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GÖDÖLLŐ

THESES OF DOCTORAL (PhD) DISSERTATION

**CHANGES IN PROVISION AND IN COMPOSITION OF CAPITAL
AND THEIR EFFECTS ON THE MANAGEMENT OF
AGRICULTURAL ENTERPRISES IN HEVES COUNTY (1992-2000)**

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1. Preliminaries of the dissertation and its aims

The previous decade has brought about significant changes to national agro-industry. These changes touched the ownership and possession conditions, the domestic and foreign market positions and – among others – the agro-financing system. In connection with the latter, there were also changes in the financial situation of agricultural enterprises. These new types of agricultural enterprises – according to the literature on this subject – generally suffer from lack of capital, and their level of capital accumulation is low. Creating conditions for the farming increased the need for external financial resources of the enterprises – especially of debt capital. The privatisation also amplified (fastened) this process, mainly through the usage of subsidized loan constructions, which accompanied privatisation. Therefore, within the previous decade, there have been significant changes in the capital structure of agricultural enterprises. The changes in financial situation and capital structure also affected the parameters illustrating the management of the enterprises, influenced the competitiveness of the farmers, their financial position and profitability, effectiveness, the market value of the enterprises, the level of expected profit, etc.

The critical judgement of these changes, the correction of the existing problems are urgent tasks, since Hungary's joining the EU presents the greatest challenge of all times for the Hungarian agricultural sector. Many people believe that joining the EU forces the participants of the Hungarian agriculture to an even greater adjustment than the changes in the political system did.

Financing in the agricultural sector needs reforming due to the present crisis, joining the EU and other international developments and agreements, mainly because of WTO negotiations. This is why it is necessary to see clearly the existing circumstances, the reasons which have led to the current situation and of the determinants with possible effects in the future.

In my dissertation the notion of **agricultural economy** includes agriculture, silviculture, wild stock-husbandry and fishing, and out of all agricultural enterprises I will deal with joint enterprises operating in the agricultural sector. The term **capital structure** will be interpreted loosely, I will not use it only for the composition of long-lasting financial resources but also for the structure of resources.

The objectives of the dissertation
I have drawn up the aims of my dissertation as the following:
> ➢ By analysing the literature I will assess the reasons of the changes in the structure of resources of agricultural enterprises **in order to find the determinants effecting the capital structure and the capital adequacy, as well as to find the correlation between them**. I will present and assess well-known economic theories concerning capital

structure. These will make it possible to compare my findings to the laws determined by economic theories, and **highlight the reasons which contort the fulfilment of these laws, yet, at times completely block these realizations in the agricultural sector.**

- ➤ I will complete the comparative assessment of the changes in the capital structure that took place in the whole national economy and in joint agricultural enterprises **so that I can clarify the sectoral characteristics of the structure of resources.**

- ➤ On the basis of investigations carried out in Heves county I will reveal the determinants and processes effecting capital structure, and I will assess the index numbers illustrating the management of the enterprises. I will do all this in order to be able to carry out the inspection about the correlation of cause and effect between the changes in capital structure and the parameters illustrating the economy. I would also like **to draw conclusions, and to find those regional peculiarities that make the generalization of the outcomes more difficult.**

- ➤ I will make an attempt to reveal correlation between certain years' performances and economical features of the studied enterprises, by means of which typical phenomena could be proved and evaluated. I will test the practical application of index numbers that play a role in the prediction of the financial crisis through the example of an enterprise that has been liquidated **in order to draw the managers' attention to the variation of these indices.**

- ➤ I will carry out a national questionnaire survey **in order to form an opinion about how joint and individual enterprises evaluate the financing conditions of the agricultural sector and their own business' capital conditions.**

Throughout the implementation of my goals will I be able **to make proposals to modernize the financing system of the agricultural sector.**

2. The method of research

During my research I elaborated and summarized the national and international literature that are connected with the topic, the professional opinions of authors who published academic articles, periodicals and technical books in this field, and in some places I coincided them with my own views.

During collecting macroeconomic data I relied on the data provided by the Central Statistical Office (KSH), the National Bank of Hungary (MNB), the Tax and Financial Auditing Office (APEH), and the Ministry of Finance (PM), whereas gathering the data concerning the agro-industry was based on the publications of the Agro-Industrial Research and Informatics Institute (Agrárgazdasági Kutató és Informatikai Intézet). The basic data that were required to calculate the indices reflecting capital structure and other financial positions of the agricultural enterprises were provided by the Tax and Financial Auditing Office (APEH).

For the examination of the 1992–1995 period I used the summarized database of the Tax and Financial Auditing Office that is originated of balance sheets and outcome reports. The basic data of the evaluation of the period between 1996 and 2000 came from corporate income tax returns of agro-industrial enterprises that filed a corporate income tax return between 1996 and 2000 **(Appendix 1)**.

When examining the agricultural enterprises of Heves county, I collected the basic data from the company register system of the Heves county Registry Court.

I applied questionnaires when collecting the opinions of agricultural enterprises and entrepreneurs related to financing.

For certain parts of my survey I applied the following **methods**:
  - ➢ I evaluated the reasons that brought about lack of capital in the agrarian sector by **processing technical literature**. I dealt in detail with the changes of self-financing ability, the problems of agricultural subsidies and agro-financing system being the most significant determinants to capital structure.
  - ➢ I presented and evaluated the well-known economic theories on capital structure also by processing technical literature.
  - ➢ With the help of **ratios** I analysed the changes of resources in national economy rendering the financial situation of the agricultural sector and other macroeconomic branches comparable.
  - ➢ By using the database provided by the Tax and Financial Auditing Office I examined the changes of capital structure in the agricultural sector and their effects on the enterprises' pecuniary and financial situation. I also revealed the causes that influenced these processes.
  - ➢ I formed a **company sample** out of the circles of agricultural co-operatives and joint agricultural enterprises of Heves county. I put to-

gether a data sheet to survey the enterprises' basic management data. I carried out the collection and evaluation of the primary data.

- ➢ On the basis of the **primary data survey** I presented the capital structure of Heves county's agricultural enterprises, the main parameters that characterized their economy, and their changes between 1992 and 2000. I specified the capital structure and the values of indices that were important from their economy's point of view per enterprise and per year, then out of these I calculated the average. The data obtained during the evaluation was compared to national values stated by the database of the Tax and Financial Auditing Office. I tried to explore the reasons for the differences.
- ➢ By using basic statistical methods (**variance, median, quartiles, regression analysis,** etc.) I processed the average values of the county's sample.
- ➢ Applying the **matrix of correlational coefficients** I evaluated how well the differences between capital structures correlate to the changes of the index numbers that characterize the companies' economy.
- ➢ With the help of **cluster analysis (hierarchical method)** I examined whether in relation to the studied years – with respect to the main index numbers – it is possible to form such groups that show similar economical criteria, therefore which of the examined years show similar processes.
- ➢ Also by cluster analysis I examined the movements of the enterprises in the studied years between clusters that could be characterized by similar processes according to five index numbers that were important from the capital structure's point of view.
- ➢ To select the indices that were used during cluster analysis I applied **factor analysis**.
- ➢ Within the scope of a **case study** I tried to reveal and evaluate those reasons and symptoms that – prior to the crisis – could have been observed in the case of an agricultural enterprise in liquidation.
- ➢ On the basis of six **in-depth interviews** I made with the management executives of the enterprises, I evaluated those factors that influenced their attitudes towards the changes of their capital structure.
- ➢ I carried out a national **questionnaire survey** in order to form an opinion about how joint and individual enterprises evaluate the financing conditions of the agricultural sector and their own business' capital conditions.

When processing the data that was obtained from the examined agricultural business circle of Heves county, in the first place, I relied on traditional statistical methods among which I applied the following:
- ➢ statistical series,

- ➢ statistical tables,
- ➢ ratios (distributional, dynamic),
- ➢ mean,
- ➢ indices,
- ➢ dispersion analyses (variance, minimum, lower quartile, median, upper quartile, maximum, relative variance)
- ➢ correlation analyses (correlational coefficient, coefficient of determination, covariance, regression coefficient)
- ➢ matrix of correlational coefficients,
- ➢ factor analysis,
- ➢ cluster analysis.

When processing the basic data, I availed myself of AMERECON Ltd.'s financial designer–analyser software FFS (Financial Forecast System) MOSAIC. The data was processed on a Pentium HP Vectra VL 400 personal computer with the help of Microsoft EXCEL 2000 spreadsheet system and SPSS and MINITAB mathematical statistics software bundles. For editing the text I used Microsoft Word 2000.

3. The main findings and results of the dissertation

3.1. The changes of capital structure in national economy

The indebtedness of the Hungarian enterprise sector is not significant on an international scale, still, since 1995 the indebtedness had been creeping up. As a result, the previously low financial leverage of the enterprises approached the level of the developed economies'. While in 1995 the debt-equity ratio of the enterprises that filed a corporate income tax return was 84.7%, in 1999 this value showed 97.8% already.
The short-term obligations without transportation costs increased to a lesser degree, the long-term obligations to a greater degree as compared to the equity capital of the enterprises.

In the past decade the own resources had grown too. Between 1995 and 1999, the own capital of those enterprises that were obliged to hand in a joint tax return had doubled, and their subscribed capital had increased by 68 percent. Therefore, about 2/3 of the increment of own capital was derived from subscribed capital, and 1/3 from the growth of reserves and net income.
Despite the increase in own resources, the demand for external resources is still significant. Liabilities increased more rapidly than own properties: considering the whole past decade it increased by 6255 thousand million Forints. The changes of corporate credits in the national economy and of the agrarian sector are presented in *Appendix 2*.

In the years past, the structural alteration of maturity credits of the national economy has started. Foreign credits played a significant role, in the first place, in the increase of over-a-year credits, however, a minor increase can also be revealed concerning Forint credits. In parallel with the macroeconomic environment's becoming predictable, the proportion of long-term resources increased. This moderated the exposal of liquidity shocks of the company sector, and increased the scope of resource management.

3.2. The research of the agricultural sector's credit structure

The decrease in the self-financing ability of the agricultural enterprises started the process of indebtedness in the sector. In parallel to the increase of indebtedness, financing the sector became more risky for the banks. In the first half of the 1990's the proportion of the credits of agriculture, within whole company credits, had become lesser. Increase in this respect could be felt from 1995. Within the loan stock of the national economy, the credits of the agricultural sector had continuously increased between 1995 and 1998, in 1998 it already represented a proportion of 9.26%. Since then recession had

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been experienced, and as a result, by the end of 2001, the proportion was only 6.47%, which was lower than in 1995. While between 1995 and 2001 the total loan stock of the national economy increased by 250 percent, the increase of the agricultural sector was 227 percent.

I pointed out that between 1995 and 1998 the credits had grown in each sector of the national economy, still the pace of the increase of agricultural credits went beyond the other sectors'. In 1999, there was a recoiling in the process which also continued in 2000. The credits of the agricultural sector increased in these years too, but the rate of the increase, compared to previous years, significantly decreased. In 2001 I experienced decrease in nominal value. At the end of 2001, the credits of the agrarian sector were 17.7 percent higher than in 1998, while the loan stock of the national economy increased by 68.3 percent.

Within the agricultural sector – with the exception of 1996 and 2001 – the proportion of long –term credits within total credits went beyond 50 percent. The effects of money infusion were reflected between 1997 and 1999, and to the end of this period the proportion of long-term credits had risen over 60 percent. Since then I experienced recession.

By the end of the decade the structure of the agricultural credits changed unfavourably. With the investment credits staying on the same level, the increase of short-term credits made up the greater proportion of credit increment. In my opinion, if the sector's output level decreases – as the pay back of short-term credits are connected to income – the liquidity risk grows.

3.3. Research on the capital structure of agricultural joint ventures

It was typical of the past two decades that the liabilities of the agricultural sector – with varying intensity – increased.

Until 1985 in consequence of calling in debt-capital the indebtedness had not became considerable, e.g. the credit of large-scale sector in 1985 was only 36 thousand million Forints. The liabilities of the sector compared to the balance-sheet total was below the level of 20 percent. In 1990 the proportion of obligations was already 28 percent of the balance-sheet total.

The long-term liabilities between 1992 and 2000 had grown by 6.8 times, the short-term liabilities by 2.8 times higher. In the meantime, the own capital increased by only 40 percent, and the total asset value became higher by 80 percent.

The increase in asset value within the studied period was behind the increase of inflation, therefore the real value of assets decreased. The increase rate of own capital not only fell behind from the increase rate of inflation, but also from the increase rate of the assets. **The process of property loss that started in the eighties continued in the nineties, too**.

The own capital of the agricultural enterprises compared to total capital decreased, therefore the sector was in need of external resources, debt-capital. The distribution of own and debt-capital was already 50-50 percent in 2001.

The majority of credits were long-term, but within the liabilities of the agricultural enterprises short-term credits were still dominant. This is true in spite of the fact that in addition to the increased proportion of debt-capital the main characteristic of the change in the capital structure was that the increase rate of long-term liabilities went beyond the increase rate of short-term ones. As a result, within capital structure the role of long-lasting resources only decreased to a lesser degree (between 1996 and 2000 it had varied between 65 and 70 percent) in spite of the fact that the proportion of own capital within resources fell back to a higher degree.

The evaluation of the financial leverage situation is also difficult because the main productive assets of the agriculture, the major part of land areas are rented, therefore they are not part of the assets of the agricultural enterprises, and they do not appear as resources. In an economic sense, these can be regarded as external resources that have costs (required rate of return) similarly to the resources that are available as active assets, credits. If one takes this also into consideration, then one gets an even more unfavourable image of the change of leverage.

Also as a consequence of the increase in financial leverage the minimum level of earnings before interest and taxes (EBIT) was continually increasing, which was necessary for the enterprise to discharge its payment obligations and to continue its business activity. Comparing the agricultural sector's low – and declining – profitability, I can state that **the risk of insolvency of agricultural enterprises keeps on growing,** which decreases solvency and makes the available external resources more expensive.

In the circle of agricultural enterprises, during the past decade, **I experienced not only the growth of financial leverage, but, in parallel, also the growth of operating leverage,** as there were significant changes concerning the fixed costs of asset consumption (farm rent, the increase of insurance premium, and depreciation costs).

The sum of provision for depreciation in the agricultural enterprises, during the past decade, had increased significantly, between 1994 and 2000 by 120 percent. The reason for this is that the growth of the face value of tangible assets that could have been experienced since 1995 primarily affected the assets of higher depreciation rate. The provision of depreciation, in the last four years of the decade, already meant 40-45 percent of the investment resources.

The degree of operating leverage (DOL) had continuously increased concerning the agricultural enterprises. This means that the agricultural enterprises'

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EBIT, that is the earnings produced by the enterprises, had been increasingly influenced by the changes in income.

As far as the increase of DOL is concerned, a unit increase in income would increase EBIT to a higher degree, but it is also true that a unit drop of income would decrease the agricultural enterprises' EBIT to a higher degree.

I am of the opinion that in the decline of the income-producing ability of the enterprises – in addition to several other factors – the sector's market loss played a role of increasing importance as well as the decrease in production (and sale) that resulted from this.

It cannot be accounted that in the future DOL would decrease in the agricultural sector, though such growth that occurred during the past decade is not yet expectable. Even if DOL remains unchanged makes the agricultural enterprises extraordinarily sensitive to market sales.

The effects of high financial and also high operating leverage kept the degree of combined (total) leverage (DCL) up (6.42 in 1997, 16.37 in 2000). In addition to the high degree of DCL a unit change in the income influences the unit of income of the owner's capital to a greater degree, namely, **the variability of the return of owner's capital increases.**

The short-time liquidity of agricultural enterprises still acceptable, but in the past 1-2 years in this respect unfavourable signs appeared.

The value of liquidity asset ratio (third-degree liquidity) reached the value 2.0 as the average of the agricultural enterprises (that was the highest value between 1990 and 2000). In 2000 it hardly reached 1.6. Since 1997 there had been continuous debasement.

The quick ratio (financial means/short-term liabilities), that reflects cash disbursement ability better, was between 0.19 and 0.22 between 1996 and 2000.

The liquid asset ratio significantly exceeded the quick ratio, which refers to high stock and high assets. The values of liquid asset ratios are not poor in spite of the above mentioned.

The evaluation of these static ratios meet difficulties. The liquid asset ratios measure year-end liquidity and are not suitable for representing the changes of mid-year liquidity clearly. Usually, the agricultural enterprises' end-year value of short-term loan stock is less than the mid-year value. This is also true for all short-term liabilities. The short-term credits serving for current financing borrowed during the year did not appear in the balance-sheet of the enterprise if they were paid back before the end of the year. As a result of these factors the liquidity asset ratios represent to be more favourable than in fact they are.

Concerning the agricultural enterprises the greater part of gross cash flow is depreciation and only a lesser part is the operating profit.

I explain the low operating profit mainly with the decline of volume of production and distribution and with the decrease of direct subsidies.

When evaluating the operating profit, **the problem of accounting for subsidizing interest payments as other income** needs to be highlighted. If the subsidizing interest payments did not appear in operating profit, its value would even be lower. I object to this kind of settlement as it may reveal "seeming" operating profit, and it does not stimulate the enterprises to increase their efficiency.

The low profitability of the agricultural sector – in addition to insufficient self-financing ability – has further consequences.

As a result, **the 2nd MM theorem does not succeed, or its success is limited**. The 2nd MM theorem succeeds when the income of the enterprise is not behind the interest charges. In the majority of agricultural enterprises the realised income is lower than the amount of paid interests, therefore in this case the higher the degree of financial leverage, the higher the loss suffered by the owners. In the event of low profitability, increasing the proportion of debt capital within the capital structure of the enterprises results in negative profitability of own capital.

For agricultural enterprises debt capital is considered more expensive resource than own capital. From the agricultural enterprises' point of view, in this situation, that is favourable considering the cost of capital, if the proportion of cheaper own capital is increasing within long-lasting resources. On the other hand, I experienced the increase of the proportion of long-term liabilities.

Besides property investment and financially long-lasting operating assets, a proportion of operating assets had increasingly been financed by long-lasting resources. This condition embodies an asset-resource relation that is suitable for a **conservative financing strategy**.

For the first half of the nineties, the aggressive financing strategy characterized two thirds of the sector. Cautiousness is a typical feature of the conservative strategy, still the striving for intense security is a very costly financing strategy. This is the main financing strategy in the EU, too.

I established that **in the agricultural sector even if the change for applying conservative financing strategy made the financing more expensive, the degree of it was not as high as in the other sectors of the national economy**.

It can be proved economically – not only in the agricultural sector – that the decrease in production brings about the decrease of total costs, but the decrease rate of costs does not usually reach the decrease rate of production.

Its reason is that within the cost structure of the enterprises the degressive costs are the dominant, therefore the attitude of total cost is degressive, too. Degressive costs do not decrease in the case of market loss and fall in income to the same degree as incomes do.

This phenomenon is referred to as cost remanence in technical literature on analyses.

In the agricultural sector since 1999 in addition to the decrease of operating profit I experienced not only the moderate decrease of the expenditures on productive activity, but also the increase of the operating expenditures in certain years – e.g. in 1999.

In the decrease of self-financing ability the net budget withdrawal played a significant role and that was also increased by the charging withdrawal of pre-tax earnings (farm rent, interest, etc.). During the past years – as a result of continuous decrease in debit interests – the role of banks in the reduction of earnings decreased. Since 1996, the growth of liability to pay interest was 40 percent of the growth of loan stock.

In 2000, about 40 thousand million Forints were withdrawn from the sector as interests (without subsidized interest payments). 14 thousand million Forints of farm rent were added to this. In the second half of the decade the amount of farm rent was one third of the interests.

The sector was also charged with more than 30 thousand million Forints social security contribution, and almost 6 thousand million Forints tax and duty accounted for as other costs.

3.4. Research on the changes in the capital situation and capital structure of the agricultural enterprises in Heves county

Before setting up a sample of companies in Heves county, I had grouped the agricultural joint ventures (co-operatives, economic associations) of the county by main activity. The distribution of main activities of the companies in the sample is the same as in the case of all agricultural joint ventures.

In 1992, the first year of the examined period, the gross added value of the selected sample made up approximately 45 percent of the total gross added value of agricultural joint ventures in the county.

The jointly produced added value of joint agricultural ventures in Heves county made up 3.08 percent of the GDP in 1999, that was calculated in a similar way than the national index.

The realised total gross added value of the studied enterprises totalled ca. 41 percent of the county index in 1999.

When setting up the circle of enterprises I also accounted regional considerations. From every sub-region I chose the enterprises proportionally, to avoid the effect of regional differences in the average of the sample. I completed the examinations going back to the year of 1992.

During the examination I determined with time-series the values of balance-sheet and earnings reports for every company and then the averages. The average values can be found in *Appendix 3*. By processing the indices of the enterprises' basic data, I calculated – also with time-series – the average values of the indices that are important in the examination of capital structure. These can be found in *Appendix 4*.

In relation to time-series of the indices, I calculated the average, and determined variance, median, lower and upper quartile, maximum and minimum (*Appendix 5*). I calculated linear regression, correlation, coefficient of determination, standard error and relative error.

I carried out research to determine the degree of correlation between the changes of certain index values. The matrix of the correlational coefficient is placed in *Appendices 6/a and 6/b*.

With the help of cluster analysis, I classified the studied years into classes characterized by tree indices in order to find out which years show similar economical parameters. Before selecting the indices of the research I carried out factor analysis.

By applying also the method of cluster analysis, for every year I classified the studied enterprises by the changes of five index numbers. I carried out these analyses for two reasons: on the one hand to explore those enterprises that had similar economic parameters during the studied period, and on the other, to investigate how balanced were the economy of certain enterprises, based on the five indices, during the years of investigation.

When selecting the indices that were used in the research, I laid emphasis on those phenomena that indicate the financial problems of the enterprises.

3.4.1. Conclusions drawn from the analysis of studied indices' time-series

During the first years of the nineties, the proportion of debt capital compared to own capital was about 30 percent. This value reached 60 percent in 1997, and it even went beyond in 1998. In 1998, the proportion of debt capital was over 80 percent on national average. Considering the county's company sample, I experienced a value greater than 60 percent subsequent to 1998, but in 1999 and in 2000 the value of proportion index showed a mild decrease. The level of financial leverage, in the studied period of 9 years, fell behind the values of the national average (*Appendix 7*).

In the increase of the proportion of debt capital, not only the effect of money infusion appeared, but also the raise of short-term working capital.

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I established that the rise pace of the proportion of debt capital within the capital structure was quicker till 1997 than the national average. After 1998 this process slowed down. After introducing the capital supplement credit construction, the proportion of debt capital increased nationwide. However, I experienced that within the circle of the studied enterprises, the money infusion was used to pay out some short-time liabilities, therefore it did not result in the growth of further indebtedness.

The enterprises' level of indebtedness increased, but the value of own capital still exceeded the amount of liabilities.

I reached the conclusion that **lower financial capital leverage does not absolutely mean more favourable economic situation.** If the lower capital leverage is very low, or it goes with negative profitability data, then, presumably, the debt capital's relative lower level is caused by lack of creditability.

On the basis of liquidity and indebtedness indices, the enterprises meet the requirements of solvency, but their income-producing ability is expressly weak.

Long-term liabilities more and more play a role in financing working capital, so the change to conservative financing strategy was also observable in this enterprise' circle.
During my examinations on the spot I made in-depth interviews (at 6 enterprises) and I experienced that **at these enterprises financial strategies were not formed consciously.** Among the managers five declared that their businesses continuously struggle with lack of funds, so they take all the opportunities to reduce it without considering the risk and cost of the capital structure.

I established that those enterprises that have a more diversified production structure, have higher proportion of debt capital than the average, and within this, the proportion of long-term liabilities are higher too. The reason for this is probably that, that the diversified production structure improves the enterprises' solvency and the banks give them credits more easily.
My other establishment is that those enterprises that have a more diversified production structure not necessarily more profitable. True enough that at these enterprises the pre-tax earnings (and the operating profit too) fluctuated in a narrower interval than at those ones that have a less diversified production structure.

The liquidity indices of those enterprises that had a more diversified production structure were not higher than the indices of other enterprises, but within working capital the proportion of financial means were higher.

The self-financing ability of the agricultural enterprises in Heves county fell behind with 5-8 percent from the national average. The average value of earnings cash flow was low, and it showed significant dispersion between the years.

The indices of profitability indicated that the profitability between 1994 and 1996 changed more favourably than the national average (**Appendix 8**). On a national level, from the profitability's point of view, only the years 1995 and 1996 were expressly good, however, in the county of Heves the improvement came after in 1994 in comparison to the previous years.

I observed that in 1994 and 1996 the profitability of those enterprises improved that were engaged mainly in cultivation of plants and gardening, whereas in 1995 I experienced higher profitability at those enterprises in which the proportion of animal-husbandry were higher.

After 1996 the level of pre-tax earnings suddenly recessed (it was poorer than the national average already in 1997). Since 1998, the index of pre-tax earnings of the sample of Heves county was characterized by negative values (within this, in absolute values with increasing values) (**Appendix 9**).
On a national scale only in 1999 was the pre-tax earnings aggregated balance negative.
The operating profit of the enterprises of Heves county – apart from the recession of 1993- had increased between 1992 and 1995, since then the basic activity yields less profit, moreover, in 1999 and in 2000 I revealed negative operating profit. In 1992 and in 1993 more enterprises were loss-making than profitable concerning their operating profit. Between 1994 and 1998 the situation was the opposite. From 1999 the number of loss-making enterprises were greater than of those that were profitable.
On the other hand, the aggregated operating profit was continuously negative. In the studied years, the average operating profit influenced the pre-tax earnings to a very different degree. While in 1992 the financial loss was approximately 32 percent of the absolute value of positive operating profit, in 1995 it was 15 percent.
The decrease of pre-tax earnings since 1996 was not only the result of the increase of financial loss, but it was rather the result of the continuous decrease of operating profit. This suggests that t**he reasons for the decrease in self-financing ability should not only be looked for in the reduction of earnings, but in the deterioration of the basic activity's income-producing ability**.

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The profitability of the enterprises between 1994 and 1996 were above the national average, but in other years it was well behind it significantly. The income variability of the sample of Heves county is high.

I explain this with the enterprises' higher operating leverage than the national average. Because of this and because of the effects of the changes of turnover, the value of EBIT (Earnings Before Interest and Taxes) and also the value of pre-tax earnings show greater differences. In those years in which the current price income had substantially increased compared to the previous year's, the value of pre-tax earnings by leaps and bounds increased (in 1994 compared to 1993 by more than 25 percent, in 1995 compared to 1994 by nearly 23 percent, in 1996 compared to 1995 by some 24 percent). Since 1997 the current price income had decreased and this was followed by the decrease of the value of pre-tax earnings.

In 1993, 1994 and 1996 the value of operating capital was negative. This condition occurs below the break-even point. In this case, for the effect of the increase in turnover, the deficit of the activity decreases.

In Heves county the degree of the operating and the financial leverage became higher in the second half of the decade; I noticed decrease towards the end of the decade, but the values, at this time too, exceeded the values of the first half of the decade (**Appendix 10**).

All in all, I have found that concerning the agricultural enterprises of Heves county, the tendency of changes of their capital structure followed the national average. However, the agricultural enterprises of the county managed with lesser debt capital compared to the national average, and within this the credits were lower. The increase rate of own capital also fell behind the national average, which further restricted the self-financing abilities.

3.4.2. The analysis of the matrix of correlational coefficients

Conclusions drawn from the analysis of the matrix of correlational coefficients:

The income closely correlates to liquidity, liquidity to operating leverage. In consequence, a considerably close correlation can be observed between the degree of operating leverage and the income (+0.7198). Therefore, the enterprises that reach higher income operate with higher operating leverage. The reason for this can be that the fixed costs primarily increase at those enterprises that operate with means of higher values (e.g. in consequence of higher depreciation), and the greater means increase current price income even with unchanged efficiency.

The debt-equity ratio showed negative correlation of medium strength to profitability indices. With higher proportion of debt capital the probability of

recession of operating profit is higher than the balance. The reason for this is, in my opinion, the decrease in the rate of interests in the previous years, and the more significant role of subsidized loans. The increasing rate of debt capital in the capital structure spoiled the balance to a lesser degree. The problems are connected with the profitability (operating profit) of those enterprises' basic activities that utilize more external recourses in their capital structure.

3.4.3. Grading of the studied years by using cluster analysis

I applied **Ward's method** among the hierarchical cluster analysis methods to find out that among the studied years of the research – concerning six significant indices – which can be characterized with similar processes. When selecting the indices I laid emphasis on to explore the connection among the changes of capital structure, the profitability of the enterprises, and the operating efficiency. While selecting the indices I applied the method of factor analysis. The results of the cluster analysis (dendogram) can be found in ***Appendix 11***.

On the basis of the analysis I pointed out that **the analized period can be taken apart to 3 periods that have similar progresses.** The years 1992 and 1993 can be characterized with similar parameters, nearly the same progresses took place at the enterprises between 1994 and 1996, and I observed similar phenomena concerning the last four years of the decade. I consider the period between 1994 and 1996 as the most positive period, and the previous
and following years were considered negative. Concerning the last four years I find similar characteristics according to profitability and efficiency than in 1992 and 1993, however, the proportion of debt capital was significantly higher.
In comparison to the progresses found in the national economy, the changes of the period between 1992 and 1996 follow the national trend of economic growth, still the situation starting from 1997 is different. While considerable economic growth was revealed within the national economy, in the meantime, the unfavourable phenomena became stronger in the agricultural sector.

3.4.4. The annual analysis of the enterprises by applying the method of cluster analysis

In what follows I am going to analyze the characteristics – broken down into yearly figures – concerning the enterprises, and I am also going to explore what kind of clusters can be formed concerning the main annual characteristics of the enterprises' sample.

Before starting the investigation I had chosen, by applying cluster analysis, five indices that had a significant role concerning the evaluation of capital structure. These five indices are the following:

- ➢ proportion index of foreign and own capital (index of leverage),
- ➢ profitability index of own capital,
- ➢ index of long-time resources and total resources,
- ➢ index of operating profit and income,
- ➢ and index of profitability of total capital.

I investigated, that in certain years of the research, the enterprises into which clusters can be classed according to the values of these five indices.

According to the dendograms of the certain years, the formation of four clusters per year seemed professionally established.

I described the certain clusters according to the average results of those enterprises that got into it on the basis of the five indices, and according to the characterization I ranked the clusters every year by their average values concerning the indices. (Cluster of first-class enterprises, cluster of second-class enterprises, cluster of third-class enterprises, and cluster of forth-class enterprises). The order formed by the classification of the clusters is relative, as the cluster of first-class enterprises for example contains only those enterprises that were in the research and had the most favourable parameters in the certain year.

As a result of the research, I wanted to get the answers for the following questions:

- ➢ Can there be seen joint movement of the enterprises in the years?
- ➢ Can there be seen that the enterprises get into clusters that are characterized by favourable or unfavourable features? So, do the enterprises show a balanced performance during the studied period and are there any 'inter-cluster' companies that hectically change their position in between clusters?

I found that during the period of the research, hardly one-third of the enterprises were showing similar parameters continuously. In this respect, it cannot be left out of consideration that in the past years there were natural disasters in the county and therefore, – mainly during the last years of the research –, this too caused unbalanced outputs.

I qualified the majority of the enterprises as 'inter-cluster', as their outputs in the studied years were variable, and their judgement in the various years were very different. This also suggests that **these enterprises incur increased financial risk** and to forecast their future outcomes is quite difficult.

The most important finding of this research is the fact that **those enterprises that were in the sample enterprise of Heves county have a low adaptation ability.** In the long run only some of them able to balanced economy. The reason for the low level of adaptation ability can be the inadequate assets, the less diversified production structure, the high operating leverage, the low level of working capital and also the human factors.

The variability of output shows that with the alteration of the control system the economy of these enterprises can be influenced significantly. The output of the enterprises depend in a higher degree on the formation of current regulators than on their production structure.

The variability of outputs refers to increased business risk, which is, in addition to the common risks of the enterprises, composed of the special risks of the agricultural enterprises, and of the risks derived from combined capital leverage.

3.4.5. The investigation of an enterprise that was liquidated during the studied interval. A case study.

My case study is in connection with Kossuth Agricultural Co-operative in Karácsond that was liquidated in 1999. The liquidation procedure was launched because of the non-performance payment obligations towards the state. I investigated whether those parameters that are to indicate the financial crisis are really suitable for prognosing the crisis of an enterprises.

Summarizing the conclusions drawn from the case study, I state that the reasons of liquidation are the low level of income-producing ability, the continuously increasing proportions of obligations within the capital structure, and also the inappropriate increase rate of output. I consider already as a priori reason on the level of productive activity the unsatisfactory income-producing ability.

In the interest of liquidity the enterprise continuously realised its assets, it came from both alteration of values of the property investment and the total assets. The realisation of the assets – in spite of the improvement of instrumental efficiency – made maintaining the former level of output impossible, therefore the volume of production and realization decreased. As a result, in 1997 and 1998 the process of financial collapse accelerated, and by this time the exhausting of assets was not enough to keep the solvency of the enterprise.

In the field of efficiency of asset consumption there may be reserves at the enterprises, that are, which, in addition to the undermined solvency, found in the struggle for "survival", and are able to postpone temporarily the occurrence of insolvency. However, only the improvement of income-producing ability can bring a long-term solution.

I experienced as a premonitory sign of the strained crisis that the profitability of the enterprise was continuously low, moreover the agriculture typically was loss making. The income of the enterprise decreased, a powerful property loss occurred, the assets were financed in a lesser and lesser degree by own capital, the debt stock quickly increased, the level of solvency was permanently low and it even declined.

Thus, from these phenomena, even before the spread of the crisis the later outcome could have been concluded (**Appendix 12**).

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3.5. The summary of the opinions of agricultural entrepreneurs about the present state of agro-financing and about the capital situation of their own enterprises based on a national questionnaire survey

The investigation of capital structure of the enterprises was completed with a questionnaire survey. I composed a questionnaire for joint ventures, and another one for individual entrepreneurs, in which, in addition to some basic characteristic parameters of the studied entrepreneurs' agriculture (form of organization, income, own capital, subscriber capital), also appeared questions dealing with the present state of agro-financing and also with the expected effects of the joining of the EU.

The examined sample contained one hundred elements both in the case of joint ventures and agricultural individual entrepreneurs. I made a condition for surveying, therefore during the surveying, every interviewer had to visit, from the same county, one co-operative or firm that was acting in the agricultural sector, and one agricultural individual entrepreneur. So the distribution of joint enterprises and individual entrepreneurs is the same by counties (**Appendix 13**).

3.5.1. The findings based on the survey in the circle of agricultural joint enterprises

The majority of the interviewees prefer medium-term and long-term credits. This explains that in the years past the proportion of long-term liabilities why could increase within liabilities on a national scale. The increase of the proportion of long-term obligations primarily dependent on the supply side of the money market, as there is a demand for these credits.

Among the interviewees 'expectation of a miracle' can be experienced in connection with the EU membership, mainly regarding the system of subsidy. 90 percent of the interviewees are expecting the modernization of the subsidy system, which means that they do not consider the present system up-to-date.(It turned out from the answers to another question of the survey that the majority deem the present state of agricultural subsidy system to be excessively bureaucratic and confused.

39 percent of the interviewees are carefully optimistic about the coming of the joining, as they do not combine the modernization of the subsidy system with the numerical increase of the subsides. The majority of those enterprises that approach this question with careful optimism are those enterprises that realise a higher income and operate with a higher proportion of debt-capital. On the other hand the majority of the co-operatives, as well as the major part of companies without legal status, expect the numerical increase of subsidies (**Appendix 14**).

Only 11 percent of the interviewees felt that their capital situation improved during the past decade. 70 percent of those enterprises that announced the decline of their capital situation were occupied in cultivating plants in plough-land.

3.5.2. Results of the survey carried out in the circle of individual entrepreneurs

In my dissertation I investigated the changes of capital structure of agricultural enterprises and their reasons, therefore the questionnaire survey that was carried out in the circle of individual entrepreneurs was only supplementary. With this survey I intended to reveal, on the one hand, how much the opinion of the individual entrepreneurs differ from that of joint ventures concerning capital structure, on the other hand, how much the possible differences can be derived from the divergence between being a joint enterprise and an individual entrepreneur.

I found that individual entrepreneurs had a similar opinion about the agrofinancing system than joint enterprises. It struck me, but I was able to explain the difference easily, as the individual entrepreneurs fear more greatly of indebtedness. To that question that in the case of lack of funds to what extent do they depend on the capital of their family (relatives) 68 percent of the interviewees answered that regularly but only to the extent of a small amount. For the entrepreneurs the family capital is important, however this is only to lessen the temporary financial difficulties and not used for the financing of operating assets.

The individual entrepreneurs judge the changes of their capital situation more positively than joint ventures. I believe that this is because of the fact that individual entrepreneurs – mainly those who are not full-time individual entrepreneurs – are not able to distance the changes of their private and business assets. In connection with the moderate increase in their standard of living during the past decade – in many cases stagnation – they are not able to separate in this process the role of their individual enterprise from the role of other acting factors.

4. Recent and new scientific achievements

4.1. Based on the nationwide investigations

• I consider the agricultural enterprises' property loss to be a fact. During the investigated period the sector's output had also decreased. With the output's falling off, maintaining the prior property level would have resulted in an efficiency decline even greater than it actually was. **To a certain degree, I interpret the agricultural enterprises' property loss as requisite for efficiency, and consider the phrase property decrease to be apt for this process.** Despite property decrease, the efficiency index numbers had been on the decline in the agricultural sector. In my opinion, **as far as efficiency is concerned the value of the means of production is still high considering the sector's actual output level, thus, I believe that the values of own capital and debt capital are relatively high.**

• In the agricultural sector, during the previous decade, there had been growth in the proportion of fixed costs within cost structure. This led to the increase in the agricultural enterprises' operating leverage. **The growth of operating leverage increased the variability of earnings before interest and taxes (EBIT) in relation to the change in revenues (output). With high operating leverage a unit decrease of output results in greater decline in income.**
If there is increase in output, high operating leverage makes it possible for the sector's income-producing ability to improve to a significant degree. As I see, **increase in the output level would be one of the most important prerequisites for improving self-financing ability.** I think increasing the output is important at structural alteration, that is only when there is increase in the proportion of products with greater added value within production structure.
Heves county's operating leverage is higher than the national average, which correlates to lower profitability.

• The agricultural enterprises' change-over to conservative financing strategy resulted in special effects because of the sector's many specific features. This strategy usually increases the security of financing, but it also makes it more expensive.
I am of the opinion that **in the agricultural sector the change-over to conservative financing strategy does not necessarily make financing more expensive, yet if it does, its extent is less than that in other sectors of national economy.**
If the sector's income-producing ability improves, it increases the cost of proprietors' capital and makes applying this strategy more expensive.

I also found that **the formation of the financing strategy, considering the majority of enterprises, is not the result of a conscious activity but is derived randomly from spontaneous decisions.**

• **The interest subsidies' settlement system – accounting for as other income – makes it possible to represent greater operating income than in fact it is. This system does not stimulate the enterprises to improve efficiency.**

• **Over the second half of the previous decade, it was the decline in operating income that unfavourably influenced the forming of pre-tax income rather than financial performance.** My investigations showed low operating income levels with stagnant or slightly increasing financial performance both on a national and a county scale.
In this, the general decrease in the level of interest, as well as the structural changes in subsidies played a part.

4.2. Based on the investigations in Heves county

• **The adaptation ability of the agricultural joint ventures is low in Heves county.** The indices describing the studied enterprises' standard of management had fluctuated widely over the years. **The changes in the standard of management are difficult to calculate, which increases the risk of owners and creditors.**

• In the circle of Heves county's agricultural enterprises, the proportion of debt capital within capital structure is below the national average. I do not deem it a favourable phenomenon. The relatively low level of debt capital did not form because of the enterprises' not being in need of external resources. The reason is that the self-financing ability is more unfavourable than the national average, which makes the creditor banks uncertain, and these enterprises get rated as credit insolvent even with lower proportion of debt capital. **One has to be careful when judging the level of financial leverage, since it is not necessarily higher leverage that shows worse financial situation for an enterprise.**

• I pointed out that **enterprises with a more diversified production structure showed higher proportion of debt capital – probably due to the better credit solvency of these companies. Despite the fact that their income was typically higher, the enterprises with more diversified production structure did not present higher profitability.**
These companies, with respect to incomes, showed more balanced changes in value. I noticed less variability in operating income and earnings before tax in relation to the rest of the enterprises. Their liquidity was not higher than

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that of other companies, still within operating assets they had a greater proportion of funds.

•**The period between 1992 and 2000 can be divided into three intervals based on the financial situation and the economical characteristics of the agricultural enterprises.** The main characteristics of 1992 and 1993 were low but unfavourably structured debt capital rate, weak self-financing ability and low return on total assets. The period from 1994 to 1996 was marked by growing profitability and increasing, yet not critical indebtedness. From 1997 to 2000 I experienced declining profitability, indebtedness nearing to the limit value of solvency and lowering return on total assets. Between 1992-1993 and the last four years of the decade, only in the levels of financial leverage noticed I significant differences. **The processes between 1992 and 1996 coincide with the changes in the whole national economy, on the other hand, since 1997 there had been unfavourable phenomena different to the pace of macroeconomic growth in the agricultural sector.**

5. My suggestions based on the results of the research

The present financing system of the agricultural sector is only suited to preserve the unfavourable financial situation of agricultural enterprises and produce the existing conflicts again. Altering the agro-financing system cannot be imagined in such a way that only certain elements are changed – **the change of these elements must be in their complex entirety, and it must also be consistent.**

The agricultural sector must be rendered capital attractive, which can be achieved by synchronizing the production – processing – distribution vertical chains of the products and making central resources available. Through vertical chains can production adapt to market objectives (opportunities). Thus, the disadvantages resulting from the atomization of certain agricultural manufacturers can be eliminated. **Synchronizing agricultural activities can improve the capital attractiveness of the sector.**

As far as main products are concerned, **it is worth considering whether the earnings realized at the nodes of development cycle – life cycle are justifiable** or unjustifiable. With the help of proper organizational and interest enforcing mechanisms, the income must be directed towards manufacturers.

It must be achieved that the role of own resources become more important in agro-financing. It assumes **the recovery of profit making ability**, and also that within outside resources **the long-term subsidized loans become dominant.** The permanent presence of these two conditions ensure competitive agricultural production.

The accumulated debts of the agricultural sector should be surveyed and **settled** by a single investigation and by a common position formed with the enterprises, credit institutions and interest groups. The settlement can cover the rescheduling and cancelling of debts, and also the accelerated repayment. During this process the condition of the enterprises should also be studied, and if needed the problem of reorganization and competitiveness has to be solved.

Earlier, many raised the question of the need for establishing the network of "countryside banks". In my opinion, **there is no need to develop a new system of institutions** as it would not put an end to loan problems itself. The lending of the agricultural sector can be carried out on the basis of the current network of institutions. If the enterprises' profitability level could be increased, it would improve the companies' solvency making the credit institutions open towards the circle of these enterprises.

When developing the system of agro-financing institutions, **national traditions and domestic features of the money and capital market have to be taken into consideration.** I would support an idea that would – similarly to the Széchenyi credit card – make a certain continuous and revolving credit limit available for agricultural enterprises and entrepreneurs.

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The appearance of the subvention related to increasing real estate holdings in the subsidy system of family economies could increase the extent of real estates on medium term, which can strengthen the role of land mortgage loans.

In the future, in the financing of current production, **warehouse credits should have a more significant role**. Its prerequisite is that the dominance of guaranteed warehousing should come to an end as it increases risk.

As within a short time considerable improvement of the agricultural enterprises' solvency is not expectable, concerning the current financial situation raising further loans can only be achieved **by further modernization of the credit guarantee system**. Behind the credit guarantors' assumption of risk there is government guarantee.

In our country the majority of subsidized loans are accompanied by a certain proportion of government guarantee.

However, it must be taken into consideration that subsequent to joining the EU, concerning short-term credits, the system of government guarantee must be replaced, for instance by **increasing the guarantee funds of the Credit Guarantee Foundation for Agricultural Enterprises** (Agrár Vállalkozási Hitelgarancia Alapítvány) **and the number of guaranteed reasons for credit as well**.

I believe that in the maintenance of the agricultural enterprises' solvency, they can primarily (almost exclusively) rely on the budgetary subsidy system (government guarantee, subsidizing interest payments).

Even if the objective risks of the agricultural subsidy (weather, flood, etc.) cannot be decreased substantially, they **must try to moderate every other risk**, such as the lack of long-term and predictable agricultural regulations.

At present, the banks feel that the future of agriculture will be doubtful subsequent to joining the EU, which is further increasing their risk.

In maintaining and expanding foreign markets the Eximbank and the Hungarian Export Credit Insurance Corporation (MEHIB) – guarantor of export credits – are important factors. Further increase of these institutions' financial strength is advisable.

Concerning the export credit insurances it can be claimed that the banks develop **domestic credit insurance forms**. On the basis of the principles of the Hungarian Export Credit Insurance Corporation, within the agricultural sector the credit insurance system for heavy damages and acts of God could be developed with the active participation of the government.

I think that the question of accounting for subsidies related to credits should be reconsidered. The enterprises can claim these back from state tax authorities, as soon as they have started to pay the interests. Because of this, loanees should handle a sum of money that is at least a quarterly interest as liquidity reserve.

The agricultural **subsidy system should be made calculatable and predictable for economic participants.**

Concerning the subsidy system I think that the most important is the synchronized functioning of certain subsidy forms and their verifiability.

Besides conforming the subsidy system to EU regulations, in this field I suggest strengthening the functions of subsidies for entering a direct market, for investment credits, and for contributing to capital adequacy.

Preparations should be made – also by developing the required institute system – **in order to be able to join the so-called co-financing project**.

In the increase of the subsidy system's efficiency the improvement in informing market participants also plays a part. In this respect **I propose further reinforcement of the roles of agro-industrial institutions (agricultural chambers, product boards)**.

I suggest **the simplification of the mechanism of subsidy claims** on condition that the efficiency of supervision remains the same.

The manufacturers should meet the quality requirements of domestic and foreign markets, which is an important condition of market gain. As a requirement of this, the quality assurance (QA) system of the agricultural enterprises should be introduced within wider bounds.

I believe that the most important question of the sector is **putting an end to the chronic scarcity of income**. In order to implement this, the synchronized system of subsidy, taxation, price policy and marketing tools should be developed and applied for the sake of the cause.

Appendix 1

Stressed data of corporative tax return
Enterprises with single and double entry book-keeping (29 + 28 tax returns together)
Agriculture, sylviculture, fishing
Data: in thousand HUF and in percentage

Years:	2000	1999	1998	1997	1996
Designation:					
Number of enterprise	11478	11277	10598	9888	9499
Balance-sheet total	1023453759	964600196	904600196	774752512	667657563
Subscribed capital	312470544	321415976	317210173	311457476	307225668
Proportion of foreign proprietorship	10,52	9,80	7,23	6,92	6,16
Proportion of domestic corporative proprietorship	11,74	9,91	10,44	8,98	7,66
Proportion of domestic individual proprietorship	52,04	52,56	56,70	57,19	59,66
Proportion of state proprietorship	13,83	13,17	12,42	11,29	10,97
Proportion of other proprietorship	11,86	14,56	13,21	15,62	15,55
Equity capital and reserve	510398390	500373860	488361602	447357292	414703931
Capital reserve, evaluation, general reserve	145239188	136518471	119752232	94811430	88432956
Accumulated profit reserve	51373295	55020342	41499590	25605820	4049338
Liability reserves	9466110	8094707	5627459	4420449	3607178
Long term liabilities	146653739	136856177	131334993	92956726	51487706
Short term liabilities	337626989	301658573	263928443	219533891	188384851
Net income altogether	930853964	836060513	821345866	721906977	643308113
Proportion of export income	8,02	8,01	7,98	9,65	7,43
Profit before taxes	43591141	36197536	54193522	46219161	41679425
Losses before taxes	31838227	39894941	26623546	20355393	17564626
Corporative tax obligations	5124607	4273867	7204352	5573356	5532873
Distributed dividend	7040024	4601161	10142600	n.a.	n.a.
Outcomes according to balance sheet	49416	13650814	9385008	15245488	15673048
Expenses, expenditures altogether	1084444383	1014686750	966071083	846380011	755047591
Instruments	430619890	407670386	378608979	321190276	281203470
Invested instruments	476934193	457019110	425828524	366339297	323987868
Reserves	292379534	272961626	256970006	236803721	200973563
Demands	151223749	138681387	133051987	100195184	90853419
Security (part of circulating funds)	23548980	23773527	23389647	17830387	10675370
Finances, funds	72899600	65495220	58970469	49407402	36813689
Circulating funds	540051863	500911760	472382109	404236694	339316041
Workforce	134233	149285	160396	162790	171487

Source: APEH (Tax office)

**Changes in loans outstanding of agricultural enterprises and of the national economy in billion HUF between 1995 – 2000
(data refer to 31 December of the given year)**

Denomination:	1995	1996	1997	1998	1999	2000	2001
Total loans outstanding							
Agriculture, game husbandry, syliculture, and fishing	69,0	96,3	151,9	192,1	211,1	237,2	226,0
Total national economy	995,6	1.089,5	1.773,3	2.073,1	2.442,2	3.180,1	3.489,3
Stock of HUF loans							
Agriculture, game husbandry, syliculture, and fishing	65,1	91,3	144,3	183,4	205,3	223,8	218,6
Total national economy	777,8	811,7	1.260,2	1.452,2	1.626,1	1.969,8	2.327,4
Stock of investment HUF loans							
Agriculture, game husbandry, syliculture, and fishing	14,0	16,7	22,8	25,6	28,8	30,8	29,0
Total national economy	138,4	126,2	195,8	263,4	266,5	362,4	459,2
Other stock of over annual HUF loans							
Agriculture, game husbandry, syliculture, and fishing	20,9	23,4	57,6	82,6	85,7	87,0	76,6
Total national economy	180,9	172,9	318,5	368,0	379,2	453,2	576,1
Bank account and single loans							
Bank account and single loans	11,1	18,1	23,5	33,9	39,2	43,4	40,6
Total national economy	317,0	345,5	468,9	489,4	607,9	699,1	708
Annual HUF loans							
Other annual HUF loans	19,1	33,2	40,4	41,3	51,6	62,5	72,5
Total national economy	84,2	111,4	214,1	214,8	236,6	303,0	483,2
Currency credit							
Currency credit	3,9	5,0	7,6	8,7	5,8	13,4	7,4
National economy	217,8	277,8	513,0	644,7	816,1	1.210,3	1.161,9
Over annual currency credit							
Over annual currency credit	0,2	0,9	2,1	2,5	2,3	8,6	2,2
National economy	59,1	83,1	244,2	376,6	527,9	814,9	837,3
Annual currency credits							
Annual currency credits	3.7	4,1	5,5	6,2	3,5	4,8	5,2
National economy	158,7	194,7	268,8	268,0	288,3	395,1	324,6

Source: own edition on the basis of MNB (National Bank of Hungary) data

Appendix 2

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Annual stressed data of agricultural enterprises incorporated in the survey (thousand HUF / enterprise)

Denomination	1992	1993	1994	1995	1996	1997	1998	1999	2000
Invested implements	254.972,08	269.380,08	277.059,57	259.746,30	263.435,50	228.452,21	223.572,20	229.279,08	229.751,90
Circulating funds	130.526,57	175.121,88	162.427,00	171.472,20	219.738,07	253.819,73	286.304,50	245.799,13	224.052,27
Customers	14.356,28	35.692,28	32.175,34	34.987,30	33.606,53	33.938,30	50.475,79	44.998,95	36.307,11
Equity capital	**302.751,09**	**329.597,56**	**347.898,88**	**327.144,96**	**357.042,19**	**300.300,78**	**307.052,20**	**291.340,17**	**281.889,18**
Subscribed capital	207.795,23	238.134,64	247.873,80	252.455,51	244.996,19	228.192,86	229.819,79	219.723,42	216.390,18
Capital reserve	79.981,62	60.031,52	109.011,65	91.141,76	94.882,52	50.158,56	50.851,58	37.568,33	39.241,38
Accumulated profit re-serve	47.024,86	34.719,68	7.566,07	10.971,73	22.133,61	7.263,47	661,45	2.255,66	-9.687,40
Obligations	**80.427,43**	**112.758,08**	**94.917,54**	**102.179,42**	**122.649,26**	**180.260,38**	**200.691,78**	**184.588,50**	**174.075,72**
Long term obligations	14.435,57	22.781,68	21.469,19	24.296,42	21.878,03	65.173,04	89.620,08	84.063,25	68.519,77
Short term obligations	65.991,85	89.976,4	73.448,35	77.883,00	90.771,23	115.087,34	111.071,70	105.526,25	105.555,95
Suppliers	12.500,19	21.442,72	13.000.07	14.661,46	11.817,73	17.029,86	33.274,45	30.960,5	22.844,77
Short term credits	26.208,66	39.648,44	25.372,50	28.677,12	47.149,84	62.597,08	46.377,41	47.803,00	40.920,22
Short term loans	3.242,71	4.722,20	3.000,03	2.087,12	6.947,15	9.925,95	6.214,87	6.234,00	9.081,27
Other short term obliga-tions	21.839,62	20.476,36	30.008,96	30.490,62	22.059,76	18.013,78	25.206,16	19.554,35	30.117,22
Total sources (balance sheet total)	**387.465,47**	**449.184,64**	**449.532,80**	**436.877,69**	**484.671,45**	**488.811,30**	**514.743,78**	**481.396,07**	**461.928,72**
All income	204.408,58	196.777,87	247.127,76	303.306,11	376.233,26	356.798,00	334.877,86	316.816,66	298.638,82
Deprecation	13 034,50	15.021,33	12.913,64	11.839,92	18.098,07	18.024,91	17.658,76	16.376,36	16.304,16
Paid interest	10.578,41	14.377,83	14.565,04	15.991,09	19.406,50	25.406,50	19.529,38	15.177,18	13.164,85
Business outcome	728.969,59	+ 6.944	+51.940,16	+84.786,65	+45.208,73	+45.208,73	+5.780,60	-4.087,90	-4.073,66
Financial outcome	-9.100,00	-13.465,96	-11.691,68	-12.957,	-17.741,96	-17.741,96	-10.454,71	-29.882,78	-10.295,76
Pre tax outcome	-40.076,76	-16.563,21	+46.823,81	+68.711,50	+25.903,73	+25.903,73	-7.559,28	-33.493,89	-34.070,06

Source: own calculation based on the annual reports of 27 enterprises in Heves county

Main index number averages of the Heves county enterprises

Denomination:	1992	1993	1994	1995	1996	1997	1998	1999	2000	average
Capital gearing (%)	26.56	34.21	27.28	31.23	34.35	60.02	65.36	63.00	61.75	44.86
Capital adequacy (%)	78.13	73.37	77.39	74.88	73.66	61.43	59.65	60.52	61.02	68.89
a) External capital / aggregate capital (%)	20.75	25.10	21.11	23.38	25.31	36.87	38.98	38.34	37.68	29.72
b) Long term external capital / aggregate capital (%)	3.72	5.07	4.77	5.56	4.51	13.33	17.41	17.46	14.83	9.63
Long term external capital / aggregate obligations (%)	17.95	20.20	22.61	23.77	17.83	36.15	44.65	45.54	39.36	29.78
Durable source / aggregate source (%)	81.86	78.44	82.16	80.44	78.18	74.76	77.06	85.04	75.85	79.31
Suppliers / short term obligations (%)	18.94	23.83	17.69	18.82	13.01	14.79	29.95	29.33	21.64	20.89
Short term credit / short term obligation (%)	39.71	44.06	34.54	36.82	51.94	54.39	41.75	45.29	38.76	43.03
Other short-term obligation / short-term obligation. (%)	27.15	22.75	40.85	39.14	24.30	15.65	22.69	18.53	28.53	26.62
Return from sales / aggregate funds (%)	52.75	43.80	54.97	69.42	77.62	72.99	65.05	65.81	64.65	63.01
Production results / aggregate resource (%)	7.46	1.54	11.55	19.40	9.32	3.14	1.12	-0.84	-0.88	5.76
Pre tax results / aggregate resource (%)	-10.34	-3.68	10.41	15.72	5.34	2.99	-1.46	-6.95	-7.31	0.52
Production results / returns from sales (%)	14.14	3.52	21.01	27.95	12.01	4.30	1.72	1.29	1.36	9.70
Profitability of own capital (%)	-13.23	-5.02	13.45	21.00	7.25	4.87	-3.28	-11.49	-12.08	0.16
Profitability of aggregate capital (%)	-7.61	-0.48	13.65	19.38	9.34	8.19	2.32	-3.80	-4.52	4.05
Liquidity	1.98	1.95	2.21	2.20	2.42	2.21	2.58	2.33	2.12	2.22
Taxed outcome / subscribed capital (%)	-19.28	-6.95	15.52	21.95	6.37	0.73	-3.29	-11.49	-15.74	-1.35
DOL	-	-24.82	-1.14	1.67	-1.93	2.25	11.42	0.98	2.26	-1.16
DFL	-	0.68	0.11	1.09	1.52	7.62	7.85	0.98	2.62	2.81
Return from sales / aggregate source (%)	0.53	0.44	0.55	0.69	0.78	0.73	0.65	0.66	0.65	0.63
EBIT (thousand HUF)	-	-2185.38	61388.81	84702.59	45310.23	40044.05	11970.10	-18316.71	-20905.21	19167.79
Net circulating capital (thousand HUF)	64354.00	85145.00	88978.00	93589.00	128967.00	138732.00	175232.00	140272.00	115496.00	114529,44
Pre tax outcome (thousand HUF)	-	-16563.21	46823.81	68711.50	25903.73	14646.58	-7559.28	-33493.89	-34070.06	2702.49
Return from sales (thousand HUF)	204408.80	196777.87	247127.76	303306.11	376233.26	356798.00	334877.86	316816.66	298638.82	272776,11
Financial outcome (thousand HUF)	-9100.01	-13465.96	-11691.68	-12957.19	-17741.96	-19493.79	-10454.71	-29882.78	-10295.76	-15009.31

Source: own calculation based on the data of the annual reports of the enterprises

Appendix 4

Statistical analysis of the management of agricultural enterprises in Heves county

Denomination:	average	variance	minimum	lower kvart.	median	upper kvart.	maximum	med-average	med-average	med-average/ variation
Capital gearing (%)	44,86	16,048583	26,56	31,23	34,35	61,75	65,36	-10,51	-0,234322	-0,655025
Capital adequacy (%)	68,89	7,5229561	59,65	61,02	73,37	74,88	78,13	4,48	0,064963	0,59492
a) External capital / aggregate capital (%)	29,72	7,5285901	20,75	23,38	25,31	37,68	38,98	-4,41	-0,148512	-0,586357
b) Long term external capital / aggregate capital (%)	9,63	5,6242322	3,72	4,77	5,56	14,83	17,46	-4,07	-0,422571	-0,723457
Long term external capital / aggregate obligations. (%)	29,78	10,872516	17,83	20,2	23,77	39,36	45,54	-6,01	-0,201932	-0,553179
Permanent source / aggregate source (%)	79,31	3,1359067	74,76	77,06	78,44	81,86	85,04	-0,87	-0,01097	-0,277432
Suppliers / short term obligations. (%)	20,89	5,579278	13,01	17,69	18,94	23,83	29,95	-1,95	-0,093298	-0,349308
Short term credit / short term obligations (%)	43,03	6,2905934	34,54	38,76	41,75	45,29	54,39	-1,28	-0,029722	-0,203302
Other short term obligations./ short term obligations. (%)	26,62	8,0606416	15,65	22,69	24,3	28,53	40,85	-2,32	-0,087191	-0,287956
Return from sales / aggregate implement (%)	63,01	10,043046	43,8	54,97	65,05	69,42	77,62	2,04	0,03243	0,203458
Production results / aggregate implement (%)	5,76	6,4030305	-0,88	1,12	3,14	9,32	19,4	-2,62	-0,454545	-0,408661
Pre tax outcome / aggregate implement (%)	0,52	8,2650201	-10,34	-6,95	-1,46	5,34	15,72	-1,98	-3,783898	-0,240102
Production results / return from sales (%)	9,70	9,1732994	1,29	1,72	4,3	14,14	27,95	-5,40	-0,556701	-0,588665
Productivity of own capital (%)	0,16	11,483708	-13,23	-11,49	-3,28	7,25	21	-3,44	-21,08163	-0,299845
Productivity of aggregate capital (%)	4,05	8,6076797	-7,61	-3,8	2,32	9,34	19,38	-1,73	-0,427475	-0,201241
Lucidity	2,22	0,1893719	1,95	2,12	2,21	2,33	2,58	-0,01	-0,0055	-0,064541
Taxed outcome / subscribed capital (%)	-1,35	13,156797	-19,28	-11,49	-3,29	6,37	21,95	-1,94	1,431034	-0,147199
DOL	-1,16	9,7118368	-24,82	-1,3375	1,325	2,2525	11,42	2,49	-2,138561	0,256259
DFL	2,81	2,9234416	0,11	0,905	1,305	3,87	7,85	-1,50	-0,535381	-0,514377
Return from sales / aggregate source	0,63	0,100443	0,4381	0,5497	0,6506	0,6942	0,7762	0,02	0,032371	0,2031
EBIT (thousand HUF)	19167,79	38128,089	-29498,35	-18316,71	11970,1	45310,23	84702,59	-7197,69	-0,37551	-0,188777
Net circulating capital (thousand HUF)	114529,44	32685,402	64354	88978	115496	138732	175232	966,56	0,008439	0,029571
Pre tax outcome (thousand HUF)	2702,49	36444,437	-40076,76	-33493,89	-7559,28	25903,73	68711,5	-10261,77	-3,797153	-0,281573
Return from sales (thousand HUF)	292776,10	60247,554	196777,87	247127,76	303306,11	334877,86	376233,26	10530,01	0,035966	0,174779
Financial outcome (thousand HUF)	-15009,31	6184,9254	-29882,78	-17741,96	-12957,19	-10454,71	-9100	2052,12	-0,136723	0,331795

Source: own calculation

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Correlation factor matrix compiled from main index numbers illustrating the management of agricultural enterprises in Heves county

Denomination:	Capital gearing	Capital adequacy	a) external capital / aggregate capital	b) long term external capital / aggregate capital	Long term external capital / aggregate obligation	Permanent source / aggregate source	Suppliers / short term obligations	Short term credit / short term obligations	Other short tem obligation / short term obligations.
Capital gearing	1								
Capital adequacy	-0,99879	1							
a) External capital/aggregate capital	0,999179	-0,99949	1						
Long term external capital / aggregate capital	0,980967	-0,97453	0,975357	1					
Long term external capital / aggregate obligations	0,955919	-0,94873	0,947832	0,993131	1				
Permanent source / aggregate source	-0,35463	0,373354	-0,36281	-0,19677	-0,13308	1			
Suppliers / short term obligations	0,534446	-0,52094	0,524654	0,638579	0,660355	0,273402	1		
Short term credit / short term obligations	0,335565	-0,35489	0,359104	0,19913	0,11237	-0,40401	-0,27133	1	
Other short term obligations / short term obligations	-0,62381	0,628985	-0,63698	-0,53503	-0,45168	0,298179	-0,24983	-0,81298	1
Returns from sales / aggregate implement	0,389067	-0,39819	0,400264	0,333752	0,309022	-0,28668	-0,31067	0,497708	-0,18689
Production results / aggregate implement	-0,7331	0,725721	-0,7358	-0,69324	-0,63686	0,240246	-0,55138	-0,33798	0,753103
Pre tax outcome / aggregate implement	-0,3846	0,362684	-0,38097	-0,37466	-0,31851	-0,02837	-0,46791	-0,12082	0,594599
Production results / return from sales	-0,77448	0,772601	-0,7818	-0,71158	-0,64303	0,348152	-0,51147	-0,47059	0,831047
Profitability of equity capital	-0,42756	0,405357	-0,42386	-0,42519	-0,37309	-0,04418	-0,51689	-0,08631	0,575271
Profitability of aggregate capital	-0,3471	0,324089	-0,34285	-0,34596	-0,29446	-0,07146	-0,482	-0,05628	0,538295
Liquidity	0,480714	-0,47292	0,47893	0,507083	0,501481	-0,08277	0,246884	0,243535	-0,16924
Taxed outcome / subscribed capital	-0,39086	0,369953	-0,3874	-0,37008	-0,31128	0,030764	-0,41049	-0,13524	0,592359
DOL	0,518389	-0,4997	0,499743	0,569968	0,597398	-0,07552	0,097298	-0,07087	0,04734
DFL	0,678019	-0,68165	0,669979	0,603228	0,564225	-0,66283	0,122611	0,422593	-0,53452
Return from sales / aggregate source	0,390337	-0,39944	0,401548	0,335314	0,31064	-0,28474	-0,30872	0,49804	-0,18808
EBIT	-0,35955	0,337275	-0,35557	-0,36344	-0,31558	-0,08884	-0,51377	-0,02787	0,521859
Net circulating capital	0,827928	-0,82852	0,830672	0,806555	0,776458	-0,34442	0,391846	0,46648	-0,54092
Pre tax outcome	-0,42518	0,404285	-0,42209	-0,4182	-0,36423	-0,02881	-0,50972	-0,11223	0,599205
Return from sales	0,550463	-0,56076	0,562418	0,490178	0,458099	-0,36632	-0,14712	0,575492	-0,32895
Financial outcome	-0,38839	0,40056	-0,40623	-0,40104	-0,39366	-0,3597	-0,17289	-0,55346	0,528261

Source: own calculation based on the of the annual reports of 27 agricultural enterprises in Heves county

Denomination:	Returns from sale / Aggregate implement	Production results / Aggregate implement	Pre tax outcome / aggregate implement	Production results / Return from sales	Profitability of own capital	Profitability of aggregate capial	Liquidity	Taxed outcome / Subscribed capital	DOL	DFL	Return from sales / aggregate source	EBIT	Net Circulating capital	Pre tax outcome	Return from sales	Financial outcome
Capital adequacy																
a) external capital / aggregate capital																
b) long term external capital / aggregate capital																
Long term external capital / aggregate obligations																
Permanent source / aggregate source																
Suppliers / short term obligations																
Short term credit / short term obligation																
Other short term obligation / short term obligation																
Return from sales / aggregate implement	1															
Production results / aggregate implement	0,158157	1														
Pre tax outcome / aggregate implement	0,357801	0,808375	1													
Production results / return from sales	0,030834	0,980502	0,745526	1												
Profitability of equity capital	0,341529	0,827062	0,99607	0,761165	1											
Profitability of aggregate capital	0,394298	0,783626	0,997222	0,711654	0,995872	1										
Liquidity	0,660283	-0,05438	0,250255	-0,14858	0,211393	0,273076	1									
Taxed outcome / subscribed capital	0,32194	0,794192	0,995077	0,735021	0,988627	0,990243	0,282244	1								
DOL	0,690048	0,060299	0,132098	0,041588	0,09556	0,149313	0,759152	0,110164	1							
DFL	0,36852	-0,36266	-0,18203	-0,45035	-0,15745	-0,11876	0,468476	-0,21718	0,535832	1						
Return from sales / aggregate source	0,999995	0,156844	0,356673	0,029645	0,340281	0,39316	0,660881	0,320985	0,690218	0,367878	1					
EBIT	0,404798	0,787807	0,993417	0,712857	0,995958	0,998392	0,277376	0,98506	0,155122	-0,08832	0,403578	1				
Net circulating capital	0,609424	-0,45916	-0,0384	-0,56277	-0,07581	0,005151	0,859558	-0,02213	0,675906	0,769607	0,610326	0,005372	1			
Pre tax outcome	0,35001	0,831535	0,997874	0,769359	0,998883	0,995559	0,229088	0,991167	0,122316	-0,1733	0,348778	0,994894	-0,07119	1		

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Return from sales	0,956062	-0,03726	0,295213	-0,17354	0,271389	0,339205	0,785328	0,275431	0,71982	0,529866	0,956285	0,34789	0,797567	0,278018	1	
Financial outcome	-0,38119	0,276324	0,074507	0,311394	0,092541	0,047742	-0,27308	0,044944	-0,00472	0,106996	-0,38369	0,058811	-0,39542	0,098904	-0,43342	1

Source: own calculation based on the of the annual reports of 27 agricultural enterprises in Heves county
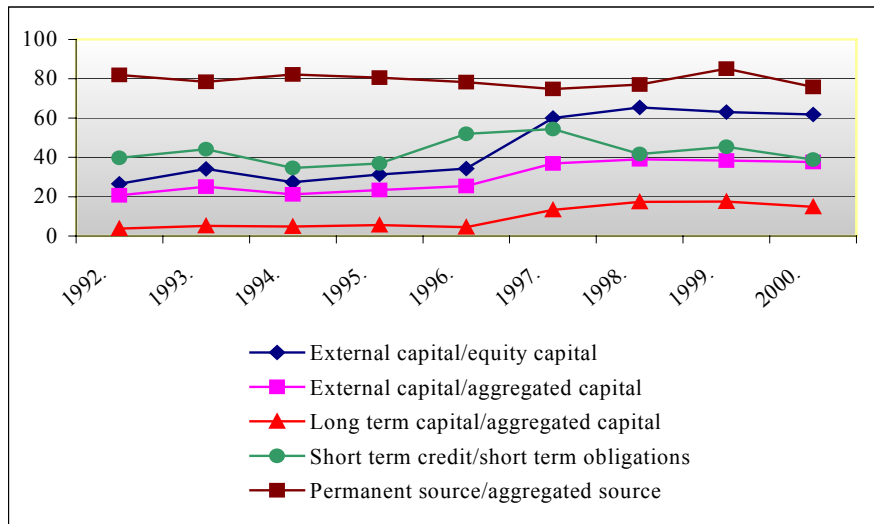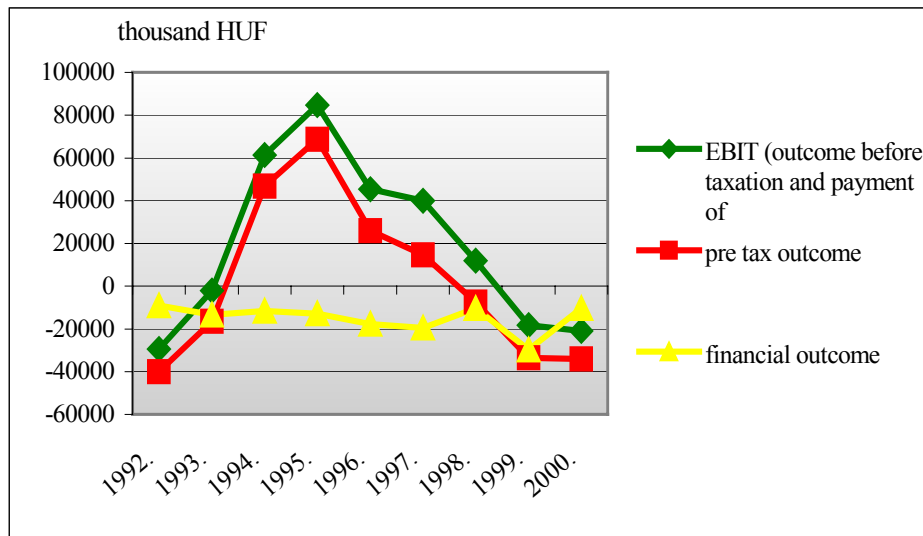
Appendix 7. The development of the equated value of capital structure based on the data of the Heves county sample (%)
Source: own construction based on the reports of company watch
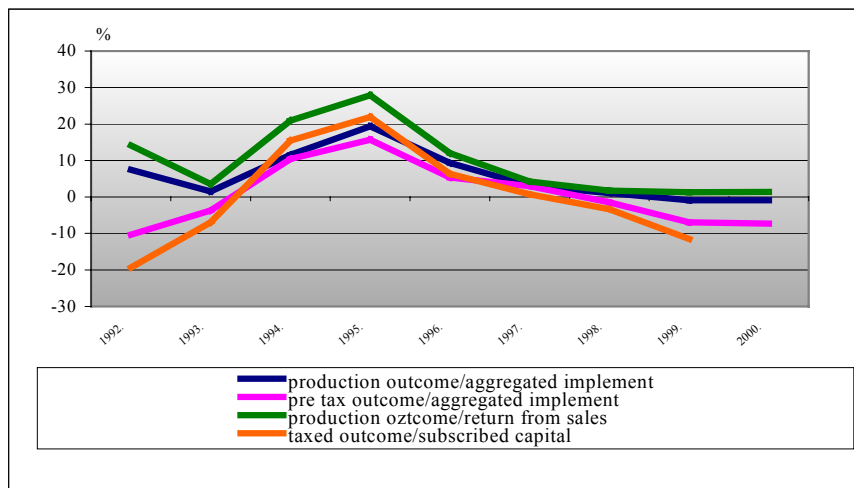

Appendix 8. The development of the equated value of profitability based on the data of the Heves county sample (%)
Source: own construction based on the reports of company watch

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Appendix 9. The development of the equated value of individual outcome categories based on the data of the Heves county sample (thousand HUF)
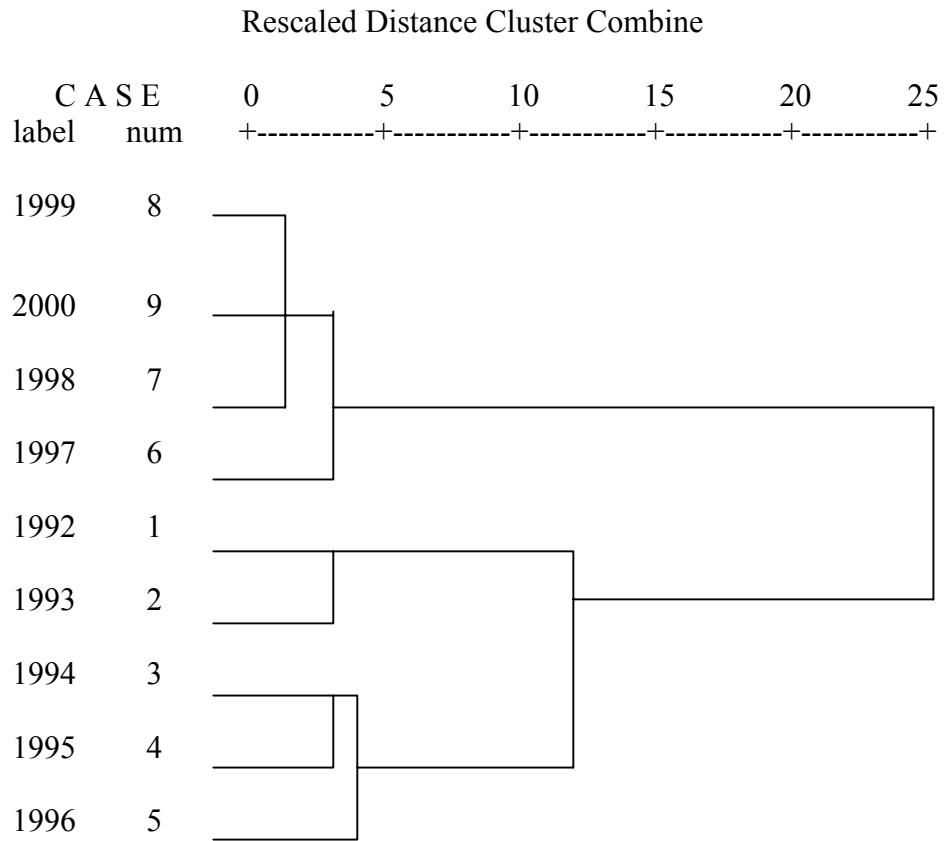Source: own construction based on the reports of company watch
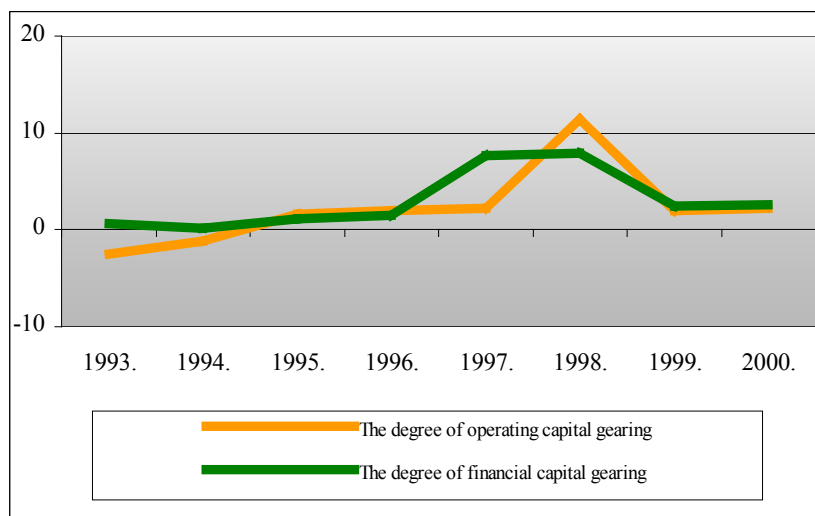
Appendix 10. The development of the degree of operating capital gearing (DOL) and the degree of financial capital gearing (DFL)
Source: own contstruction based on the reports of company watch

Appendix 11

Classification of the years in the enquiry by cluster analysis (hierarchical method)

Hierarchical cluster analysis

Dendogram using Ward Method

```
                              Rescaled Distance Cluster Combine

        C A S E        0          5          10         15         20         25
      label    num     +-----------+-----------+-----------+-----------+-----------+

      1999      8      ───┐
                          │
                          │
      2000      9      ───┤───┐
                          │   │
      1998      7      ───┘   │
                              │
      1997      6      ───────┘                                                  ┐
                                                                                 │
      1992      1      ───┐                                                      │
                          │                                                      │
      1993      2      ───┤───────┐                                              │
                          │       │                                              │
      1994      3      ───┐       │                                              │
                          │       │                                              │
      1995      4      ───┤───┐   │                                              │
                          │   │   │                                              │
      1996      5      ───┘   │   │
```
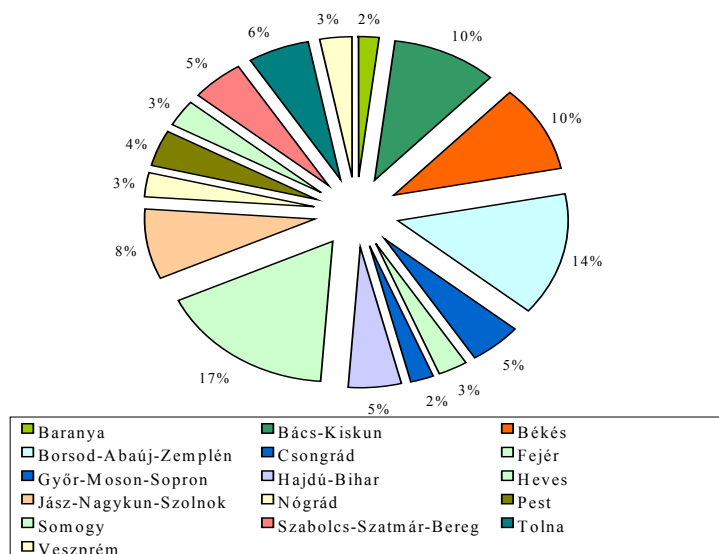
Source: own calculation

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The progress of raw data illustrating the management of the Kossuth Agricultural Corporation between 1992 and 1998 (thousand HUF)

Denomination:	1992	1993	1994	1995	1996	1997	1998
Balance sheet total	215.356	200.548	160.479	155.985	145.489	123.357	98.851
Invested implements	165.027	154.471	123.426	113.278	114.378	81.035	72.196
Circulating implements	48.291	44.014	34.982	42.567	31.043	42.163	26.522
Customer demand	4.150	6.234	3.619	5.782	1.968	7.326	3.947
Equity capital	175.312	132.393	92.334	83.085	82.568	44.022	22.717
Subscribed capital	176.847	176.842	176.842	176.841	157.139	152.061	152.047
Accumulated profit reserve	- 19.452	- 41.713	- 84.852	- 124.911	- 134.159	- 133.271	- 166.890
Obligation	37.379	65.581	67.367	72.864	62.921	78.901	75.665
Long term obligation	2.297	2.078	0	0	9.627	4.815	2.409
Short term obligation	35.082	63.503	67.367	72.864	53.294	74.086	73.256
Short term credit	24.000	24.000	22.674	10.179	16.493	16.769	27.406
Other short term obligation	5.378	8.462	31.062	36.838	17.046	42.421	34.614
Net return of sales	72.525	47.917	88.017	126.237	145.041	104.042	107.464
Production results	- 9.768	- 12.277	- 689	9.702	22.789	- 32.607	- 16.364
Financial results	- 12.424	- 13.822	- 26.347	- 17.509	- 17.970	- 20.277	- 9.562
Results according to balance sheet	- 22.486	- 43.139	40.059	- 9.248	887	33.519	- 21.291

Source: own construction based on the annual reports of the Kossuth Agricultural Corporation between 1992-1998

Appendix 12

■ Baranya	■ Bács-Kiskun	■ Békés
□ Borsod-Abaúj-Zemplén	■ Csongrád	□ Fejér
■ Győr-Moson-Sopron	■ Hajdú-Bihar	□ Heves
□ Jász-Nagykun-Szolnok	□ Nógrád	■ Pest
□ Somogy	■ Szabolcs-Szatmár-Bereg	■ Tolna
□ Veszprém		

Appendix 13. Enterprises occurring in the questionnaire divided between counties (%)
Source: own construction
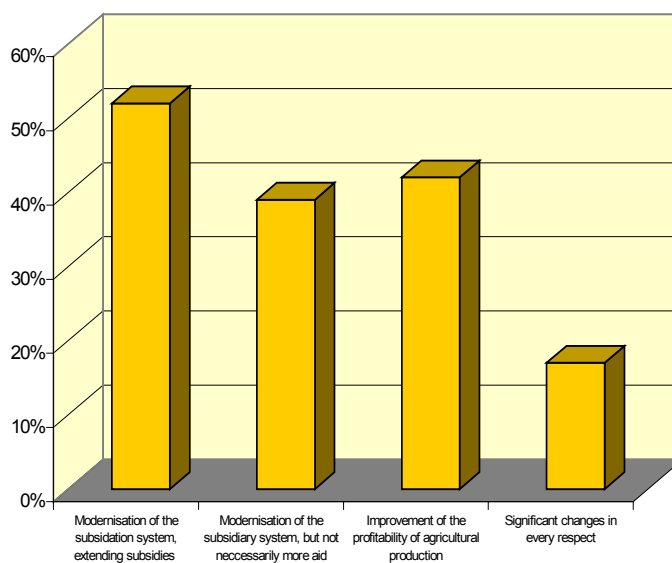
Appendix 14. Expectations about the agricultural financing system concerning the joining to the EU (%)
Source: own construction

Scientific activity

Book, section of book:

- *Pataki L*. (1993): The subchapter of: The book-keeping of clearing of accounts, and the chapter of: Monetary and credit controls management of enterprises In.: Book-keeping and monetary controls management (Edited by: Tóth P.) University textbook. Mezőgazda Kiadó, Budapest. pp 169-192. and pp 407-441. ISBN 963 91 21 85 1

- *Pataki L*. (1993): Fundamentals of finance. In: Fundamentals of Agriculture. (Edited by: Hajós L.). University textbook, Mezőgazdasági Szaktudás Kiadó, Budapest. pp.274-297. ISBN 963 356047 0

- *Pataki L.* (1999): The subchapter of: The book-keeping of clearing of accounts, and the chapter of: Book-keeping and monetary controls management In.: Book-keeping and monetary controls management (Edited by: Tóth P.) University textbook. Mezőgazda Kiadó, Budapest. pp 157-182. and pp 383-409. (2nd revised version). ISBN 963 91 21 85 1

Scientific article:

- Baranyi A. – *Pataki L*. (2002): The financing of agricultural enterprises in Heves County. Economy special edition No 4. pp 17-23. HU ISSN 0046-5518

- Baranyi A. – *Pataki L.* (2002): The theoretical and practical problems of financing agri-enterprises supported by examples in Heves County. Bulletin of the Szent István University. Gödöllő, 147-156. p. ISSN 1586-4502

- *Pataki L.* – Illés B. Cs. – Zdenkó I. (2002): L'évaluation économique de la gestion des entreprises á capitaux étrangers dans le secteur de l'agribusiness en Hongrie. Buletin of the University of Agricultural Sciences and Veterinary Medecine, Cluj–Napoca, Horticulture, Vol. 57/2002. 422-429. p. ISSN 1454-2382

- *Pataki L.* – Reke B. (2003): The formation of the situation of joint agricultural ventures between 1991 and 2000. Acta Agronomica Ovariensis. Under pressing.

‒   ***Pataki L.*** (2003): The examination of the status and structure of capital in the case of a model of co-operating agricultural enterprises in Heves county. Studies in Agricultural Economics. Under pressing.

Lectures delivered in scientific conferences published in conference publications:

-   ***Pataki L.*** (1988): The possible forms of the integration of large and small scale production and the possibility of their development in the Hungarian agriculture. Business economic Scientific Days. Gyöngyös, pp 224-227. ISBN 963632 1363

-   ***Pataki L.*** ‒ Zéman Z. (1996): The role of controlling in the operating of businesses. V. Agricultural Economics Scientific Days. Gyöngyös, Volume 2 pp 869-871

-   ***Pataki L.***‒ Zéman Z. (1996): The assessment of privatisation techniques, and their effects on economics policy. V. Agricultural Economics Scientific Days, Gyöngyös, Volume 2. pp 872-874.

-   ***Pataki L***.‒ Zéman Z. (1998): The circumstances of the establishment of mortgage-credit institution and their prospective role in agricultural financing. Scientific announcements 2. Business environment and adaptability in food production. Gödöllő, 9 - 10 October 1997. Volume 2 pp 253-256. ISBN 963 8140 78 x ö, ISBN 963 8140 80 1

-   ***Pataki L.*** (1998): Problems in connection with mortgage loans, and their possible solutions. VI. International Agro-economical Scientific Days, Gyöngyös, Volume 3, pp 235-240. ISBN 963 8140 70 40

-   ***Pataki L.*** (1999): Changes in the construction and in the demand of capital of agricultural enterprises. VISION- 2000 II. The state of institutions and their development in connection with the joining to the EU. Gödöllő. Volume 1 pp 314-320.

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