enterprises having little average arable land increased. The production is more effective in a bigger-sized land, the utilisation of the machines is better and a bigger amount of support is available.

- In the aspect of the land development of the agricultural joint enterprises it can be said that Central- and Western-Transdanubia make a cluster and Central-Transdanubia with the Southern Great Hungarian Plain make another. If increasing the distance Central-Hungary and the Southern Great Hungarian Plain can be put into the same group. If we examine the individual enterprises we get a totally different picture: Central- and Western-Transdanubia are in the first cluster, while the Southern-Transdanubia and Northern-Hungary are in the second. The Northern Great Hungarian Plain does not make a cluster with any other region neither with regard to the joint or the individual enterprises.

- Within all of the resources the rate of the equity capital decreased in the agriculture from 1994 to 2003, the rate of the equity capital within all resources decreased from 70 to 50 percent. Within the equity capital the rate of the called-up share decreased, the rate of the result reserve and of the capital reserve and also the estimation reserve increased since 2001.

- On examining the credit structure of the Hungarian economy it can be stated that regarding the period of credits the rate of the long-term credits continuously increases. After 2003 the sum of the short-term credits significantly decreased which was caused by the stopping of the interest supports. Now the warehouse credits make a big proportion of the short-term credits, in which case the interest support is still available.

- The profitability of the equity capital improved until 1995, that of the total capital improved until 1996, from 1997 the tendency of the profitability of the total capital is decreasing, and the operation of the equity capital showed a deficit until 1999, from 2000 it has improved. A tendency similar to the profitability of the total capital can be seen. In 2002 a value of 4-5 percent was registered, which is a significant increase compared to the value of -2 percent in 1999, but according to my own calculation the profitability of the equity capital will be negative again with a value of -2,1 percent by 2003.

- In case of the private farms the number of the enterprises belonging to the smallest SGM category decreased. This can have two different reasons: on the one hand they got into a higher SGM category, also showing in the table, on the other hand they became joint enterprises which also can be seen as the rate of the joint enterprises increased in the smallest size category.

- I examined the enterprises not only according to the type of enterprising model but also according to size category and field of activity. The individual enterprises of the test farm system are divided into 4 different groups according to the size of the arable land: <15 hectares, between 15 and 40 hectares, between 40 and 100 hectares and >100 hectares. The average value of the equity capital's profitability was the lowest in 2003, as that was the worst year of the near past in the agricultural production. About 2004 I could draw a clear conclusion, that in parallel with the increase of the size categories the profitability of the equity capital shows also an increasing tendency. In the other two years (2003 and 2003) the individual enterprises having less than 15 hectares reached a higher level of profitability, than the one belonging to the group one higher. All in all it can be said that 2003 was an outstandingly bad year, as the individual enterprises reached only the half of the equity capital's profitability, but in 2002 and 2004 this examined value was about 5 percent. I also examined the profitability of the total capital and of the labour and a similar tendency was found.

- In parallel with the increase of the size categories the profitability of the equity capital shows also an increasing tendency.

4. NEW SCIENTIFIC RESULTS

1. In parallel with the decline of the **agricultural production** and with the decline of the agricultural investments the production became "poorer", which spoiled the conditions of the self-financed development as a self-inductive process.

2. **In the course of my research work using up-to-date methods of examination I stated that the capital structure of the agriculture has changed in the examined period of time.** Due to the low level of profitability a steady lack of capital came, the enterprises needed more and more credit, and it got more and more difficult to produce the income required for paying off the external capital. This has a negative effect on the future of the agricultural enterprises and on their chance of growing.

3. **In the credit structure of the Hungarian economy with regard to the credit periods the rate and the sum of the long-term credits are continuously increasing, which was fundamentally** caused by the stopping of the interest supports (except the warehouse credits. The long-term have smaller interests, so the yearly debt is also smaller. The other big advantage of the long-term credits is that they better fit in to the agricultural characteristics.

4. **In the course of the analysis of the agricultural enterprises according to the size categories I proved that in parallel with the increase of the size categories the profitability of the equity capital shows an increasing tendency as well, so in the examined period of time the economic advantages originating from the size-efficiency can be demonstrated.**

5. Using the figures of the test farm system I examined according to different types of farm categories that in what extent the charges of the external capital influence the birth of the pre-tax profit. **I proved that a moderately close relationship can be found between the examined variables in the middle size categories, so the volume of the equity capital influences the pre-tax profit.**

6. **According to the field of activity** in the individual enterprises a loose relationship can be found in case of all examined activities, and there is also a relationship between the correlation coefficients of the joint enterprises in the different fields of activity. In 2002 the correlation coefficient of the farms specialised on keeping fodder-eating animals showed a moderately close relationship (0,65668), and a fairly close relationship (0,74148) was found between the equity capital and the pre-tax profit of the farms with mixed activity. In 2003 the relationship between the examined factors was loose in case of all field of activity. In 2004 in case of the farms specialised on growing field crops, keeping mass forage-eating animals and on keeping fodder eating animals the correlation coefficients show a moderately close relationship. I proved that in case of the joint enterprises the individual fields of activity influence the profitability of the equity capital.

7. I raised the result reserve per 1 hectare from the elements of the equity capital and as a dependant variable I used the pre-tax profit per 1 hectare in the joint enterprises (as it can be interpreted only on that category). In 2002 this value was very low which means there was no relationship, but it can be seen that there was a relationship between the examined variables of the middle and the bigger size categories. In 2003 a close relationship was found between the enterprises of the smallest size category, and in 2004 there was a moderately close relationship between the result reserve and the pre-tax profit of the enterprises belonging to the small and middle size categories. **I found that the result reserve has a strong correlation-type influence on the pre-tax profit.**

5. SUMMARY

In my dissertation I tried to uncover those circumstances that prevent the self-financed development. In the introduction I set the processing of the scientific literature as my first objective, during that I presented the origin of the macro-economic and the company earnings. In the course of processing the literature I touched on the role of the equity capital and the external capital, their resources, and I also presented the role of the cost on the company's capital.

Then on realising the second objective I illustrated the performance of the Hungarian agriculture after the political transformation and I uncovered those factors that influence the birth of the equity resource. The main index-numbers examined were the followings: the agriculture's contribution to the GDP, the role of the agriculture in employment, in investments, in foreign trade and its effect on the ratio between the relative prices of agricultural and industrial products. I made a comparison between the trend calculation on the Hungarian agriculture's production and the agricultural production of Europe and the world. I set down as a fact that between 1989 and 2003 the global production increased by 2,1 percent, the production of Europe stayed on the same level, while Hungary's production decreased by 1,6 percent. Using an exponential trend I found that while the price of the industrial products increases by 8,6 percent, the price of the agricultural products increases by 6,9 percent. On analysing the agricultural investments I found that using them effectively is an important point of view.

The main attributes of the agricultural enterprises are: their quantity, the number of employees, the state of capital equipment supply, the level of land development. I analysed these factors' effect on the self financed development and then I presented the recent income conditions of the agriculture. Between 1995 and 2003 the number of organisations running in agriculture, in game economy, in sylviculture and in fishery increased by 50 percent, and within that there is an increase of 57 percent among the joint ventures and an increase of 50 percent among the individual enterprises. The highest increase was experienced among those joint ventures without a legal personality, an increase of 70 percent was registered. Although the amount of the equity capital in the foreign enterprises operating in Hungary shows a rising tendency, this is not valid for the agricultural enterprises. In 2003 the amount of the equity capital in the agricultural enterprises is only 20 percent of the amount of the national economy's equity capital.

With a view to the self-financed development the size is a determinant factor, as those farms having little cultivable land have no significant amount of equity capital and this way they can not easily get external resources either. Comparing the number of enterprises and employees it can be said that the number of employees in one enterprise has decreased in all regions. Between 2002 and 2004 this number is the highest on the Southern part of the Great Hungarian Plain and it is the lowest in Northern and Central Hungary.

I also analysed the profitability of the total capital, the profitability of equity capital, the yield proportionate to means of production and the liquidity. I presented the structure of the resources, the changes of the credit system, and I have also searched for the causes of these changes.

The profitability of the equity capital progressed until 1995, that of the total capital increased until 1996, and from 1997 the tendency is a regressive profitability and until 1999 the motion

of equity capital is showing a deficit and from 2000 it is improving. A tendency similar to the profitability of the total capital can be noticed. In 2002 a value of 4-5 percent was registered, which is an improvement comparing to the –2 percent from 1999, but based on my calculations the profitability of the equity capital in 2003 is negative again with a value of 2,1 percent.

After 1995 the liquidity index-number has decreased and even in 1998 it can be decreased as good, but in 1999 its value did not even reach the level of 1992. Between 1999 and 2002 it increased from 1,35 to 1,48. In 2003 it was 1,57.

The structure of agricultural loans suffered change: after 2003 the quantity of short-term credit has significantly decreased due to the termination of the interest supports. Now the warehouse credits makes the biggest part of the short-term credits, and in case of these credits a support on the interests still exists.

On analysing the self financed development I made factual calculations using three years' data of the test-farm database (2002, 2003, 2004), and during that I analysed the pre-tax results the type of the enterprising model, region, size, type of function and by years. I examined the relationship between the pre-tax results, the equity capital, the reserve, and I also examined if there is a relationship between them and if there is, how strong it is. I analysed the equity capital per hectare, the amount of reserve per hectare and the pre-tax profit per hectare with correlation method and with regression calculation. As the agricultural enterprises have specific characteristics and as the capital reserve contains the development support, I also examined the effect of this an I used the corrected equity capital for my analysis. The main findings can be found in Conclusions. I made a cluster analysis on the profitability of the equity capital examining the differences between the regions in certain years. I found that there was no relationship between the regions and the profitability of the equity capital.

Finally it can be said that in certain cases (in certain years, functions and types of enterprises) the equity capital does have an influence on the pre-tax profit, that is to say on the profitability.

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Scientific and professional activities:
- Member on the Organizing Committee of the International Conference for Young Researchers (2001, 2002, 2004, 2006)
- Member on the Junior Committee at the "Gazdálkodás" Scientific Journal on Agricultural Economics (2004-)
- Secretary on the Management and Business Administration PhD School (2004-)
- Member on the International Association of Agriculture Economists (2005 -)