

THE ROLE OF FINANCING THE ACTIVITIES OF AGRICULTURAL HOLDINGS WITH BORROWED CAPITAL IN THE OPINION OF INDIVIDUAL FARMERS

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S u m m a r y. The aim of this paper is to present the opinions of farmers about financing agricultural holdings with borrowed capital. The research addressed the purpose of using borrowed capital, its determinants and the assessment of the benefits of its use in the opinions of farmers. The survey was conducted with the use of interview questionnaire in the group of 100 farmers running individual agricultural holdings in the Mazowieckie voivodeship. These entities applied agricultural accounting within FADN system. The criterion for the division of the surveyed units included the economic size expressed in ESU, which allowed taking into account the level of profitability of these entities. The main problem of the management of finance sources, according to the farmers, consisted in the maintenance of financial liquidity on the safe level. The farmers saw benefits of the increase of financing with borrowed capital for the faster modernization of agricultural assets. The farmers choose a conservative financing strategy; preferring long-term financing sources, they wanted to minimise financial risk. The farmers listed the following main determinants of the level of debt: the value of the investment, own contribution required and subsidies to interest on subsidised loans.

INTRODUCTION

The image of an average agricultural holding is composed of a production potential, determined by equity, agricultural area and level of debt. The operation of agricultural holdings has certain capital-assets specificity resulting not only from the high share of current assets in the total number of assets, but also from the lower position of current liabilities, whose share is smaller compared to other industries [Bieniasz, Gołaś 2008; Gloy, LaDue 2003]. Long production cycles and the significant role of land as a production factor make the reactions to changes in the market of those managing agricultural holdings less flexible. It transpires, among others, from the limited substitutivity of production factors in agriculture. Besides, the specificity of functioning of individual agricultural holdings and their direct relation with a household causes the need to determine preferences of those managing agricultural holdings in the scope of using finance sources. Thus, the factors limiting the level of borrowed capital may include: the small scale of agricultural holdings,

lack of good loan securities, low level of knowledge about financial services [Kata 2010] and low return on assets [Zhao et al. 2008]. Another approach suggests that limited use of borrowed capital in agricultural holdings is caused by the self-exclusion of farmers from the credit market due to market weaknesses in terms of providing finance to agriculture [Zhixiong 2004, Varga, Sipiczki 2015, Zawadzka 2013, Kata 2011, Utzig 2012, Benjamin, Phimister 2002]. The access to external sources of financing for agricultural holdings is increasingly bigger, nevertheless, the share of debt in total assets remains still on a low level compared to business entities from other sectors of economy.

The aim of this paper is to present the opinions of farmers concerning their demand for borrowed capital, preferences in the scope of selection and benefits of external sources of financing in the activities of agricultural holdings. The author of the survey also took into account the choice of debt structure in the short-term and long-term financing. Economic size was used as a main criterion for grouping the agricultural holdings surveyed. It allowed indirectly considering the criterion of profitability of the entities, which differs dependent on the selection of financing sources [Zawadzka, Szafraniec-Siluta 2012, Mađra 2010]. In the survey, within three selected areas: purposes of using borrowed capital, selection preferences and assessment of benefits, the answers were prevailing among the farmers were chosen and cross compared.

DEMAND FOR BORROWED CAPITAL IN AGRICULTURAL HOLDINGS

Agricultural holdings which produce at large scale can diversify sources of borrowed capital [Stekla, Grycova 2016], which minimizes the risk of their insolvency [Hacherova, et al. 2004]. Besides, the expansion of agricultural holdings activities is shaped by the access to internal and external sources of financing due to the continuous process of agricultural production effectiveness and conditions of agricultural operation. In agriculture, these are loans that complement equity, helping to make profits, widen capital base and increase production profitability [Czerwińska-Kyzer 2002]. Besides, the increase of debt in agricultural holdings positively influences higher production capacity, work efficiency and income. The demand for loans in agriculture depends on the stage of development, the structure of assets of a holding and quality of economic infrastructure surrounding an agricultural industry [Kata 2003]. Subsidised loans play a key role in financing agriculture in Poland – these are the most frequently used forms of financing agricultural activity [Rosa 2011]. The financial structure the agricultural enterprises and farms are also affected by factors of the macro-environment [Kalusova, Badura 2017].

The changes in the number of subsidised loans granted suggest procyclical debts of farmers, resulting from their investment behaviour [Daniłowska 2005a]. The situation is connected with uncertain forecasts of the future level of prices, the size of production, the value of investment and expected profitability of assets [Adams 1984]. The increase of the agricultural business scale and higher investments contribute to better efficiency of agricultural holdings [Felczak, Domańska 2014, Mikołajczyk 2009, Sobczyński 2009, Kusz 2009].

The decision connected with external financing among farmers is influenced not only by the maximization of profits and improvement of productivity, but also by non-pecuniary benefits, such as maintenance of a certain lifestyle and fulfilment of other social goals connected with working on a farm [Howley, Dillion 2012, Willock et al. 1999]. The decisions concerning structure of capital are also based on the age and inclination to risk of farmers [Katchova 2005] and individual ability of a business to get on with debt [Chmelikova 2002].

SHAPING CAPITAL STRUCTURE IN AGRICULTURAL HOLDINGS

The adoption of the appropriate strategy of capital structure management is necessary if those managing agricultural holdings want to maintain solvency and credibility. Farmers believe that they try to manage debt-equity ratio to minimize the costs of financing [Barry 2002]. These entities use self-financing to cover investment expenses. Along with the higher return on equity in relation to the costs of debt management, the security of financing with borrowed capital rises. The decisions in the process of shaping capital structure should minimize its costs, include the necessity to maintain financial liquidity and ensure beneficial influence of capital structure on the profitability of assets (financial leverage effect) [Orchowa-Maliszewska 2003].

One of the barriers of changes in the structure of financing sources in agriculture includes the scale of activities and variability of income, depending on the conditions in the agricultural market. Borrowed capital in agriculture supports development and increases effectiveness of agricultural production [Mądra 2009]. It is connected with positive effects of subsidized loans, used as main external sources of financing in agricultural holdings, and the possibility to receive subsidies to the agricultural activities [Bojniec, Lutruffe 2011, Barry et al. 2000]. Thus, the role of subsidized financing in agriculture is important because of the high: number of holdings with a low income, capital intensity and operational risk in this sector of the economy.

CAPITAL STRUCTURE THEORY AND FARMERS' CHOICES CONCERNING SOURCES OF FINANCING

In the activities of agricultural holdings, the reflection of the decisions concerning capital structure shaping is consistent with the assumptions of the theory of finance sources hierarchy. The theory refers to the problems of gaining capital connected with the asymmetry of information between a borrower and a lender [Gebu 2009]. According to this theory, the choice of finance sources is based on three criteria: accessibility, cost and flexibility [Assibey et al. 2012]. The preferences concerning finance choices are influenced by the industry in which a given business entity functions [Zygmunt 2004, Martin, Clapp 2015].

In companies the following order of finance sources is prevailing: retained earnings, trade credit and advance payment, short-term bank loan, long-term bank loan, short-term securities and long-term securities (the least available). According to the hierarchy of finance sources listed by the farmers, equity and, in a second step, long-term subsidized financing were considered the most beneficial finance sources with the lowest cost of capital. Farmers claim that long-term subsidized loans are also more attractive in respect of the cost of financing compared to other short-term finance sources [Mądra 2008].

In agriculture, borrowed capital includes mainly long-term finance sources. Besides, investment decisions made by farmers, due to the limited access to external financing, are based on the possibility to use equity. Shaping capital structure in agriculture is affected by the preference to reduce risks both natural and economic ones, which ensures financial liquidity on the safe level. Financial liquidity is necessary for the functioning of agricultural holdings, enabling them to manage current liabilities [Wasilewski 2006], and the scale of production does not differentiate the accepted risk connected with a loss of financial liquidity [Felczak 2014]. Farmers, as in the theory of finance sources hierarchy in companies [Jensen et al. 1993], prefer internal sources of financing investments rather than external ones.

The level of debt in agricultural holdings is influenced by many external and internal factors. The level of farmers' interest in financing their operation with loans is influenced by the level, structure and terms of such a loan, which result from the interaction between these factors [Daniłowska 2005b]. In agricultural holdings, the formation of capital acquired by the increase of income is low [Gołaś 2008], despite this fact farmers have a conservative attitude toward risk [Wilson 1997, Beedell, Rehman 2000], resigning from the possibility to gain additional benefits, resulting from the financial leverage effect [Bereźnicka 2009]. In their opinions, it is more important to continue business activities than to maximize return on capital [Glover, Reay 2015]. Despite this fact, the more developed agriculture, the larger demand for agricultural holdings for bank loans [Siudek 2008].

The main source of financing investments of agricultural holdings is self-financing, however, the larger economic size, the greater role of borrowed capital [Zawadzka, Szafraniec-Siluta 2012]. Farmers decide to self-finance investments and prolong their completion by the time of the accumulation of financial means for that purpose, complementing the shortage of capital with subsidized financing.

RESEARCH METHODS

The research with the use of interview questionnaire was conducted in 2016 on the group of 100 farmers¹ running individual agricultural holdings, participating in the Accountancy Data Network² (FADN) system. The selection of agricultural holdings for the research was conducted by stratified random sampling, taking into account the criterion of economic size and agricultural area of holdings in this province. Farmers were qualified for the research if they used external financing in 2014-2015. The survey had a complementary nature in relation to the first survey conducted in the same province in 2008 as a primary study.

The location of research was chosen due to the situation of the province in the center of Poland and average conditions for agricultural business compared to other regions distinguished in FADN system. The Mazowieckie voivodeship characterized by medium-size agricultural holdings of an average level of intensity of agricultural production [www.fadn.pl]. FADN is interested especially in commercial holdings, having a major contribution to added value in agriculture. These are agricultural holdings which make in a given FADN region or country at least 90% of Standard Gross Margin (SGM)³. Agricultural holdings were divided dependent on their economic size⁴ expressed in ESU (Economic Size Unit), with the adoption of ranges in this criterion as in FADN standard results⁵. In the survey, four groups were identified according to their economic size: 2-8 ESU (established by the merger of very small and small holdings), 8-16 ESU, 16-40 ESU and over 40 ESU (established by the merger of groups of big and very big holdings). Besides, for the variables of continuous nature, the correlation between the level of debt and economic size was calculated as well

¹ In the interview questionnaire, the farmers could indicate more than one answer within the research conducted.

² The European system uses for collecting accounting data from agricultural holdings.

³ Standard Gross Margin is a surplus of production value in a given agricultural business over the value of direct costs in the average conditions of production for a given region [www.fadn.pl].

⁴ In the range criterion of the examined objects, the number of objects was: 20, 18, 37, 16 and 9.

⁵ Classification adopted for grouping agricultural holdings FADN according to ESU includes the following groups: very small $ESU < 4$, small $4 \leq ESU \leq 18$, medium small $8 \leq ESU \leq 16$, medium large $16 \leq ESU \leq 40$, large $40 \leq ESU \leq 100$, very large $ESU \geq 100$.

as the significant difference between the level of debt and the ESU groups adopted. The paper presents only the most frequent answers of farmers concerning the structure of debt.

RESEARCH RESULTS

Figure 1 presents the scope of the use of long-term and short-term borrowed capital. Long-term external finance sources in the form of subsidized bank loans were used by 70.0% of the farmers surveyed. In the surveyed group, the scale of commercial long-term bank loans was low (4.0% responses). It is caused by higher management cost of such debt and necessity to fulfil additional requirements connected with securing such financing.

The long-term external finance sources were least frequently used by the agricultural holdings of the smallest economic size (58.1% indications), while this form of financing was the most popular among the agricultural holdings of the economic size of 16-40 ESU (90.3% indications). Commercial long-term bank loans were used to a very low extent mainly in the group of agricultural holdings of the economic size of 8-16 and 16-40 ESU. It results from the fact that commercial loans are treated as a complementary source of financing with a higher cost, which may lead to the decrease of profitability of agricultural activity.

The farmers' answers concerning the extent of using short-term loans were more diversified than in the case of long-term loans. This finance source was not used by 43.0% farmers. This was mainly the group of the economic size of 2-8 ESU (58.1% indications). Subsidized short-term loans were used on average by 39.0% farmers. It mostly applied to the agricultural holdings of the largest economic size (57.1% indications), while it applied to 29.0% indications agricultural holdings from the group of 2-8 ESU. The credit line on current account was used by 18.0% farmers on average, mostly in the agricultural holdings of the economic size over 16 ESU (29.0% indications).

Among the answers concerning the engagement of short-term finance sources, the farmers, on the similar level, indicated commercial engagement of short-term bank loans and loans from family or friends (7-8%).

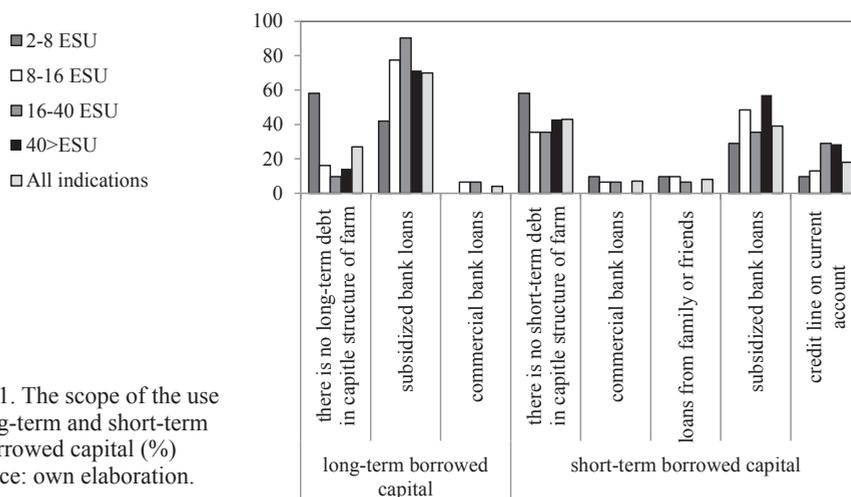


Figure 1. The scope of the use of long-term and short-term borrowed capital (%)
Source: own elaboration.

The answers concerning the purpose of borrowed capital in agricultural holdings were relatively similar (tab. 1). The significant majority of farmers used bank loans due to the insufficient resources of cash (on average 82.0% responses). The possibility of generating higher income in future with the use of borrowed capital was also important – the response was indicated by 57.0% farmers. There was also a relatively big number of answers referring to the necessity of a loan in case of unpredictable events (43.0%). Approximately 49.0% of the answers were connected with such reasons as preventing loss of financial liquidity and developing production by increasing the value of assets (49.0%). Slightly lower percentage of answers was related to the modernization of buildings and structures (41.0%).

Table 1. The purpose of borrowed capital in agricultural holdings

Detailed	Economic Size				All indications
	2-8 ESU	8-16 ESU	16-40 ESU	>40 ESU	
a) preventing loss of financial liquidity	54.8	45.2	48.4	42.9	49.0
b) developing production by increasing the value of assets	35.5	58.1	51.6	57.1	49.0
c) modernization of buildings and structures	38.7	45.2	45.2	14.3	41.0
d) insufficient resources of cash	83.9	80.6	80.6	85.7	82.0
e) the possibility of generating higher income in future	48.4	58.1	61.3	71.4	57.0
f) in order to conduct the previously determined development plan	22.6	25.8	51.6	42.9	34.0
g) the necessity of a loan in case of unpredictable events	45.2	51.6	29.0	57.1	43.0
h) take a credit to acquire additional subsidies	6.5	19.4	19.4	14.3	15.0

Source: own elaboration.

The biggest significance of borrowed capital in preventing the loss of financial liquidity was identified in the agricultural holdings of the economic size of 2-8 ESU (54.8% indications). Borrowed capital according to farmers is the least significant in developing production in the group of agricultural holdings of the lowest economic size (35.5% indications). The farmers from the agricultural holdings of the economic size over 40 ESU were least interested in the use of borrowed capital for the purpose of modernization (14.3% indications). The farmers from the group of the agricultural holdings of the biggest economic size saw the biggest chance to increase income using borrowed capital (71.4% indications). Such an opinion was less significant in the agricultural holdings of the economic size of 2-8 ESU (48.4% indications). It may be caused by too low gross margin gained from an agricultural operation, which could be used to manage debt. The need to use credit in order to conduct the previously determined development plan of an agricultural holding appeared mainly in the group of the economic size of 16-40 ESU (51.6% indications). Only 15.0% farmers used a credit to acquire additional subsidies, mainly those from the groups 8-16 and 16-40 ESU (19.4% indications).

Table 2 presents the farmers' answers pertaining to the factors which influence the decisions connected with the use of borrowed capital. The principal determinants in this matter were whether the interest was partially paid in by external institutions (ARMA)⁶ (85.0%) and what the value of planned investments in the agricultural holding was (84.0%). These determinants were the most important in the agricultural holdings of the biggest economic size (100% indications).

Table 2. The factors which influence the decisions connected with the use of borrowed capital

Detailed	Economic Size				All indications
	2-8 ESU	2-8 ESU	2-8 ESU	2-8 ESU	
a) the value of planned investments	71.0	90.3	87.1	100.0	84.0
b) the conditions for granting a loan	83.9	74.2	74.2	85.7	78.0
c) the interest are partially paid in by external institutions	77.4	87.1	87.1	100.0	85.0
d) influenced by the size of EU subsidy	25.8	32.3	41.9	57.1	35.0
e) the size of own contribution necessary to realize an investment	77.4	74.2	54.8	100.0	71.0
f) the increase of production intensity	25.8	45.2	48.4	57.1	41.0
g) the development of production into new operating directions	12.9	0.0	12.9	28.6	10.0
h) the possibility to increase the value of loan	3.2	6.5	0.0	0.0	3.0
i) the possibility to choose the mode of loan instalment payment	25.8	3.2	19.4	0.0	15.0
j) the possibility to negotiate the conditions for granting a loan	6.5	9.7	12.9	14.3	10.0

Source: own elaboration.

The conditions for granting a loan were considered by the farmers as a very important factor determining the financial decisions concerning the use of borrowed capital (78.0%). It applied mostly to the agricultural holdings of the biggest economic size (85.7% indications) and the smallest economic size (83.5% indications), which proves that opinions here are very diverse. As of the important factors influencing financial decisions concerning borrowed capital farmers considered the size of own contribution necessary to realize an investment (71.0%). This factor was mainly pointed out by the farmers from the agricultural holdings of the biggest economic size. While in contrary the farmers from the agricultural holdings of the economic size of 16-40 ESU considered this factor as the least significant (54.8% indications). The decisions concerning borrowed capital were less influenced by the size of EU subsidy that could be acquired to realize the investment (35.0%), which was especially true for the agricultural holdings of the biggest economic size (57.1% indications).

The farmers from the agricultural holdings over 40 ESU, while making investment decisions, were mostly focused on their own contribution, the value of the subsidy to loan interest and the value of the investment itself (100% indications). The size of own contribution was the least important factor for the farmers from the agricultural holdings of 16-40 ESU (54.8 indications %).

⁶ The Agency for Restructuring and Modernization of Agriculture.

The increase of production intensity was a significant factor shaping financial decisions in the scope of using borrowed capital (on average 41.0% responses). The bigger economic size of the holdings, the more significant this factor was, up to 57.1% indications in the group with the economic size over 40 ESU. The tendency of increasing significance of a given factor along with the bigger economic size was also identified for the value of subsidized loan interest. This factor was important for all farmers from the group over 40 ESU, which proves that it could be an important determinant shaping the capital structure in the most profitable agricultural holdings.

The possibility to choose the mode of loan instalment payment was a factor influencing the use of borrowed capital in an agricultural holding according to 15.0% farmers in the surveyed group. The highest number of such answers was recognized in the holdings of the smallest economic size (25.8% indications). The possibility to negotiate the conditions for granting a loan was reflected in the financial decisions of only 10% of the farmers surveyed. This factor was more significant if the economic size of a holding was bigger, from 6.5% in those with the smallest economic size to 14.3% indications in those with ESU over 40.

Table 3 presents the benefits of financing the activities of an agricultural holding with borrowed capital according to farmers. Farmers claim that borrowed capital contributes to more dynamic production development in an agricultural holding (76.0% responses). This benefit was especially underlined by the farmers from the agricultural holdings of the biggest economic size (85.7% indications), however, the difference in relation to other groups listed according to this criterion was not significant (range of indications: 71.0-85.7%).

According to approximately 34.0% farmers, borrowed capital increases the effectiveness of equity. This response was prevailing in the agricultural holdings of the biggest economic size (42.9% indications); while in the holdings of the smallest economic size, such an opinion was expressed by only 22.6% farmers. According to 34.0% farmers the benefits of financing the activities of an agricultural holding with borrowed capital included a higher value of the total capital invested. This answer was the most frequent in the agricultural holdings of the economic size of 8-16 ESU (41.9% indications). The possibility of acquir-

Table 3. The benefits of financing the activities of an agricultural holding with borrowed capital

Detailed	Economic Size				All ,indi- cations
	2-8 ESU	2-8 ESU	2-8 ESU	2-8 ESU	
a) higher value of the total capital invested	29.0	41.9	32.3	28.6	34.0
b) the possibility of acquiring higher income from agricultural activity by using borrowed capital	22.6	12.9	19.4	28.6	19.0
c) borrowed capital contributes to more dynamic production development in an agricultural holding	74.2	80.6	71.0	85.7	76.0
d) borrowed capital increases the effectiveness of equity	22.6	41.9	35.5	42.9	34.0
e) there are no benefits of using borrowed capital	12.9	3.2	3.2	0.0	6.0

Source: own elaboration.

Table 4. The most important decision areas within the scope of using borrowed capital as well as determinants and benefits of shaping its use according to farmers

No.	Response with the highest number of indications	Main decision areas	Mark
1	Using borrowed capital is aimed at preventing losing financial liquidity by an agricultural holding		A1
2	Using borrowed capital is aimed at developing production by increasing own property	A aims	A2
3	Using borrowed capital is aimed at compensating for the lack of own cash needed to run business activity		A3
4	Using borrowed capital is aimed at generating more income in future		A4
5	The level of borrowed capital depends on the value of the investments planned in an agricultural holding		B1
6	The level of borrowed capital depends on the conditions for granting a loan	B determinants	B2
7	The level of borrowed capital depends on the value of interest paid in fully or partially by another institution		B3
8	The level of borrowed capital depends on the size of own contribution		B4
9	Borrowed capital allows to increase the value of the capital invested (increases the scale of the investment)		C1
10	Borrowed capital enables fastest production development in an agricultural holding	C benefits	C2
11	Borrowed capital increases effectiveness of equity in an agricultural holding		C3

Source: own elaboration.

ing higher income from agricultural activity by using borrowed capital was indicated by 19.0% of the farmers surveyed. It was especially relevant for the agricultural holdings of the biggest economic size (28.6% indications). According to 6.0% of the farmers surveyed there are no benefits of using borrowed capital.

For the purpose of further analysis the assessment of dependencies in the scope of using borrowed capital in the areas mainly indicated by the farmers was adopted (table 4). These areas were divided according to the purpose of borrowed capital (A), determinants of its use (B) and benefits connected with its use (C).

Table 5 presents the matrix of the percentages of total indications among the decision areas connected with the use of borrowed capital. In the matrix, the areas which were indicated as important by more than a half of the farmers were marked. The highest number of common cross indications was noted in the case of using borrowed capital because of the lack of own financial means (A3), which was a factor connected with the determinants listed in area B. The highest number of common indications (70%) was identified for areas A3 and B3 referring to the lack of own financial means and the determinant of the value of subsidized loan interest, which was a decisive factor for increasing financing with borrowed capital. In cross-comparisons, also a high number of the same indications was

Table 5. Matrix of responses most frequently given by the respondents (%)

A1											
A2	16										
A3	41	41									
A4	29	34	45								
B1	40	46	69*	49							
B2	42	39	65	48	66						
B3	44	41	70	51	74	67					
B4	37	35	59	42	64	60	61				
C1	17	22	26	24	31	29	29	25			
C2	34	39	61	47	64	61	66	58	26		
C3	15	20	27	16	27	21	27	22	10	21	
Obszary	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3

* marked in gray fields are representing the number of cross-compared areas with more than 50 indications.

Source: own elaboration.

identified for areas A3 and B1 regarding the link between limited own financial means in an agricultural holding and the value of the planned investment (69% indications). There was a comparably high number of indications for areas B1, B2, B3 – which proves that the farmers considered all three determinants: the value of the investment, conditions for granting the funds and subsidy to loan interest as important factors influencing decisions about the increase of debt. The highest number of common indications in this scope was identified for determinants B1 and B3, which suggests that farmers estimate the cost of debt management in relations to subsidized financing. In all the areas concerning determinants: B1, B2, B3 and B4, the farmers indicated also the chance to increase production development (C2) in an agricultural holding (64%, 61%, 66% and 58% indications respectively).

The Spearman's rank correlation coefficient was calculated for continuous variables of the debt level and economic size; it was 0.6533 and was significant for $p < 0.05$. The level of this coefficient confirms the correlation of these variables in the group surveyed. The Kruskal–Wallis test and multiple (two-way) comparisons were conducted for this population in order to assess the significance of the difference between levels of debt in relation to the groups of agricultural holdings in respect of their economic size (tab. 6). The hypothesis of the Kruskal–Wallis test is expressed by population distributions and allows testing the assumptions of the equality of average values in the research group. The value of the H test was compared with the critical value from the distribution for the adopted level of significance and for $k-1$ degrees of freedom. According to the null hypothesis, it was tested whether in each sample the value of the variable is above (or below) the common median. The value of the chi-squared test statistic for the probability $p=0.0000$ allowed to reject the hypothesis of the independence of the features tested because the H test value is within the critical region. The test gives the following result: the level of debt in agricultural holdings significantly differentiates the economic size of the adopted ranges of ESU.

In order to analyse the relations between the groups of economic size the multiple comparisons for average ranks were conducted. It enabled us to assess which average levels of debt significantly differ from the groups of agricultural holdings surveyed. Between the

Table 6. The Kruskal-Wallis test results and *p* value for multiple comparisons

Dependent variable: level of debt				
Kruskal-Wallis test: H (3, N= 100) =41.06007 p =0.0000				
<i>p</i> value for multiple (two-way) comparisons				
ESU Groups	2-8 ESU	8-16 ESU	16-40 ESU	<40 ESU
2-8 ESU		0.006452	0.000000	0.000060
8-16 ESU	0.006452		0.098075	0.090426
16-40 ESU	0.000000	0.098075		1.000000
>40 ESU	0.000060	0.090426	1.000000	

Source: own elaboration.

group with the economic size of 2-8 ESU and other groups the significant statistical differences were identified. It proves the discrepancy of levels of debt between the agricultural holdings of the smallest economic size and the others. It suggests also the possibility to increase the level of debt if the gross margin is over 8 ESU.

DISCUSSION

External sources of financing in the agricultural holdings with the lowest economic size were more frequently used to maintain financial liquidity than to develop production. In the agricultural holdings of the biggest economic size, the borrowed capital was used mainly to gain higher income in future. The necessity to use credit due to low financial margins was identified mostly in units with the smallest economic size. It is connected with their periodical problems resulting from the shortage of cash within the operating cycle.

The chance to increase the production intensity by the increase of bank credit financing was recognized only by the farmers from the agricultural holdings of the biggest economic size. It results from the possibility to use the effect of financial leverage when the return on equity is maintained at a high level. The farmers from these agricultural holdings indicated subsidized preferential long-term loans as the most often selected external sources of financing. Short-term loans were used mainly to finance activities of agricultural holdings above 40 ESU. Higher diversification of sources of financing was caused by higher demand for borrowed capital. The change of higher debt in capital structure was determined, according to farmers, by the level of subsidy paid to interest in the case of preferential loans, a scale of investments planned, beneficial conditions of granting a loan and the required level of own contribution. These factors the most strongly determined the decision to use borrowed capital among the farmers from the agricultural holdings with the biggest gross margins.

Among the benefits of including borrowed capital in the structure of financing, the farmers indicated mainly the possibility to develop production. Such responses were the most significant in the case of the agricultural holdings with the biggest economic size, which suggests the maintenance of competitive advantage by changing capital structure, according to farmers.

CONCLUSIONS

The paper presents the opinions of farmers about financing the activities of an agricultural holding with borrowed capital. The farmers considered the possibility to improve modernization and investment processes as one of the most important benefits of using borrowed capital. The farmers considered the lower risk of losing financial liquidity while diversifying capital structure as a benefit of acquiring external sources of financing.

The farmer's sporadically used commercial loans. In the agricultural holdings of smaller area, the farmers more often used loans from family or friends source comparing to commercial once. The farmers realized that short-term borrowed capital may bring smaller benefits than long-term sources of financing. In their opinion, it was connected with the maturity date of liabilities and the higher cost of such sources of financing comparing to the operational profitability of farms. Among the main determinants of the level of indebtedness, farmers distinguished the value of the investment, the required own contribution and subsidies for interest on preferential loans.

Among research farms, the conservative financing strategy has been identified what is supported by the low level of debt and the strong preference to obtain long-term financing on the preferential terms, as a consequence of minimising the financial risk.

BIBLIOGRAPHY

- Adams Dale W., 1984: *Are the Arguments for cheap agricultural credit sound? Undermining Rural Development with Cheap Credit*, Westview Press, Boulder and London, p. 65-76.
- Assibey Eric O., Bokpin Godfred A., Twerefou Daniel K., 2012: *Microenterprise financing preference: Testing POH within the context of Ghana's rural financial market*. „Journal of Economic Studies”, 39(1), p. 84-105.
- Barry Peter J., 2002: *Finance and risk bearing in agriculture. A Comprehensive Assessment of the Role of Risk in U.S. Agriculture*. „Science and Business Media”, New York, p. 371-389.
- Barry Peter J., Bierlen Ralph W., Sotomayor Narda L., 2000: *Financial Structure of farm businesses under imperfect capital markets*. „American Journal of Agriculture Economics”, 82(4), p. 920-933.
- Beedell Jason, Rehman Tahir, 2000: *Using social-psychology models to understand farmers' conservation behaviour*. „Journal of Rural Studies”, 16, p. 117-27.
- Benjamin Catherine, Phimister Euan, 2002: *Does capital market structure affect farm investment? A comparison using French and British farm-level panel data*. „American Journal of Agricultural Economics”, 84(4), p. 1115-1129.
- Bereźnicka Joanna, 2009: *Dźwignia czy maczuga finansowa w realizacji decyzji inwestycyjnych w gospodarstwie rolniczym*. „Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie Ekonomika i Organizacja Gospodarki Żywnościowej”, 78, p. 237-247.
- Bieniasz Anna, Golaś Zbigniew, 2008: *Zróżnicowanie i determinanty płynności finansowej w rolnictwie w świetle wybranych relacji majątkowo-kapitałowych i analizy regresji*. „Zagadnienia Ekonomiki Rolnej”, 1, p. 23-42.
- Bojnec Štefan, Latruffe Laure, 2011: *Financing availability and investment decisions of slovenian farms during the transition to a market economy*. „Journal of Applied Economics”, 14(2), p. 297-317.
- Chmelikova Gabriela, 2002: *Possibilities and limits for capital structure optimalising model design of Czech dairy industry*. „Zemědělská Ekonomika”, 48(7), p. 321-326.
- Czerwińska-Kayzer Dorota, 2002: *Kredyt preferencyjny – źródło kapitału w gospodarstwach rolnych*. „Roczniki Akademii Rolniczej w Poznaniu, CCCXLIII”, p. 101-113.
- Daniłowska Alina, 2005a: *Kredyt rolniczy w Polsce w warunkach członkostwa w Unii Europejskiej*. „Prace Naukowe Akademii Ekonomicznej we Wrocławiu. Wydawnictwo Akademii Ekonomicznej we Wrocławiu”, 1070, p. 143-148.
- Daniłowska Alina, 2005b: *Mikroekonomiczne determinanty zaciągania kredytów przez gospodarstwa indywidualne w Polsce*. „Roczniki Naukowe SERiA”, 7(4), p. 91-95.

- Felczak Tomasz, 2014: *Wpływ wielkości ekonomicznej i typu rolniczego gospodarstw rolniczych na charakter strategii płynności finansowej*. „Zeszyty Naukowe Uniwersytetu Szczecińskiego 804 Finanse, Rynki Finansowe, Ubezpieczenia”, 67, p. 201-210.
- Felczak Tomasz, Domańska Teresa, 2014: *Struktura i poziom zadłużenia a efektywność indywidualnych gospodarstw rolniczych w zależności od wielkości ekonomicznej*. „Czasopismo Zarządzanie Finansami i Rachunkowość”, 2(3), p. 5-18.
- Gebru Gebregziabher Haileeselie, 2009: *Financing preferences of micro and small enterprise owners in Tigray: does POH hold?* „Journal of Small Business Enterprise Development”, 16(2), p. 322-334.
- Glover Jane L., Reay Trish, 2015: *Sustaining the Family business with minimal financial rewards*. „Family Business Review”, 28(2), p. 163-177.
- Gołaś Zbigniew, 2008: *Uwarunkowania rentowności kapitału własnego w rolnictwie (część I)*. „Zagadnienia Ekonomiki Rolnej”, 3, p. 60-77.
- Gloy Berent A., LaDue Eddy L., 2003: *Financial management practices and farm profitability*. „Agricultural Finance Review”, 63(2), p. 157-174.
- Hacherova Zofia, Hulik Richard, Pribilovicová Ingird, 2003: *The state and development of financial structure in agricultural cooperatives*. „Zemědělská Ekonomika”, 49(8), p. 369-374.
- Howley Peter, Dillon Emma, 2012: *Modelling the effect of farming attitudes on farm credit use: A case study from Ireland*. „Agricultural Finance Review”, 72(3), p. 456-470.
- Jensen Farrell E., Lawson John S., Langemeier Larry N., 1993: *Agriculture Investment and Internal Cash Flow Variables*. „Agriculture Economics”, 15(2), p. 295-306.
- Kata Ryszard, 2003: *Perspektywy kredytowania gospodarstwa rolniczych przez banki spółdzielcze w obszarze rolnictwa rozdrobnionego*. „Acta Oeconomica”, 2(1), p. 97-105.
- Kata Ryszard, 2010: *Korzystanie przez rolników i przedsiębiorców wiejskich z usług bankowych – analiza preferencji i ograniczeń*. „Zagadnienia Ekonomiki Rolnej”, 1, p. 143-162.
- Kata Ryszard, 2011: *Asymetria informacji jako przyczyna ograniczeń kredytowych w rolnictwie*. „Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie Ekonomika i Organizacja Gospodarki Żywnościowej”, 88, p. 127-139.
- Katchova Ani L., 2005: *Factors affecting farm credit use*. „Agricultural Finance Review”, 65(2), p. 17-29.
- Kalusova Lenka, Badura Peter, 2017: *Factors determining the financial structure of Czech and Slovak agricultural enterprises*. „Zemědělská Ekonomika”, 63(1), p. 24-33
- Kusz Dariusz, 2009: *Działalność inwestycyjna gospodarstw rolniczych korzystających z funduszy strukturalnych Unii Europejskiej*. „Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie. Problemy Rolnictwa Światowego”, XVII, p. 89-97.
- Martin Sarah J., Clapp Jennifer, 2015: *Finance for Agriculture or Agriculture for Finance?* „Journal of Agrarian Change”, 15, p. 549-559.
- Mądra Magdalena, 2008: *Hierarchia źródeł finansowania w mikroprzedsiębiorstwach rolniczych*. „Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania Uniwersytetu Szczecińskiego, Inwestowanie na rynku kapitałowym”, z. 10, p. 554-569.
- Mądra Magdalena, 2009: *Możliwości pozyskania kapitału obcego z rynku finansowego jednostek gospodarczych sektora rolniczego* [w:] Rynek finansowy w erze zawirowań, Piotr Karpuś, Jerzy Węclawski (Eds), Wydawnictwo UMCS, Lublin, p. 783-790.
- Mądra Magdalena, 2010: *Czynniki wpływające na zaangażowanie zewnętrznych źródeł finansowania w strukturze kapitału mikroprzedsiębiorstw rolniczych*, [w:] Kierunki zmian w finansach przedsiębiorstwa, Jan Sobiech (Eds), Wydawnictwo Uniwersytetu Ekonomicznego, Poznań, p. 436-446.
- Mikołajczyk Jarosław, 2009: *Nakłady inwestycyjne w gospodarstwach indywidualnych według wielkości ekonomicznej w świetle polskiego FADN*. „Roczniki Nauk Rolniczych. Seria G, Ekonomika Rolnictwa”, T. 96 z. 3, p. 182-190.
- Orchowa-Maliszewska Elżbieta, 2003: *Źródła finansowania działalności małych przedsiębiorstw*, [w:] *Finansowe aspekty funkcjonowania małych i średnich przedsiębiorstw*, Anatoliusz Kopczuk (eds), Wydawnictwo Wyższej Szkoły Finansów i Zarządzania w Białymstoku, Białystok, p. 99-107.
- Rosa Anna, 2011: *Kredyty preferencyjne jako forma finansowania działalności rolniczej w Polsce*. „Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie Ekonomika i Organizacja Gospodarki Żywnościowej”, 91, p. 97-106.
- Sobczynski Tadeusz, 2009: *Wpływ wielkości ekonomicznej gospodarstw rolniczych UE na ich możliwości rozwojowe*. „Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie Problemy Rolnictwa Światowego”, 9(24), p. 159-168.

- Siudek Tomasz, 2008: *Wpływ poziomu rozwoju rolnictwa na wartość udzielanych kredytów dla gospodarstw rolnych w Polsce*. „Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie Ekonomia i Organizacja Gospodarki Żywnościowej”, 69, p. 5-15.
- Stekla Jana, Grycova Marta, 2016: *The relationship between profitability and capital structure of the agricultural holdings in the Czech Republic*. „Zemědělská Ekonomie”, 62(9), p. 421-428.
- Utzig Monika, 2012: *Korzystanie z rynku depozytowo-kredytowego przez rolników w Polsce*. „Roczniki Ekonomii Rolnictwa i Rozwoju Obszarów Wiejskich”, 99(4), p. 64-74.
- Varga József, Sipiczki Zoltán, 2015: *The Financing of the Agricultural Enterprises in Hungary Between 2008 and 2011*, Procedia Economics and Finance, ISES 3rd and 4th Economics and Finance Conference, 30, p. 923-931.
- Wasilewski Mirosław, 2006: *Sytuacja finansowa przedsiębiorstw rolniczych w zależności od relacji kapitału obrotowego do zysku netto*. „Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie Ekonomia i Organizacja Gospodarki Żywnościowej”, 61, p. 103-116.
- Willock Joyce, Deary Ian J., Edwards-Jones Gareth, Gibson Gavin J., McGregor Murray J., Sutherland Alistair, Dent Barry J., Morgan Oliver, Grieve Robert, 1999: *The role of attitudes and objectives in farmer decision making: business and environmentally-oriented behaviour in Scotland*. „Journal of Agricultural Economics”, 50(2), p. 286-303.
- Wilson Geoff A., 1997: *Factors influencing farmer participation in the environmentally sensitive areas scheme*. „Journal of Environmental Management”, 50, p. 67-93.
- Zawadzka Danuta, 2013: *Kredyt w decyzjach finansowych przedsiębiorstw rolniczych w Polsce (ze szczególnym uwzględnieniem podmiotów z regionu Pomorza Środkowego)*. „Zarządzanie i Finanse”, 11, cz. 2, p. 619-630.
- Zawadzka Danuta, Szafraniec-Siluta Ewa, 2012: *Samofinansowanie produkcji rolniczej a poziom aktywności inwestycyjnej towarowych gospodarstw rolnych - analiza porównawcza sytuacji w Polsce na tle Unii Europejskiej*. „Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu”, z. 271, p. 498-508.
- Zhao Jianmei, Barry Peter J., Katchova Ani L., 2008: *Signaling credit risk in agriculture: Implications for capital structure analysis*. „Journal of Agricultural and Applied Economics”, 40(3), p. 805-820.
- Zhixiong Du, 2004: *Credit demand of rural enterprise and loan supply in China*, Report on data processing results of two surveys. „The Chinese Economy”, 37, p. 37-58.
- Zygmunt Aleksandra, 2004: *Wpływ branży na strukturę kapitału w przedsiębiorstwie*. „Prace Naukowe Akademii Ekonomicznej we Wrocławiu, Zarządzanie finansami firm: teoria i praktyka”, t. 2. 1042, p. 420-421. www.fadn.pl

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ROLA FINANSOWANIA KAPITAŁEM OBCYM DZIAŁALNOŚCI GOSPODARSTW ROLNICZYCH W OPINIACH ROLNIKÓW INDYWIDUALNYCH

Synopsis

Celem głównym opracowania jest przedstawienie opinii rolników na temat finansowania działalności gospodarstw kapitałem obcym. W przeprowadzonych badaniach odniesiono się do celu zaangażowania finansowania obcego, wskazanych determinant jego wykorzystania oraz oceny korzyści z jego stosowania w opinii rolników. Badanie przeprowadzono z wykorzystaniem kwestionariusza wywiadu w grupie 100 rolników prowadzących indywidualne gospodarstwa rolnicze w województwie mazowieckim. Podmioty te prowadziły rachunkowość rolną w ramach systemu FADN. Kryterium podziału badanej populacji obejmowało siłę ekonomiczną gospodarstw wyrażoną w ESU, co pozwoliło na uwzględnienie poziomu dochodowości badanych podmiotów. Głównym problemem w zarządzaniu źródłami finansowania w opinii rolników było utrzymanie płynności finansowej na bezpiecznym poziomie. Rolnicy dostrzegali korzyści z tytułu zwiększenia zaangażowania finansowania kapitałem obcym w zakresie przeprowadzania szybszej modernizacji majątku gospodarstwa. Rolnicy decydują się na wybór konserwatywnej strategii finansowania, preferując długoterminowe źródła finansowania, dążyli do minimalizacji ryzyka finansowego. Wśród głównych determinant poziomu zadłużenia rolnicy wyróżnili wartość inwestycji, wymagany wkład własny oraz dopłat do odsetek kredytów preferencyjnych.

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