Original Scientific Paper/Originalni naučni rad Paper Accepted/Rad prihvaćen: 14. 12. 2019. doi: 10.5937/SJEM2001029F UDC/UDK: 338.43:658.15(439) 339.7:338.124.4]:631.1(439)

Finansijska pozicija mađarskih poljoprivrednih preduzeća pre, za vreme i posle globalne finansijske krize

Jenő Fáró¹, Mária Lakatos², Éva Karai³

¹Naučni univerzitet u Budimpešti "Eötvös Lorand", 1053 Budapest, Egyetem tér 1-3, Mađarska; farojeno96@gmail.com

²Univerzitet u Kečkemetu "Janos Neumann", 6000 Kecskemét, Izsáki út 10, Mađarska; <u>lakatos.maria@gtk.uni-neumann.hu</u>

³Naučni univerzitet u Budimpešti "Eötvös Lorand", 1053 Budapest, Egyetem tér 1-3, Mađarska; karai@gti.elte.hu

Apstrakt: Cilj našeg istraživanja bio je utvrđivanje uticaja globalne finansijske krize na operativnu profitabilnost mađarskih poljoprivrednih preduzeća, putem istraživanja fluktuacija u kreditiranju, neto investicijama i neto prodaji. Na osnovu istraživanja sprovedenih u Srednjoj Evropi analizirali smo finansijsku poziciju preduzeća u periodu od 2007. do 2013. godine, svrstavajući ih u grupe prema njihovoj veličini i tražeći veze između pokazatelja promenjenih usled finansijske krize. Na osnovu sprovedenih istraživanja došli smo do konkluzije da je kriza bila najizrazitija u 2009. i 2010. poslovnoj godini; mikro i mala preduzeća su u ovom vremenskom periodu bila posebno izložena nepovoljnim uticajima. Posebnim testiranjem parametara modelom regresije koji objašnjavaju promene u operativnom profitu dokazano je da gore spomenute promene nisu bile nezavisne jedni od drugih. Jedna model analiza svedoči o uzročno-posledičnoj vezi između pada operativnog profita (EBIT) i smanjenja prihoda iz neto prodaje u 2009. godini, kao i o vezi između naglog povećanja istog i rasta prihoda iz neto prodaje u 2011. godini, osim toga i o marginalnom efektu neto investicija.

Ključne reči: finansijska kriza, profitabilnost, poljoprivredna preduzeća.

Financial position of Hungarian agricultural companies before, during, and after the global financial crisis

Abstract: The objective of our research is to describe how the financial crisis affected the operational profitability of Hungarian companies in the agricultural sector through fluctuations in lending, net investments, and net sales. Based on research conducted in Central Europe, we analyze the financial position of companies, clustered by their size, between 2007 and 2013, seeking relations between the indicators that changed as a result of the crisis. As a conclusion, we identify 2009 and 2010 as the business years that were affected by the crisis the most; in this period micro- and small-sized companies were particularly exposed to adverse changes. Separate testing of the parameters of regression models explaining the changes in operating profit demonstrates that the above changes were not independent of each other. An analysis of the models evidences a causal nexus between the fall in operating profit (EBIT) in 2009 and the decrease in net sales revenue as well as between the outlier increase in the same in 2011 and the growth of net sales revenue and the strong marginal effect of net investments.

Keywords: financial crisis, profitability, agricultural companies

Acknowledgments

Some parts of the paper have been presented at the 2nd International Scientific Conference on IT, Tourism, Economics, Management and Agriculture – ITEMA 2018, Graz.

1. Introduction

The performance, financial condition, and profitability of agriculture are often subjects of research, as the products of agro-industry contribute to the satisfaction of basic human needs, either through direct consumption or after being processed by the food industry. Hence, a period that affects agriculture adversely may have severe consequences for the world's food supply and the accessibility of agricultural products at a moderate price. This impact may influence both net importers and net exporters of agricultural products. Due to the low level of self-supply, the former depends on international trade; therefore, any breakdown of the trade may impede the supply of these vital products. Based on the analysis of long time series of the trading of agricultural products within the EU, among the EU-28 Greece, Spain, the United Kingdom, and France may qualify as net importer countries. Conversely, the positions of net exporters may be affected by changes in exchange rates and demand. Germany and the Netherlands are significant net exporters in the EU-28, but Hungary belongs to this group as well (European Commission, 2017).

2. Literature review

The performance of agriculture has been the subject of much research (governed by widely differing goals) in recent years. Some authors have devoted their works expressly to the exploration of the impacts of the crisis, others have obtained results that could easily be connected to the crisis in the course of the accomplishment of other research objectives, while some authors have revealed and published certain factors that might have mitigated the impacts of the crisis. Examples of the latter are analyses that have focused on the examination of changes in the condition of agriculture in those countries that joined the EU in 2004. The two most significant of these changes were the boom in the international trade of agricultural products and the direct payments of the Common Agricultural Policy (Bašek & Kraus, 2009; Chrastinová & Burianová, 2009; Střeleček et al., 2009; Svatoš & Smutka, 2010).

Bašek and Kraus (2009) revealed a significant increase in the Czech agricultural exports and imports in the period between 2005 and 2007 compared with the period between 2001 and 2003. Moreover, there was a moderate improvement in the indicator of counterbalancing imports by exports, though the country's exports seemed to be rather one-sided: more than 70% of the exports were expedited to three countries.

Svatoš and Smutka (2010) established from their analysis of data related to the agricultural product exports of Austria, the Czech Republic, and Hungary between 1999 and 2008 that the share of exports to and imports from the EU countries increased within the total volume of agricultural exports/imports. Furthermore, the rate of growth of exports was significantly higher both in the Czech Republic and in Hungary after 2004 than before this date. Czech agricultural exports increased by 15% between 2004 and 2008, while their rate of growth between 1999 and 2003 was only 3%. The same values for Hungarian agro-exports were 11% growth and a 1% decrease. The authors identified the above phenomenon as a structural change in exports, namely a quality shift toward processed products.

Concerning Hungary, Kiss (2008) also underlined the importance of trade with the EU countries: she demonstrated a rocketing increase in the share of the EU-24 in both the export and the import trade volume of Hungary.

Among the impacts of the crisis on agriculture, Kirkegaard (2011) highlighted that the decrease in incomes might have reduced the demand for agricultural products. Lending distrust raised difficulties in the financing of agricultural activities. Exchange rate fluctuations changed the competitiveness of the countries' products on the international market. As a result of budget deficits and the increase in the value of public debts, the volume of state subsidies must have fallen (this statement is also applicable to direct EU payments).

Lending was a problem in the agro-industry of Ukraine as well. Oliynyk et al. (2014) revealed that Ukrainian agriculture is rather underfinanced. Compared with the weight of the sector in the country's export volume (20%), the total share of the same in loans was a slender 5.9% in 2011. The consequences of the crisis for Ukrainian agriculture became perceivable from 2009: in this year the so far dynamic growth of the bank loan portfolios of agricultural companies dropped drastically. The share of the sector in the total bank loan volume fell from 6.5% (2008) to 5.3% (2010). Moreover, the share of preferential

loans within the total loan portfolio dropped to 14% in 2010 from 75% in 2008. Taking out loans became more difficult, though the output of agriculture in Ukraine between 2004 and 2013 was an exponentially increasing function of the bank loans provided for the sector (Oliynyk, 2016).

3. Data and methodology

The research investigates the financial statements of Hungarian agricultural companies between 2007 and 2013, a period that is long enough to present a distinct picture of the impacts of the crisis. The data for the research was provided by the Amadeus Database, which collects data of business entities maintaining a double-entry bookkeeping system all over Europe. We obtained the data of 8938 companies, of which we composed a sample consisting of 1277 elements. Concerning the selected companies, all the data essential for the research were wholly available for each year of the investigated period.

We cluster the companies of the sample based on their size⁴. Clustering allows us to detect whether the size of a company is a quality criterion determining the impacts that it experienced from the crisis.

We describe the financial status of the average company of the sample as well as of the average company of each of the four clusters⁵using various indicators, the earliest of which serves as base data. The indicators are produced to each year as the arithmetic mean of the respective data of companies, and their unit of measurement is thousand HUF. Thus, the value of indicator "i" in the base period is:

$$indicator_{i} = \frac{\sum_{j=1}^{N} X_{ij}}{N}$$
(1)

where "i" denotes the i-th indicator, "j" the j-th company, N the number of companies and Xij the value of indicator "i" for company "j".

Size-based clustering generates big absolute differences; hence, focusing on the relative changes, we constitute indices from indicators on the level of the average company as well as on the level of clusters. Therefore, the index attached to indicator "i" in the year "t" is:

$$index_{it} = \frac{indicator_{it}}{indicator_{i,baseperiod}} *100$$
(2)

where t = 2007; 2008; ... 2013, indicating the year, and indicator_{it} is the average of the indicator "i" in the period "t" while indicator_{i,base period} is the average of indicator "i" in the base period.

We define the possible scope of the indicators concerning the possible impacts of the crisis. We examine the fall in lending activity through the changes in the indicator of short-term loans,⁶ the eventual difficulties in the renewal of assets through the changes in net investments, and the impacts on revenues and exchange rates through the net sales revenue. The latter - together with changes in costs/expenses - affected the operating profit, which is also a subject of this research.

For further analyzes, the research uses the methods of descriptive statistics and correlation and regression analysis, executed by Microsoft Excel and the Gretl for Windows econometric program.

⁴Some authors have already assessed the members of agro-industry clustered on various criteria, like geographical location (Steklá et al., 2015) and the quality of the land cultivated (Střeleček et al., 2012). Clustering on size - based on total assets and net sales revenue of companies - could turn out to be more useful in this case, since some size-related factors, like financial standing, credit rating, and liquidity, may be decisive in a crisis-affected period. ⁵Micro, small-sized, medium-sized, and large companies.

⁶The weight of long-term liabilities is not determining in the average enterprise of the sample; hence, we focus on short-term loans only.

4. Hypotheses

Knowing the characteristics of the crisis and the trends presented in the neighboring countries, we establish the following hypotheses concerning Hungary, relying on the clustering of the companies of the sample as described in the previous part.

- H (1): The credit crunch, identified by Kirkegaard (2011) as a potential impact of the crisis, caused the most substantial reduction in the volume of short-term loans provided for micro- and small-sized companies, which usually have a weaker credit rating.
- H (2): As an implication of the crisis, difficulties in financing resulted in a decrease in net investments.
- H (3): The slackening demand for agricultural products, evoked by the decrease in incomes, diminished primarily the net sales revenues of the smallest, micro-sized companies, which have limited access to foreign markets.
- H (4): Falling revenues and changes in the cost structure jointly resulted in a decrease in the operating profit: in the years of crisis their amount became unpredictable at the same time.
- H (5): The changes described in the hypotheses are not independent of each other; specifically, the simultaneous existence of H (1), H (2), and H (3) contributed to the emergence of H (4).

5. Results

As a result of clustering (as described above), the number of companies belonging to the individual clusters was the following:

(pc)	2007	2008	2009	2010	2011	2012	2013
Micro (M)	1084	1066	1058	1056	1032	1015	999
Small (S)	166	178	183	183	204	213	222
Medium- sized (MS)	24	30	33	35	38	46	53
Large (L)	3	3	3	3	3	3	3

Table 1: Number of companies in the single clusters (pc)

Source: own calculations

This gives a favorable account of the status of the sector, showing a steady expansion in the number of small- and medium-sized companies and a drop in the number of micro-sized companies. As the clustering is based on the assets and turnover of companies, in many cases the change in these indicators allowed companies to "switch level".

The changes in the volumes of short-term loans give a significantly less favorable account of the sector.

Faro, J. et al. Financial position of Hungarian agricultural companies Serbian Journal of Engineering Management Vol. 5, No. 1, 2020



Figure 1: Changes in short-term loans and credits (2007 = 100%)

The change in an average company's graph after 2008 evidences the pervasive presence of the credit crunch in Hungarian agriculture: after the outbreak of the crisis, these items appeared in the balance sheet of an average agricultural company to a decreasing extent (-5.3% per year). This result corresponds to the findings of Széles et al. (2014). The drastic raising of the Hungarian National Bank's base rate by 300 percentage points in October 2008, must also have played a role in the above process (MNB, 2017).

Except for large companies, all the members of the sample had to face rather severe difficulties in short-term financing, similar to the phenomenon occurring in Ukrainian agriculture (Oliynyk et al., 2014).

From the available accounting data, we approximate the changes in net investments with equation (3):

$$Net investment = Closing value - Opening value + Depreciation$$
(3)

(3) gives the difference between the value of purchased, self-manufactured assets and the value of sales realized in the subjected year concerning fixed assets, thereby providing an overview of the renewal of asset stocks. The results are positive year by year, meaning an active asset renewal on the level of the sample average in each year. Only the dynamics of investment activity changed in time: the first adverse change occurred in 2010 when the respective value of the average company fell by 31.7%.

However, the drop in investment activity did not turn out to be permanent: after 2010 the volume of net investments started growing continuously. Mainly the large companies accounted for this progress, as their credit rating allowed them to find sources for financing their investment projects rather easily. The net investments of the companies in other clusters did not reach the volume of the base period in the second half of the examined period.



Figure 2: Changes in net investments (2008 = 100%)

Source: own calculations based on Amadeus data

In this respect neither the relative nor the absolute arrear of micro-sized companies is substantial compared with the average, meaning that these companies also managed to find sources, other than bank loans and credit, to finance their investments.

Regarding the trends of the net sales revenue, we must note in advance that the Hungarian forint depreciated materially against the main currencies in the examined period,⁷ which increased the competitiveness of Hungarian products on the international agricultural goods' market. As a result of this, the agro-exports of Hungary were able to grow each year (except for 2009 and 2012), thereby contributing to the surplus of the external trade balance (KSH, 2016). The good performance of exports compensated for the slackening domestic demand for agricultural products resulting from the fact that the economic growth in Hungary remained under 2.1% during the whole term of the investigated period and the economic decline was 6.6% in 2009 and 1.6% in 2012 (MNB, 2017). Hence, in total the average net sales revenue started to grow from 2010 (following a temporary fall in 2009) by 10.4% yearly. Also, in this case, large companies played a leading role in the growth; the stagnation of the revenues of other companies was due to their lack of export orientation. Medium-sized companies were affected the most by this phenomenon: the value of their net sales revenues became stuck on the level of 90% of the base period throughout the years following 2009.

⁷The EUR/HUF exchange rate increased from 251 (2007.01.02) to 297 (2013.12.31) (MNB, 2017)

Faro, J. et al. Financial position of Hungarian agricultural companies Serbian Journal of Engineering Management Vol. 5, No. 1, 2020



Figure 3: Changes in net sales revenue (2007 = 100%)

Source: own calculations based on Amadeus data

In general, the trend of the net sales revenue is rather positive. The main reason for this could be the growth of agricultural exports after the accession to the EU, which is not a unique phenomenon: the same progress can be observed in the countries that joined the EU in 2004 (Bašek & Kraus, 2009; Svatoš & Smutka, 2010).

We must also note here that the respective data of the base period (2007) are positive, meaning that, on the operating level, the average companies of each cluster were able to produce profit in all of the investigated years.



Figure 4: Changes in operating profit (2007 = 100%)

Source: own calculations based on Amadeus data

This indicator suffered a severe setback in 2009, which continued in 2010 as well, demonstrating an unfavorable relation between the trends of the changes in the net sales revenue and the costs in these two years. This is in line with the result of Aulová et al. (2013).

This tendency shifted back in 2011 when the operation of companies became more efficient. The same did not apply, however, to 2012, when the growth of the net sales revenue was followed by a significant decrease in the operating profit.

The figure below demonstrates the range⁸ of the operating profit in each year making its variability clear:



Figure 5: Range of the operating profit (million HUF)

Source: own calculations based on Amadeus data

The range of the sample broadened significantly in 2008, and the same tendency applied to 2009. That is to say that the difference between the maximum and the minimum operating profit continued to grow in the crisis period.

Examining the clustered sample, we may establish that the values of medium-sized companies represent the approximate average of the sample. Based on the analysis of the graphs, the values of large companies show a weak correlation with the data of the other three clusters, the tendencies of which are rather correspondent with each other. This fact also demonstrates the outlier nature of large companies; hence, from the point of view of the sample, the values of the other three categories are relevant.

The results so far suggest the existence of a relation between the analyzed variables, and we intend to clarify whether this correlation is only an accidental covariance of values or the manifestation of a statistically significant relationship.

Since the applied statistical tools are sensitive to the outlier values from now on, we disregard the three large companies of the sample and focus on the statistical relation among the values of the remaining 1274 companies to avoid biased the results (Maddala, 2004).

The following table demonstrates the value of Pearson's correlation coefficient between the operating profit (EBIT) and the three other variables in the individual years:

	2008	2009	2010	2011	2012	2013
Net Inv. – EBIT	0.3900***	0.3958***	0.4627***	0.5576***	0.5006***	0.6714***
Loans – EBIT	0.4357***	0.5005***	0.3997***	0.5105***	0.4724***	0.5644***
Net Sales – EBIT	0.4421***	0.4726***	0.4440***	0.5413***	0.4518***	0.6511***

Table 2: Correlation matrix (***: the correlation is significant at 1% significance level	Table 2: Correlation matrix (***: the correlation is significant at 1% significance	level)
---	-------------------------------	--	--------

Source: own calculations based on Amadeus data

⁸Range = maximum value - minimum value

The positive value of the correlations means that the examined variables typically moved in the same direction. The strength of the correlation is moderate in each case. On the 1% significance level, each correlation qualifies as significant, supporting H (5).

However, as the correlation coefficient cannot be interpreted as a slope coefficient, we supplemented the correlation analysis with a linear regression calculation to reveal marginal effects.

Based on the results obtained so far, we consider that the years 2008, 2009, and 2011 deserve special attention; we apply a linear regression model to the data of these years using the variables of the previous analyses (operating profit (y) as the dependent variable and short-term loans (x_1) , net investments (x_2) and net sales revenue (x_3) as independent variables) to test hypothesis H (5) again. The reasons for the selection of these years are the followings: 2009 was the year of the first shift to the unfavorable direction that ended up in the fall in the operating profit. In this regard, 2008 will serve as the base year, with which the results of 2009 will be compared. At the same time, 2009 will be the basis of comparison concerning the data of 2011 (as we demonstrated above, 2010 produced similar results to 2009).

Our intention with the linear regression analysis is to merge the linear relations that we revealed through the correlation analysis in one model as follows:

$$y = \beta_0 + \beta_1 * x_1 + \beta_2 * x_2 + \beta_3 * x_3 + \varepsilon$$
(4)

The results are summarized in the following table:

Table 3: Coefficients of the regression equations and the Bootstrap confidence intervals (**: the coefficient is significant at 5% significance, i.e. the 95% Bootstrap confidence interval does not contain

		0)		
		2008	2009	2011
Short-term loans	Point estimation	0.137496**	0.120969	0.146898**
	95% confidence interval	(0.00678; 0.22426)	(-0.04308; 0.22965)	(0.01969; 0.25850)
Net sales revenue	Point estimation	0.0313613**	0.0215675**	0.0301202**
	95% confidence interval	(0.00818; 0.06089)	(0.00546; 0.03481)	(0.00516; 0.06392)
Net Investments	Point estimation	0.0470507	0.0542959	0.237042 **
	95% confidence interval	(-0.03165; 0.17789)	(-0.01689; 0.16325)	(0.11861; 0.38159)

Source: own calculations based on Amadeus data

We can observe that the net sales revenue has material importance for the operating profit with respect to each year, which, keeping in mind the calculation method of the operating profit, is not surprising. Less obvious is the marginal effect on the operating profit, which is rather low. Short-term loans also have a positive relationship with the operating profit; this was significant in 2008 and 2011. The value of net investments has no explanatory role in the model, with respect to 2008 and 2009, but in 2011, its coefficient shows a very strong marginal effect.

6. Conclusions

Among our hypotheses, we managed to confirm the correctness of the one related to lending (H (1)), as the volume of short-term loans decreased continuously with respect to micro- and small-sized companies. This result is consistent with the findings of Oliynyk et al., (2014) and Széles et al. (2014). Concerning the decrease, there was a significant difference between the size-based clusters: the fall was not as drastic in the case of medium-sized and large companies due to their better credit rating. The unequal distribution of loans among the companies in the sector was obviously demonstrated by the fact that the loan portfolio of large companies was almost two thousand times as large as that of micro-sized companies.

However, this circumstance did not lead to a setback in net investments during the same period and to the same extent; this proves that the inducements of investment activity are probably different from those of the short-term funds mentioned above. These investments are most likely to be financed from investment loans and subsidies. Accordingly, our hypothesis concerning net investments (H (2)) was true only with respect to 2010, since in this year the value of this indicator decreased significantly in all the clusters. The crisis impacts showed a strong correlation with the size of companies in this respect as well: the average value of net investments among the companies in the three smallest size-based clusters did not reach the level of 2008 in any of the subsequent years.

The net sales revenue of the average company fell slightly in 2009 only. Otherwise, it grew in each year (following a trend similar to that of Hungarian agricultural exports), which is related to the depreciation of the domestic currency. However, the micro-, small-, and medium-sized companies of the sample could not, or could only to a moderate extent, take advantage of this trend, probably because of the lack of export orientation. The correctness of hypothesis H (3) was not confirmed: it was not the micro- but the medium-sized companies that achieved the worst sales results; their average value was around 90% of the 2007 value after 2009.

The operating profit showed a fundamentally different pattern from the net sales revenue, highlighting changes in the cost structure. The correctness of H (4) was confirmed for 2009: in this year the operating profit decreased drastically to a much greater extent than would have been reasonable based on the fall in the net sales revenue. This result is in line with the one of Aulová et al. (2013). The size of companies turned out to be a useful clustering factor, as small- and micro-sized companies suffered the most drastic fall in net sales revenue in 2009. H (4) conceived the instability of the operating profit as well, a statement that also turned out to be correct due to its expanding range in the years of the crisis.

As a conclusion regarding these changes, we identified 2009–2010 as the business years that were affected the most by the crisis; in this period micro- and small-sized companies were particularly exposed to adverse changes. The review of the relevant literature allowed us to give an evaluation of the above-mentioned findings in an international context. In this respect Hungarian agriculture is not exceptional: the impacts of the crisis in connection with lending, sales, and profitability are observable here as well.

The correlation analysis indicated significant positive correlations of moderate strength among the studied variables.

In all the regression equations, the net sales revenue turned out to be a significant regressor. Short-term loans had a significant relationship – judged by the confidence interval of its parameters - with the operating profit in 2008 and 2011. The value of its parameter was not significantly different from zero in 2009 consequently this year the fall in the operating profit can be attributed to the termination of the positive effect of the short-term loans together with the weaker effect of net sales revenue. The net investments had significant effect only in 2011 contributing to the increase of operating profit.

The goodness of fit of the models was not particularly high (42% in 2008, 33% in 2009, and 44% in 2011) as a consequence of the scope of the study: we focused primarily on the impacts of the global financial crisis, through lending, net investments and net sales revenue on the operation-level profitability of the examined companies. As for future research, we are also interested in investigating the net income of these companies where other factors – beyond the ones investigated in this research – shall be taken into accounts such as the factors determining the financial income and the amount of corporate tax.

References

- 1. Aulová, R., Rumánková, L., & Ulman, M. (2013). Determinants of the result of economic activity of agricultural businesses of legal entities in the Czech Republic. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 61(4), 849-859.
- 2. Bašek, V., & Kraus, J. (2009). Czech foreign agricultural trade after joining the European Union. Agricultural Economics, 55(12), 583-595.
- 3. Chrastinová, Z., & Burianová, V. (2009). Economic development in Slovak agriculture. Agricultural Economics, 55(2), 67-76.
- 4. European Commission. (2017). Agriculture in the European Union and the Member States Statistical factsheets Retrieved from https://ec.europa.eu/agriculture/statistics/factsheets_en (accessed on 7 May 2017).
- 5. Kirkegaard, J. F. (2011). The Euro Area Crisis: origin, current status, and European and US responses. Peterson Institute for International Economics, Congressional Testimony.
- 6. Kiss, J. (2008). Hope and reality: EU accession's impact on Hungarian agri-food trade. Studies in agricultural economics, 107(1316-2016-102699), 19.
- 7. Maddala, G. S. (2004). Bevezetés az ökonometriába. Budapest: Nemzeti Tankönyvkiadó.
- 8. MNB (Central Bank of Hungary), Central Bank base rate, Retrieved from http://www.mnb.hu/Jegybanki_alapkamat_alakulasa (accessed on 8 May 2017).
- MNB (Central Bank of Hungary), Exchange rates, Retrieved from <u>http://www.mnb.hu/arfolyam-tablazat?devizaSelected=EUR&deviza=rbCustom&datefrom=2007.01.01.&datetill=2015.12.31.&order=1&customdeviza%5B%5D=EUR (accessed on 8 May 2017)</u>
- MNB (Central Bank of Hungary), Main Economic and Financial Indicators, Retrieved from http://www.mnb.hu/statisztika/statisztikai-adatok-informaciok/adatok-idosorok/i-fomakrogazdasagi-adatok (accessed on 8 May 2017)
- Oliynyk, O. (2016). Financial system and agricultural growth in Ukraine. International Scientific Days 2016. The Agri-Food Value Chain: Challenges for Natural Resources Management and Society, 361-369 <u>http://dx.doi.org/10.15414/isd2016.s5.06</u>
- 12. Oliynyk, O., Oliynyk, L., & Adamenko, V. (2014) 1.7. AGRICULTURAL FINANCIAL SYSTEM IN UKRAINE. Challenges for the Agricultural Sector in Central and Eastern Europe, 97-119
- 13. Steklá, J., Gryčová, M., & Homolka, J. (2015). Evaluation of capital structure of agricultural cooperatives. AGRIS on-line Papers in Economics and Informatics, 7(665-2016-45084), 37.
- 14. Střeleček, F., Kopta, D., Lososová, J., & Zdeněk, R. (2012). Economic results of agricultural enterprises in 2010. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 60(7), 315–328.
- 15. Střeleček, F., Lososová, J., & Zdeněk, R. (2009). Comparison of subsidies in the Visegrad Group after the EU accession. Agricultural Economics, 55(9), 415-423.
- 16. Svatoš, M., & Smutka, L. (2010). Development of agricultural foreign trade in the countries of Central Europe. Agricultural Economics, 56(4), 163-175.
- 17. Szeles, Z., Zeman, Z., & Zsarnóczai, S. J. (2014). The developing trends of Hungarian agricultural loans in the term of 1995 and 2012. Agricultural Economics, 60(7), 323-331.
- 18. A mezőgazdaság szerepe a nemzetgazdaságban, 2015 (2016), Központi Statisztikai Hivatal, http://www.ksh.hu/docs/hun/xftp/idoszaki/mezo/mezoszerepe15.pdf