SZENT ISTVÁN UNIVERSITY

DOCTORAL SCHOOL OF MANAGEMENT AND BUSINESS ADMINISTRATION

FINANCIAL ANALYSIS OF HUNGARIAN PIG PRODUCER INDIVIDUAL FARMS

THESES OF THE DOCTORAL (PhD) DISSERTATION

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1. INTRODUCTION

1.1. Actuality and importance of the topic

Agriculture has played an important role in Hungary for many centuries in the economic and social development of the country.

The political and economic changes of the 1990s radically changed the well based structure of the different sectors. The privatisation process changed the structure of ownership, and the political changes restructured the export and import markets of the country. Although in the 1980s, the Hungarian pig sector was the main pork product provider of the Eastern bloc, but after the political and economic transition, the sector lost its main markets and the size of pig herds decreased radically.

The economic changes have brought negative impacts for all the players of the pork supply chain and almost all sectors of agricultural production. It can be stated that the agriculture was one of the greatest loser of the political and economic transition.

The declining trends of the Hungarian agriculture have not been stopped by the EU accession in 2004. The Hungarian pork sector faces one of the most critical conditions, the sector has several problems, although the sector itself has good resources and favourable background and traditions. Nevertheless, the profitability and competitiveness of the Hungarian pig sector is lagging behind other European countries, Hungary lost the country's former good position. A very crucial question should be answered by the representatives of the pig sector: which is better strategy, to be a raw material provider country or to produce high quality processed products in the future. For this second option, it is very important to start new developments in the sector, at breeding and production stages, in technology and processing activities as well.

The analysis of the pig sector is a very comprehensive task, so I reduced my research field according to those topics which were relevant to my experiences in the financial analysis. A main objective of my research was to explore the reasons of the drastic losses of the number of pig herds, to explore the financial and economic status of pig producers and to explore the policy background of the pig sector and its effects on the production and profitability. I also wished to examine which are the future opportunities of pig producers, how can they improve their efficiency and profitability, how could they stabilize their financial background, because these are the main steps of keeping their status and being competitive in the international market competition.

1.2. Research objectives

The general aim of my thesis and research id to evaluate, analyse the operations and the future developments of Hungarian individual pig producer farms, from the aspects of their financial situation. This research can help to outline the present financial and economic problems, and by solving these problems these farms could be profitable, effectively working, successful enterprises, which – although they have many problems at the present – could be maintained and operated successfully for longer terms. For exploring the present situation, I start my researches by analysing the Hungarian pig sector and the reasons of the decreasing trends from the period of transition, by a systematic literature review.

The first objective of my research is to give an excessive financial analysis of the Hungarian individual pig producing farms, in order to see that they are able to cross over the problems, and to be transformed to be successful and competitive players of their market.

The second research objective is to analyse the financial structure and capital assets of the farms (capital structure, financial indicators, supports) based on the primary database provided by the Hungarian FADN system, in the period between 2007 and 2013.

The third research objective is to make a comparison and the profitability of Hungarian individual pig farmers specialized in pig fattening and breeding sow keeping.

1.3. Hypotheses of the research

In the first step of my researches, in order to achieve my research goals, the following hypotheses were been formulated for exploring the situation of individual pig producer farms:

Hypothesis 1 (H1) – The decreasing tendencies of the Hungarian pig sector are resulted by the changes of the political and economic factors of the macro-environment.

Hypothesis 2 (H2) – The financial situation and capital assets of the Hungarian individual pig producer farms will increase in the examined period (2007-2013).

Hypothesis 3 (H3) – The profit producing effect of the different assets of the Hungarian individual pig producer farms will increase in the examined period (2007-2013).

H3a – Profitability of the own capital of the Hungarian individual pig producer farms will show an increasing trend in the examined period (2007-2013).

Hypothesis 4 (H4) – The situation of the Hungarian individual pig producer farms will develop as a result of the new supporting scheme, their income and stability will increase in the examined period (2007-2013).

Hypothesis 5 (H5) – There is a significant difference between the profitability and income situation of the Hungarian individual pig producer farms dealing with breeding sow production and pig fattening activities.

2. MATERIAL AND METHODS

For the economic and financial analysis of the Hungarian individual pig producer farms is used the primary and secondary databases of the Hungarian FADN system,, the data were provided by the Agricultural Economic Research Institute.

I made a filtering process on the primary FADN database, where I selected the farms according to their size and the continuity of data supplying activities. I selected the period between 2007 and 2013 as the period of the research, because it is a closed financial period of the European Union, and the data available could be used for further calculations and comparison.

Table 1 summarizes the main objectives of my research, the used materials and applied methods.

Table 1. Materials and methods used in the research

No.	Objective	Material	Method
1.	Introduction and analysis of the macro-environment of Hungarian pig sector Situation of export and import trade position of the Hungarian pig sector	Literature review and document analysis Statistical databases of Hungarian Statistical Office and EUROSTAT EU documents	Literature review Document analysis Descriptive statistics methods
2.	Analysis of the financial situation and assets of Hungarian individual pig producer farms in the period between 2007 and 2013	Hungarian FADN database in the period between 2007 and 2013	Financial analysis Trend calculations De
3.	Analysis of assets and capital of Hungarian individual pig producer farms in the period between 2007 and 2013	Hungarian FADN database in the period between 2007 and 2013	Capital structure and asset structure of farms Trend calculations Linear trends
4.	Agricultural policy and supporting system of Hungarian pig sector	Public database of agricultural applications of the EU and Hungary	Literature review and document analysis
5.	Analysis of the different factors affecting efficiency and profitability	Hungarian FADN database of pig producers and breeding sow keeping farms in the period between 2007 and 2013	Linear regression Regression analysis Pratt indicator

Source: own

3. RESULTS

3.1. Situation analysis of the Hungarian pig sector

The present situation of the Hungarian pig sector is summarized by a SWOT analysis of the sector, which is comprehensive result of literature (Fórián, 2008; Illés and Bíró, 1998; Bartha, 2012) and my own research conducted in the past years (Dunay and Vinkler, 2016). The SWOT matrix is summarized by Table 2.

The SWOT analysis describes the general environment of the Hungarian pig sector (internal and external features). It shall be noted that it is a general overview on the whole sector; the situation might be different if examining the farms and enterprises individually.

Table 2. SWOT analysis of the Hungarian pig sector

STRENGTHS	WEAKNESSES
Consumption - Quality of traditional meat products - Customer loyalty - Quality Hungarian Pork trademark (KMS) **Trade and export-import** - Export exceeds import - Meat production exceeds domestic demand - Value Added Tax reduction **Processing** - Supports for family farms and young farmers - Credit programmes for SMEs and micro enterprises - Well-known brands (Pick, Herz, Gyulai) - Food processing traditions (small manufacturers) **Production and breeding** - Natural conditions - Long-term traditions of pig farming - Supply of feeding stuff - Existence of animal welfare and animal health measures and quality assurance systems - Health status of national herd is good - Supports for family farms and young farmers - Credit programmes for SMEs and micro enterprises	Consumption - Increase in the import of meat and meat products - Decrease of pork meat consumption - Poor marketing of pork products - Price sensitive consumers Trade and export-import - Increase in the import of meat and meat products - Import meat has lower price - Market losses (Russia) - High competition at the EU market - Black market Processing - Lack of support for the processing industry - Lack of foreign capital in the processing industry - Weak supply chain Production and breeding - Lack of skilled workers - Lack of professional, full time, specialist producers - Lack of specialization - Lack of cooperation - Black market - No formal training available for staff - Technical efficiency is declining - The return on investment has been low - Ownership structure is unbalanced - Weak supply chain
OPPORTUNITIES	**THREATS**
Consumption - Marketing campaigns promoting pork consumption - Premium products / Mangalica products - Products with higher added value **Trade and export-import** - Marketing campaigns promoting pork consumption **Processing** - Recovery of small manufacturers - New slaughterhouses - Cooperation between pork chain **Production and breeding** - More developed communication between the players of the sector - Formulation of a complex agricultural strategy	**Consumption** - Decrease of the market - Negative marketing campaigns - Decrease of domestic production may decrease customer loyalty **Trade and export-import** - Price volatility - Prolongation of Russian import sanctions **Processing** - Environmental legislation is a significant constraint - High energy prices **Production and breeding** - Increase of energy prices - Increase of the feeding stuff prices - Short-term planning Environmental legislation is a significant constraint

Source: own summary

3.2. Analysis of financial status

During the whole period between 2007 and 2013 a total of 404 pig producer farms provided data for the Hungarian FADN system database. According to the type of ownership, this number was consisted by 304 individual pig farms and 100 pig producers working in the form of partnership and other company forms. I have chosen those farms into the research, which continuously provided data for the FADN system during the whole period. The number of the sample was reduced significantly after this filtering process, but it represents well those farms, which build their operations only on pig production. As the data provision was continuous, the selected farms could be compared to each other.

Based on the financial data of the farms, I prepared different financial indicators and made excessive calculations according to them. Table 3 summarizes the indicators I used during my research.

Table 3. Financial indicators and their categories used in the research

Indicators abbreviation	Indicators
I.	**Indicators of financial situation**
Ü1	Coverage of fixed assets
Ü2	Own capital
Ü3	Foreign capital
Ü4	Suppliers/liabilities
Ü5	Growth rate of own capital
Ü7	Long term liabilities / liabilities
II.	**Profitability indicators**
Ü9	Return on Assets (ROA)
Ü10	Return on Equity (ROE)
Ü11	Return on Sales (ROS)
Ü12.	Profit margin
Ü13.	Wage cost ratio
III.	**Efficiency indicators**
Ü14	Efficiency of assets
Ü15	Efficiency of fixed assets
Ü16	Efficiency of wages
Ü17	Efficiency of own capital
IV.	**Liquidity indicators**
Ü8	Net working capital
Ü18	Liquidity rate
Ü19	Liquidity quick ratio
Ü20	Liquidity indicator 3.
Ü21	Cash Liquidity
Ü22	Dynamic Liquidity
V.	**Supports**
Ü6	Non refundable supports/ own capital
Ü23	Agricultural area – farm area / total area
Ü24	Total supports * / Total assets
Ü25	Animal welfare supports / Total supports
Ü26	Animal health supports / Total supports

*Note: Excluding supports on investments

Source: own

The average result of the indicator of Coverage of fixed assets **(Ü1)** can be evaluated as good, as in all the seven years it was above 100%, which refers to that Hungarian individual pig producer farms finance their long term assets by long term sources or own capital. The amount of fixed assets has increased between 2011 and 2013, and this was resulted by the relatively good financial situation. This led to investing into new assets.

The indicator of Own capital **(Ü2)** is the most important vertical indicator in financial aspects. The average results show that in the examined 7 years, their level was above 62%, which can be assessed as a successful result (in general, farms use 20% foreign capital). The indicator showed a growing trend, which is very favourable. The share of own capital in the examined sample was very good, which refers to the relative stability of the individual pig producer farms.

The indicator of foreign capital **(Ü3)** shows the reciprocity of the own capital, thus it shopws a decreasing tendency. It refers back to the stable own capital structure of the farms, and also refers to a conservative financial policy. In short term liabilities, the suppliers play the most important role **(Ü4),** who provides financial support by late payments. In the examined period the importance of short term liabilities were the most significant in the sample. Farmers have less opportunities in getting credits, because their less capital means a bottleneck in the crediting process. This is why they use own capital for financing their investments, or they do not make any investments at all. The greater share of credits is represented by short term liabilities.

The growth of own capital **(Ü5)** shows a slightly increasing tendency, the average result for the seven years is only 6,8%, which is very low. The rate of long term liabilities and liabilities in total **(Ü7)** shows that pig producers had long term credits as well, although the trends showed a decline, and the share of short term liabilities is more important. The trends and changes of financial status are shown by Figure 1.

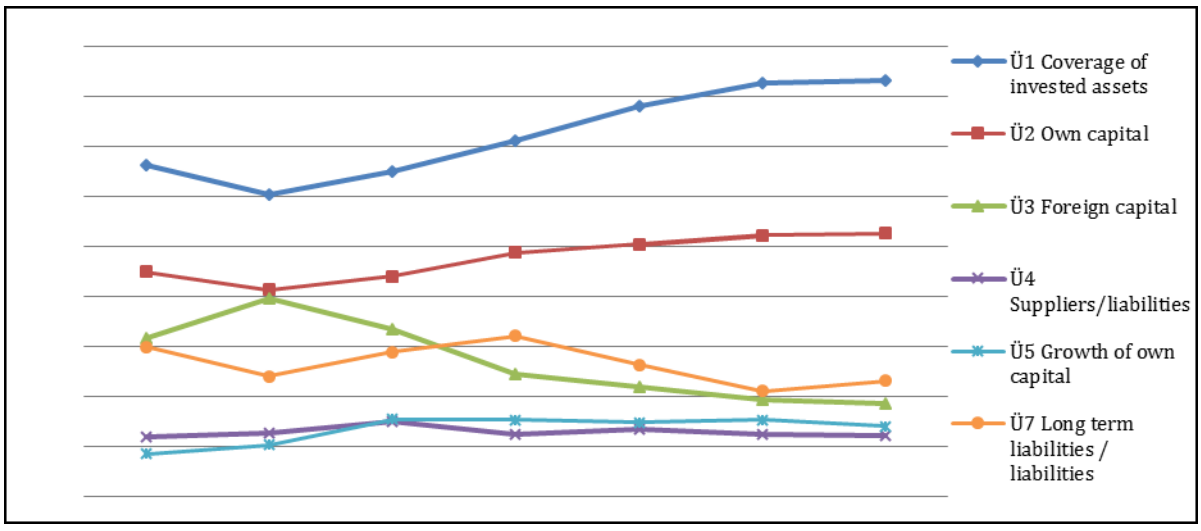


Fig. 1: **Indicators of financial status of individual pig producing farms based on the average of farm data**

Source: own calculations based on Hungarian FADN database

3.3. Analysis of profitability and liquidity indicators

The analysis of ROE indicator shows the payback status of invested capital, which may give valuable information for the possible investors. Return on Assets – ROA– **(Ü9)**, Return on Equity – ROE – **(Ü10)**, Return on Sales – ROS – **(Ü11)** and profit margin indicators **(Ü12)** show that the average of all of these indicators follows almost the same trend: between 2007

and 2009 an intensive growth was visible, than between 2010 and 2013 a decline is shown. Based on the data, this growth represents the growth of profit after tax, and it also refers to that phenomena that the self-financing ability can be detected in the group of individual pig producer farms. It is in relation with the growth of own capital.

The values of ROS indicator exceeded the value of ROE during the whole period, which means that the net value of sales could not reach the level of own capital. When analysing the whole period (2007-2013), it can be stated that the average yearly growth was positive in case of each indicators.

Wage cost ratio **(Ü13)** shows a declining trend, after a short increase, it represents a slight but continuous decline. Profitability indicators are visualized by Fig. 2.

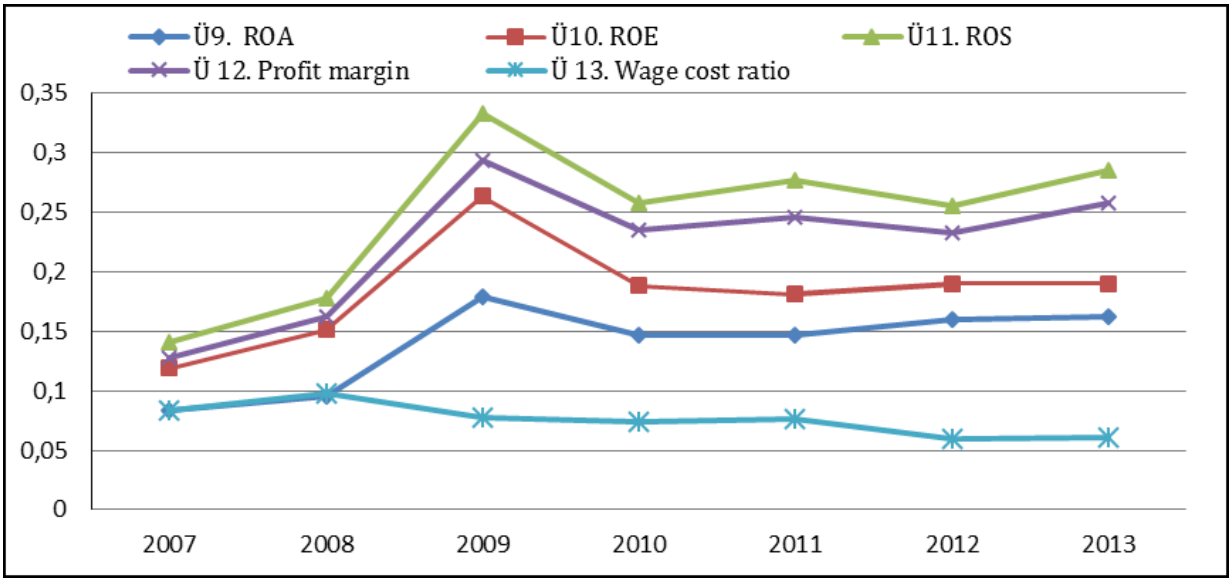


Fig. 2: **Profitability indicators of individual pig producing farms based on the average of farm data**

Source: own calculations based on Hungarian FADN database

When discussing liquidity indicators one can see that liquidity rate isd high enough, which refers to good credit capacity, but also refers to that farms keep they money in current assets as well. The data show that values are changing into positive and negative dimensions, but in total, the trends refer to the safe payback ability of the farms in short term..

Liquidity indicator **(Ü18)** showed a stable and good value (above 1,8 which is a good average result), but in 2011 and 2013 it exceeded the value of 4. Liquidity quick ratio **(Ü19)** refers to the less mobile way of financing the short term liabilities. The mathematical mean of the average of the examined 7 years is 4,35 this refers to too high liquidity quick ratio, but it can be ideal for getting credits. Liquidity indicator 3. **(Ü20)** shows the ratio of current assets without liabilities and the value of added assets, in terms of short term liabilities. In the period between 2007 and 2013, these values were high enough, between 2,851 and 5,715, that means the could cover their short term liabilities safely.

Dynamic liquidity indicator **(Ü21)** shows that the income from business activities in 2007-2008 could not cover the short term liabilities. But from 2009, this indicator became stronger, and reached the values of 117,4% and 185,1% , which sows a well-based economic background, as the general value of this indicator is about 50%.

Cash liquidity **(Ü21)** showed favourable results, but refers too high cash liquidity, i.e. companies and farms left their money assets in cash or in bank accounts. Liquidity indicators are summarized by Fig. 3.

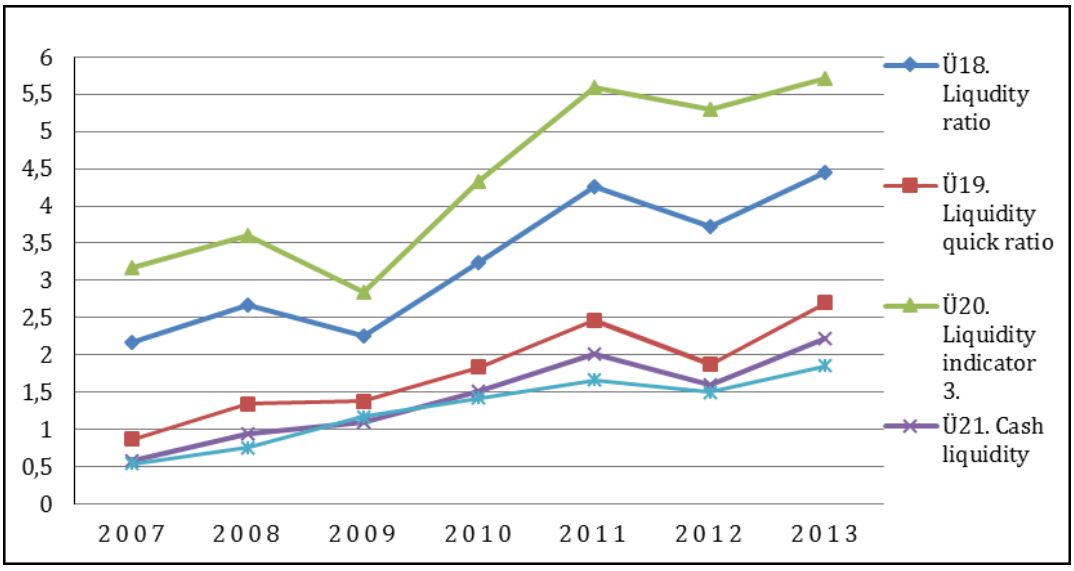


Fig 3: **Liquidity indicators of individual pig producing farms based on the average of farm data**
Source: own calculations based on Hungarian FADN database.

Paying back the short term liabilities will not bring harmful impacts for the farms, as not all amount of money should be paid at once. But if owners keep their money in cash or in bank accounts without good interest, it will decrease the profitability. It was a common problem in the examined sample.

3.4. Analysis of financial structure and capital structure

The length of the examination period makes possible to use trend calculations. Using linear trend functions to the resulted data, it can be seen that the yearly average of growth in case of fixed assets (y) is 85 447 E Ft, while in case of current assets (y) is 77 849 E Ft. The tightness if fitting is good in both cases (fixed assets R^2=0.966, while in case of current assets R^2=0.963). This ratio has not been changed during the examined period. The linear trends of fixed assets and current assets are shown in Fig. 4.

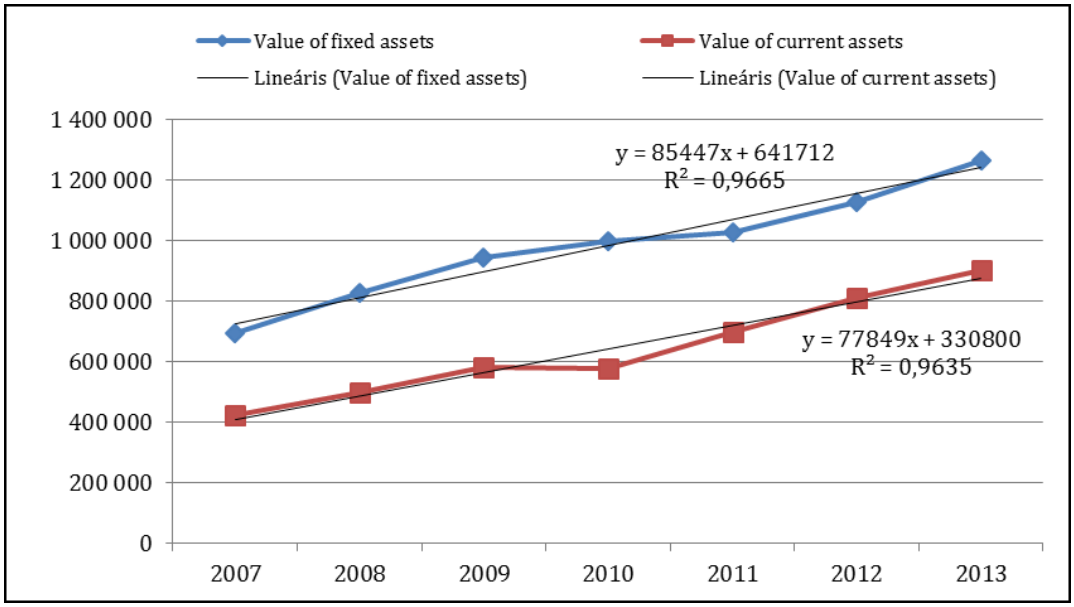


Fig 4: **Analysis of average results of fixed and current assets**
Source: own calculations based on Hungarian FADN database.

Based on the examination of individual pig producer farms, it can be stated that the share of permanent (fixed) assets is dominant and shows an increasing trend. It should be stated, as we speak about the capital structure of farms, that pig producer farms build their operation on own capital, they finance their financial movements from own money. The growing rate of fixed assets can be produced in case of buying new technologies or devices, such as technological equipment, machinery, transportation vehicles etc.). In the examined 7 years it was proved that farms do the financing activates based on own money, based on own capital.

Short term liabilities are mostly connected to operative activities, and farms proved that they can cover their liabilities with own money or in short terms. The connections between own capital and liabilities are shown in Fig. 5.

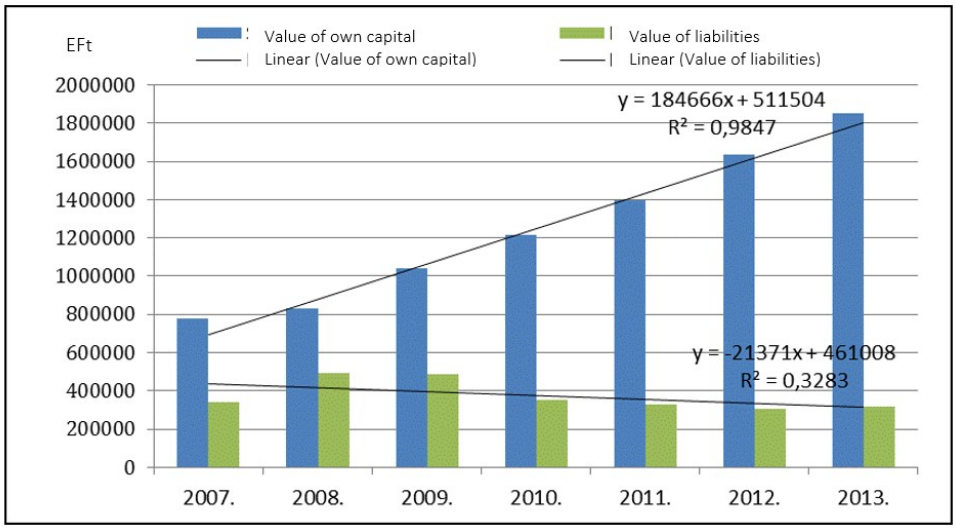


Fig. 5: **Average results of own capital and liabilities (2007-2013)**
Source: own calculations based on Hungarian FADN database.

The debt of individual pig producer farms was the highest in 2008, nearly 60%, which might be reasoned by the global financial crisis. The changes in the prices have brought negative effects in financing and liquidity of the farms. The debts were changing year by year, but showed a smooth trend, a slight decrease. The ratios of own capital, liabilities and debt are summarized by Fig. 6.

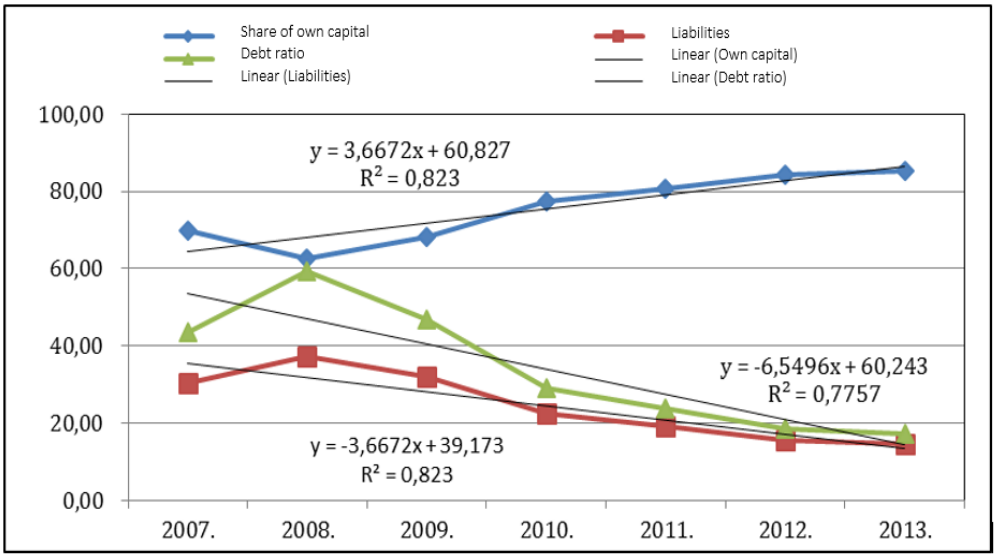
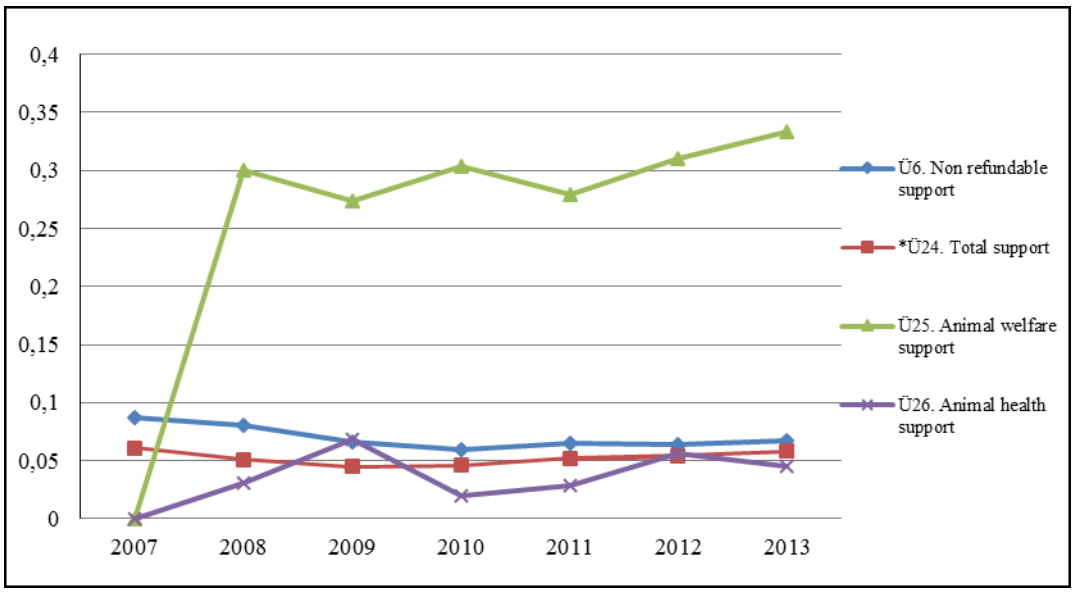


Fig 6: **Analysis of own capital, liabilities and debt in % (2007-2013)**
Source: own calculations based on Hungarian FADN database.

3.5. Analysis of supports

Indicator **(Ü6)** shows the ratio of non refundable support and own capital. These supports represent 6-10% of the income before tax. Although the pig sector is not supported by the EU, there are different applications available for the players of this sector.

Examining the ratio of total supports and total assets **(Ü24)** one can see that supports have influenced slightly the growth of total assets. The supports on animal welfare **(Ü25)** showed an intensive growth in 2008, by 30%, then it varied at the same level, in 2009 and 2013 at 27,4 and 33,3%. The ratio of animal health support and total support showed a low level (2-6,8%), although such type of supports should be increased, in order to keep the accordance with the existing EU rules and regulations regarding animal welfare and animal health. Indicators of supporta are summarized by Fig. 7.



(*excluding investment supports)

Fig 7: **Analysis of supports in the individual pig producer farms (2007-2013)**
Source: own calculations based on Hungarian FADN database.

3.6. Production factors of pig fatteners and breeding sow keepers

Based on the primary data provided by the Agricultural Economics Research Institute I made an examination for pig fatteners and breeding sow keeping farms in the period between 2007 and 2013. During this period, 1170 pig fatteners and 786 breeding sow keeping farms were covered by the database. I made a filtering in accordance with the formerly used method, and only those farms were drawn into further research, which provided data during the whole period, i.e. the seven years.

This filtering process reduced the number of the sample, 40 individual farms were drawn into the further steps of the research from pig fatteners, and 21 individual farms formed the breeding sow keeping sample. The yield functions of pig fatteners show an ideal situation, for example in 2008 the yield value level of 40 Ft could be reached by 30 Ft of costs, while the same amount could be reached by 10 Ft costs in 2013. The functions show the yearly changes, which is visualized by Fig. 8.

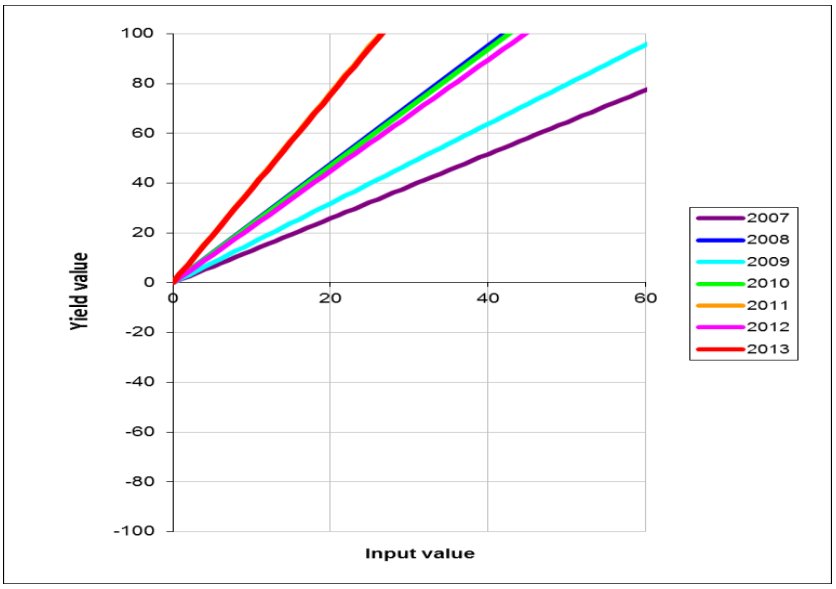


Fig 8: **Yield value functions of fattening pigs (2007-2013)**
Source: own calculations based on Hungarian FADN database.

The income functions of pig fattening are shown by Fig. 9. The values are indicated by the negative slopes, which represent that without any support the sector could not reach positive results only losses.

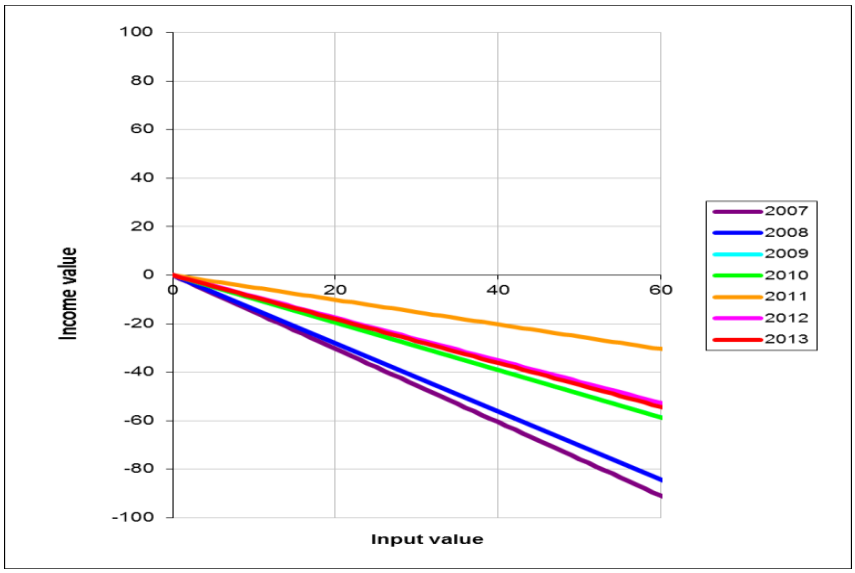


Fig 9: **Income functions of fattening pigs (2007-2013)**
Source: own calculations based on Hungarian FADN database.

The efficiency and profitability of breeding sow keeping is shown in a similar structure. The problems of feeding stuff production raised serious problems for the sector, and endangered their competitiveness and successful operation. The growing price of feeding stuff could not be balanced by the sales prices, moreover, the sales prices have decreased in the period under examination. The losses might be compensated by supports, but these supports are connected to plant producing activities.

Based on the examination of the feeding stuff prices it can be stated that due to the high prices in the examined period, the yield structure and the income functions of breeding sow keeping farms showed a strongly negative tendency.

The yield and income functions of breeding sow keeping farms are shown by Fig. 10 and Fig. 11.

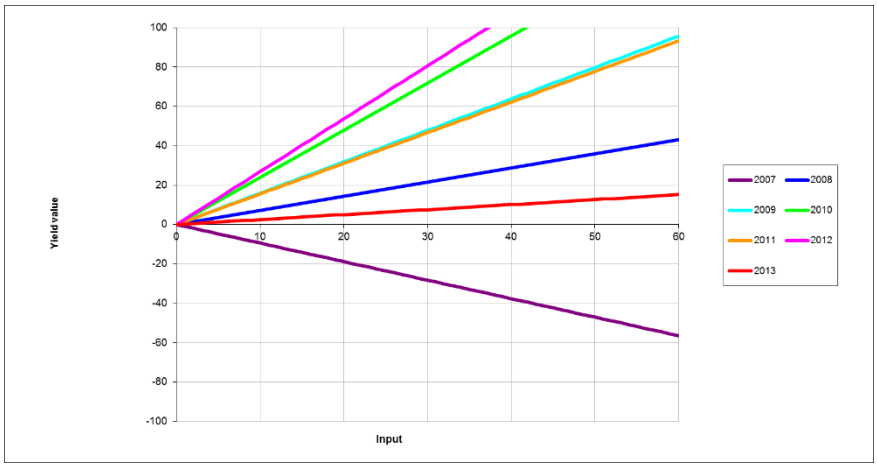


Fig 10: **Yield value functions of breeding sow keeping (2007-2013)**
Source: own calculations based on Hungarian FADN database.

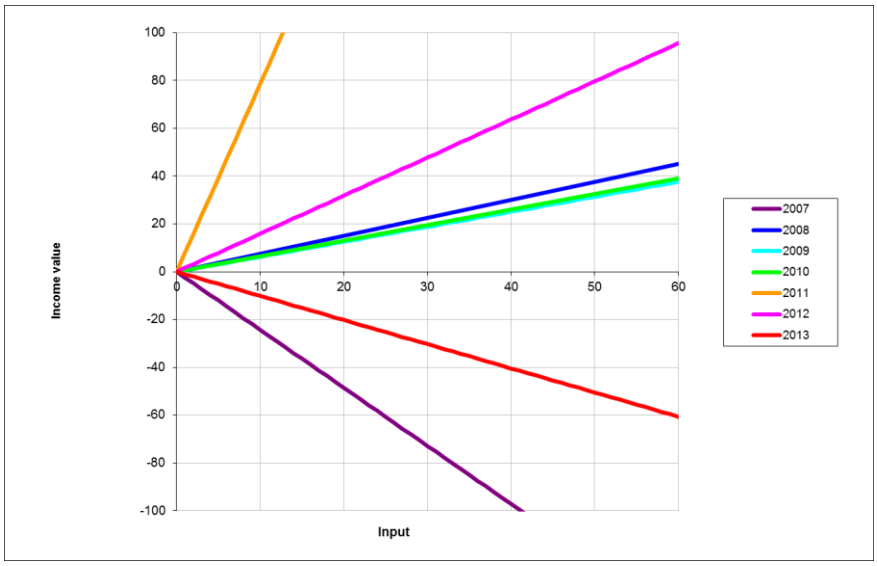


Fig. 11: **Income functions of breeding sow keeping (2007-2013)**
Source: own calculations based on Hungarian FADN database.

As a summary, it can be highlighted that both sectors have significant opportunities for increasing their efficient operation. Regarding the regression coefficients of the yield and income functions, in case of income functions the negative values are dominant. For example in pig fattening farms, the income function will show positive effects in case of machinery services and maintenance costs, in other cases the impacts are negative. This underlines the need for supports, because the lack of financial help will have unfavourable impacts on the efficiency of operations of individual pig farms of both sectors.

3.7. Assessment of the hypotheses

Hypothesis 1 (H1) – The decreasing tendencies of the Hungarian pig sector are resulted by the changes of the political and economic factors of the macro environment. This hypothesis was verified, and I categorized the development of the Hungarian pig sector into 4 stages, and made a complex comparison of the international and domestic literature sources and documents, which proved my statements.

Hypothesis 2 (H2) – The financial situation and capital assets of the Hungarian individual pig producer farms will increase in the examined period (2007-2013). The hypothesis was verified, because the financial level of these farms are stable. Nevertheless, pig producers keep their money mostly in bank accounts and in cash.

Hypothesis 3 (H3) – The profit producing effect of the different assets of the Hungarian individual pig producer farms will increase in the examined period (2007-2013). Hypothesis was verified, because the income creation of different assets has been increased, and the self financing ability of the farms is growing..

(H3a) – Profitability of the own capital of the Hungarian individual pig producer farms will show an increasing trend in the examined period (2007-2013). Hypothesis was verified, because in individual pig producing farms the own capital presents a changing character. It should be underlined that the share of own capital is very favourable in the examined sample, and a self-financing attitude can be found among the owners.

Hypothesis 4 (H4) – The situation of the Hungarian individual pig producer farms will develop as a result of the new supporting scheme, their income and stability will increase in the examined period (2007-2013). Hypothesis was partly verified, because farms used different supports and supports are available.

Hypothesis 5 (H5) – There is a significant difference between the profitability and income situation of the Hungarian individual pig producer farms dealing with breeding sow production and pig fattening activities. Hypothesis was verified, because the methodology in use and the examined sample are appropriate to make statistical analyses. Most of the farms supports their own operations by the help of own capital It was also stated that there are significant differences in the case of pig producers (pig fatteners and breeding sow keepers), and both sectors represent huge efficiency reserves.

4. NEW SCIENTIFIC RESULTS

1. Complex and system-based approach of the development of Hungarian pig production from 1945 until present. As a result of the wide literature and document review**,** I divided the development of the Hungarian pig sector into four, well distinguishable stages. Stage 1: the Second World War and the early socialist era (1945-1965); Stage 2: Intensive development until the political transition (1966-1989); Stage 3: Pre-EU accession period (1990-2003); Stage 4: Post-accession period (2004-2015).Based on the domestic and international literature sources and the results of the statistical and document analysis, I prepared the SWOT matrix of the Hungarian pig sector. Based on the SWOT I also prepared the problem tree of the sector, and analysed the measures of the Hungarian government's pig strategy.

2. Based on the primary data of the Hungarian FADN system I analysed the financial situation of Hungarian individual pig producing farms, between 2007 and 2013, according to the financial status, capital structure, profitability, efficiency and liquidity indicators, and also according to the different available supports. In the international and Hungarian literature mostly macro-economic analyses were available, this is why I prepared the micro (farm-level) analysis. I proved that the increase of own capital in the examined farms was slow, but the self-financing ability of these farms is existing. This refers to a conservative financing strategy. The share of foreign capital is limited, for the future development this share should be increased by the help of new credit constructions, by which new, mostly technological investments could be started.

3. Analysing the Hungarian individual pig producing farms, I proved that the profitability of these farms is varied in the different years. Based on the primary data of the Hungarian FADN system I analysed the financial situation of Hungarian individual pig producing farms, between 2007 and 2013, putting the ROA and ROE indicators into the focus, I proved that the capital structure and financial structure of the examined farms show a growing trend. Based on the average results of ROA, and ROE the profitability rates showed a slight but stable growth. The share of own capital is high, and this is the main source of profitability. In summary, it can be stated that in the examined period, the individual pig farms were profitable and their operations showed stability.

4. I evaluated the capital structure of Hungarian individual pig producing farms in the examined period between 2007 and 2013. Based on the primary data of the Hungarian FADN system I proved that the farms built on their own capital and own resources. There was a stable growth in technology development, although at a limited level, but the financial sources of this growth were derived from on capital and own financial resources. The calculations proved that the use of external financial sources is at very low level, and the used credits are limited to short terms. The examined farms do not use long term financing constructions, because they are not eligible for such credit structures.

5. I evaluated the EU and national supports available for the players of the pig sector, and the utilization of the supports among Hungarian individual pig farmers. The support activity is rather low, as the pig sector is not under the general supporting scheme. The main supports are connected to animal wellness and animal health issues, which supports are vital for the farms in order to be in compliance with the requirements and compulsory measures given by the agricultural policy.

6. I analysed and evaluated the differences between two sectors of the Hungarian pig sector: breeding sow keepers and pig fatteners.

I proved that the value production of the two sectors is different. Based on the primary data provided by the Agricultural Economics Research Institute, I proved the differences between the two sectors of pig production. By using the Pratt indicator, I determined that the different resources and production factors had a strong influencing effect on the profitability and the successful operation of the examined farms. The most important factor was feeding and the area available for feeding stuff production. The production structure of the farms was different in the different years. As a summary, it can be highlighted that both sectors have significant opportunities for increasing their efficient operation. Regarding the regression coefficients of the yield and income functions, in case of income functions the negative values are dominant. For example in pig fattening farms, the income function will show positive effects in case of machinery services and maintenance costs, in other cases the impacts are negative. This underlines the need for supports, because the lack of financial help will have unfavourable impacts on the efficiency of operations of individual pig farms of both sectors.

5. CONCLUSIONS AND RECOMMENDATIONS

The main aim of my thesis was to provide a complex description of the pig sector for the stakeholders of the sector, and to summarize those movements and events which determine the circumstances and the market position at domestic and international level. For giving insight to the Hungarian pig sector, I summarized the financial status of the private producers of the Hungarian pig sector in the period between 2007 and 2013.

The Hungarian pig sector which was one of the most successful sectors of the Hungarian agriculture in the past, showed decreasing results after the political and economic transition of the 1990s. This declining trend has not been changed by the EU accession. As according to the Common Agricultural Policy, the pig sector is not a widely supported sector and supports may be claimed only in case of special measures, it can be stated that this sector has not received a preferred attention, like other agricultural sectors. Nevertheless, the players of the pig sector should be prepared for the new, strict EU requirements and measures in environmental, animal welfare and animal health aspects.

As there is a wide competition in the EU pig market with many players and products, Hungarian pig sector shall find its own market position. Therefore, it is very important to help the producers to adapt to the changing environment and the challenges of the market, in order to find their appropriate place on the market and their appropriate product structure.

In my dissertation I examined the Hungarian individual pig farmers in microeconomic aspects (farm-level) in the period between 2007 and 2013. I started my work by the analysis of the macro-environment, by examining the situation of Hungarian pig sector and pig farmers in economic, social, technological and environmental aspects. This analysis covered the period from 1945 until present and I determined four main periods of development.

For my analyses is used the primary, farm-level database of the Hungarian FADN system, which was provided for me on the courtesy of the Hungarian Agricultural Research Institute. I made a comprehensive filtering process through the database in order to reduce the distorting effects of the macro-environment and the changes in the participants of the database. The filtering process resulted a relatively narrow, but well-based database, which represent the Hungarian individual pig farmers.

By analysing the financial indicators of the Hungarian individual pig farmers, I evaluated the period between 2007 and 2013. I elaborated my calculations at different level, and put my focus on the ROE and ROA indicators. Based on the results, it was determined that a declining trend can be seen in the pig sector when compared to other sectors of livestock production. My results highlighted, that the situation of Hungarian individual pig farmers is special, as their financial situation is weak, but they are strong in own capital and their liquidity conditions are acceptable. In the examined seven years, the value of assets is growing, but this growth is financed by own sources, from the funds of the own capital. The examined farms could not make developments and investments from their own resources, because of their poor capitalization, but the access to foreign capital is very difficult for the producers, because of their small size.

I also examined the differences between sow keeper and pig fattener farms. In their production processes the impact of feeding stuff costs are the main determinants of the yields and the profitability. The lack of the needed resources and the lack of up-to-date technologies are the main determinants of the efficiency of their operation and their competitiveness.

The results of my research work can be the initial points of further researches, thus, in the future the pig producer enterprises could be evaluated based on the same methodology, which will give a platform to examine the differences between different sized farms. The new regulations, the changes of the macro-environment may also bring new challenges for the whole pig sector, which might be opportunities and threats as well. The uncertain conditions of the

market and the continuous political and economic changes and market movements will also have hardly predictable impacts for all stakeholders of the pig sector.

Nevertheless, by strengthening the cooperation between the stakeholders of the pig sector, by improving the product chain and by producing products with higher added value the position of the market players and the market itself could be improved. Because of the limitations of the supporting scheme, these problems could be solved by adjusting and improving the conditions of the financing system (credits) according to the needs and opportunities of the pig sector's players. The Hungarian pig sector could be improved by formulating a more advantageous credit system, which should be tailored to the special financial conditions of the individual pig producers.

In the course of my researches, I found that many of the enterprises have not get enough information about the achievable supports and applications, and this situation was more significant in case of individual farms. An important task should be for policymakers to build an appropriate information network for such producers.

The food processing opportunities should also be improved for the primary producers, even by financial support or credit construction or by supporting cooperation between the players of the sector. Investments and developments are required, not only because of improving the competitiveness of the sector players, but also for building better circumstances for agricultural producers and rural societies. Investments in the pig sector will have significant economic and social impacts as well, which is also a key EU priority.

In recent years the Hungarian government in cooperation with professional associations, farmers, processing companies, research institutions etc. elaborated a comprehensive Pork Strategy, which several elements have already been implemented. The programme provides help for the players of the Hungarian pig sector, for producers, breeders, research institutions, the players of the processing industry. The financial support may improve the general conditions of the sector, and may create a more stable economic and administrative background for all the parties.

The three most important tasks for the players of the sector are the following:

- establishing a stable supply chain with stable markets, well-organized sector structure and well-operated representative bodies,
- improving productivity (improving production indicators and efficiency which may result the improvement producers' bargaining power),
- increasing added value of products (technology development and product development by the help of financial support).

The management questions of agricultural farms are another key issue of the further development. The managerial approach, the managerial skills should be acquired by the farmers. The different professional associations should take part actively in this process, by organizing trainings, exhibitions, workshops for providing the most recent information to the producers. The measures of the pig strategy provided some financial and institutional framework for achieving these goals, but there are many further tasks and problems to be solved. Close cooperation should be built between the producers, increasing the trust between the players of the sector is also needed, which should be managed by the players themselves. External help and reorganization is also needed for example between financial institutions and the farmers in order to improve the financial situation of the producers: the financing opportunities should be tailored according to the special needs and conditions of the pig producers.

6. RELATED PUBLICATIONS

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