

IMPACT OF BANK LENDING ON DEVELOPMENT OF THE AGRICULTURAL SECTOR IN BULGARIA

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Abstract: *The aim of the article is to analyze the role of bank lending for the development of the agrarian sector and to assess the impact of subsidies on bank lending, on the example of Bulgaria. The survey period is 2007-2018 - after the country joined the European Union. The correlation between the bank credit and the production generated in the sector is analyzed. Data from the Bulgarian National Bank and the Ministry of Agriculture and Food of Bulgaria were used. There is a correlation between the bank credit for agriculture and the production produced in the sector. The importance of credit for agrarian development is increasing. Improvements in credit conditions for agricultural holdings are observed. Bank loans are analyzed by type and term. The relationship between bank lending and agricultural subsidies for various scale producers has been studied. Small farms are more likely to use subsidies to secure short-term loans, and large farms prefer long-term loans. Subsidies typically have a push-out effect on short-term loans for large farms and on long-term loans for small farms. There is a positive causal effect of subsidies on bank loans for the agrarian sector. Recommendations are proposed to improve access to credit for farmers as a prerequisite for sector growth.*

Keywords: *Financing of agriculture, crediting, agricultural credits, access to credit, subsidizing agriculture.*

1. INTRODUCTION

The credit for agriculture can be defined as the mobilization of resources at all levels in order to increase agricultural production and productivity and to increase production capacity. It appears to be an important source of financial resources for agribusinesses, secured by trust, pledge or warranty. The main source of financial resources in the short term is the bank loan for working capital necessary for the upgrading and maintenance of the reproduction process [8]. The credit relations related to the provision of long-term financing of agribusiness enterprises are directly related to the investments in basic funds. Investments in plant-growing, livestock, processing, and other events suggest the need for long-term lending. The shortage of credits is defined as a decisive factor determining the productivity of agricultural holdings and agrarian development [5].

Agricultural loans can have a positive effect on the growth of the agrarian sector, which is reflected in the welfare of the entire economy. The development of the agrarian sector is necessary in view of the need to supply food and guarantee the prices of agricultural commodities. Agriculture allows land to be used as an additional source of growth without competing with resources for industrial growth.

Agricultural loans are a factor for growth and address some of the productivity problems of the agricultural sector, especially for those whose development is based on agriculture [1, 12]. The role of financial capital as a factor of production and of economic growth implies the need to target credit to agrarian development and rural development. Currently, credit (capital) is seen

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as more than just another resource such as labour, land, equipment and raw materials [13]. In addition, credit determines access to all resources on which farmers depend [14]. However, given the lower productivity in agricultural production compared to other economic sectors, the requirements for agricultural credit in developed countries are higher [2]. Therefore, ensuring appropriate macroeconomic policies and facilitating institutional development funding of agriculture is able to facilitate the development of agriculture in order to increase the sector's contribution to income generation and employment.

Access to credit is the subject of research in many of the research [3, 5, 6, 9]. Access to credit for agricultural purposes is seen as a major incentive to increase the performance of the agricultural sector in the countries of Central and Eastern Europe. Significantly less attention is paid to the link between credit constraints and farm behaviour, for example, the choice of agricultural resources and productivity. This is explained by the lack of sufficient data and the complexity of agrarian credit markets [5].

Access to credit is linked to production capacity [12]. Farmers without sufficient financial resources for investment have little capacity to increase their production in the long run. This affects the distribution of agricultural resources and reduces productivity. Similarly, farmers who invest in improving their production and expanding their capacity achieve higher market positions, which increase their cash flow and improves their access to credit. The credit enables farmers to increase their capacity by investing in better production technologies. As intensive production is causing an increasing demand for agricultural machinery, the importance of long-term loans is increasing. In this way, producers who want to improve production efficiency align their methods and processes with practices that increase their production. They include investments that increase production, increase efficiency, save labour, and add value. Farmers employing more manual labour require more short-term capital to meet their hiring needs. Securing credits to improve the investment potential of farms improves innovation and is a factor for growth.

Farmers use long-term loans to finance their long-term investments that will bring them long-term income. Non-production subsidies have a similar effect to that of long-term credit, while coupled subsidies are more of a nature of short-term [4]. Subsidies received under the two pillars of the CAP are also important for the ability of farmers to receive long-term and short-term loans. Subsidies are a kind of credit guarantee that reduces the risk for banks from providing loans to farmers, which increases their incentive to lend to the agrarian sector. Expanding subsidies to European farmers has a knock-on effect on banks to credit agriculture [11].

Degree of development of financial markets is an important factor for the development of credit relations in agribusiness. The functioning of the credit market for agriculture is characterized by a higher degree of uncertainty due to the asymmetry of customer information [7], which creates certain constraints [2]. The ownership of agriculture, the diverse organizational structures and the different scales of farms have an impact on farm credit. Smaller, self-owned holdings have no obligation to publicly disclose their financial position. This makes it harder for the bank to assess the financial performance of the sector and more difficult to identify good investments. The credit history of the borrower plays a crucial role in granting credit. There are also moral hazards arising from the sole nature of ownership and sole control over the resources [7]. The creditor (bank) should properly assess the creditworthy motivators and the potential to generate future cash flows from the borrower. This leads to an increase in the credit risk in agriculture compared to other economic sectors. This creates risks of insufficient capitalization of the agrarian sector and raises the requirements for commercial banks to overcome insecurity in the

sector. Therefore, it is important for the bank to rely heavily on the borrowing farm holding and to properly assess its financial position through a credit rating or through sufficient collateral.

The primary role of agricultural credit in Bulgaria is determined by the risky nature of production, poorly functioning secondary financial markets of securities, problems with system stability [8, 10]. Agricultural financial markets are characterized by insufficient development, production risk, seasonal fluctuations in resource demand, lack of securitization, increased transaction costs, and so on. This defines the agricultural financial market as riskier and banks are wary of servicing farmers. An additional problem is the lower profitability of the sector. According to [10] the agricultural financial market in Bulgaria is insufficiently perfect.

The underlying purpose of the study is to analyze the role of bank lending for the development of the agrarian sector and to assess the impact of subsidies on bank lending, on the example of Bulgaria. Specific objectives are to study the relationship between agricultural credit and the productivity of the sector, study of the structure of agricultural loans, influence of credit development subsidies; to bring forward proposals for policy development and improvement of the agrarian credit market.

2. ECONOMIC RESULTS IN THE DEVELOPMENT OF THE AGRICULTURAL SECTOR OF BULGARIA

The presentation of the Bulgarian economy after 2007, when the country is a member of the European Union, shows sustainable growth. The index of GDP change in nominal value in 2018 compared to 2007 is 179.3%, with the average nominal growth rate being 5.45%. The economy is represented mainly by the services sector (68%), followed by the industry (28%) and the agrarian sector (around 4%). Although with a small share in value added in GDP, Bulgaria's agrarian sector has an important place in the country's economy. In the period 2007-2012, the share of the agrarian sector fluctuates between 4-6% to be around 4% at the end of the analyzed period. The dynamics of GDP and the share of the agrarian sector of Bulgaria in the period 2007-2018 is presented in Figure 1.

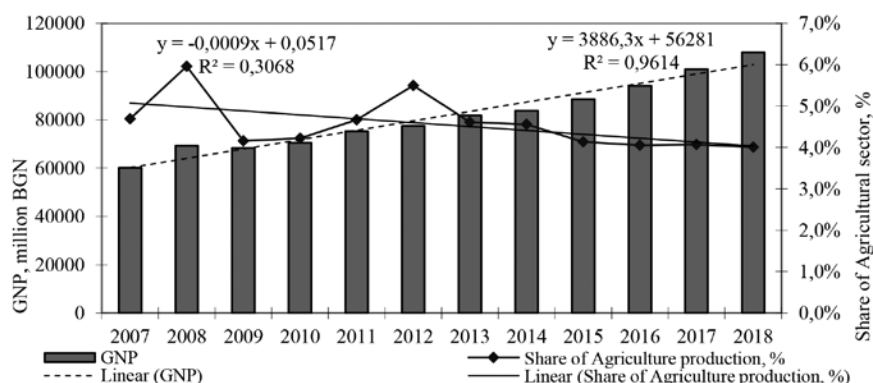


Figure 1: Dynamics of GDP and share of the agrarian sector in the economy in the period 2007-2018.

Source: National Statistical Institute, <http://www.nsi.bg>

According to the Ministry of Agriculture (Agricultural Report, 2018), the area of land for agricultural purposes is 5.2 million hectares (47% of the territory of the country), out of which the arable land is 3.5 million ha (69% of the used agricultural area). The orchards and vineyards

represent 2.7% of the utilized agricultural area and the permanent grassland is 27.7%. The registered agricultural producers are 93 thousand. In 2017, the gross agricultural production at current prices is BGN 9031 million; the perennial provides 68.3%, the livestock - 23.1%, the agricultural services 5.8% and other activities - 2.8%. Intermediate consumption used to produce end products in the sector is BGN 4479 million. Gross value added is BGN 3760 million. Net entrepreneurial income in the agricultural sector is BGN 3788 million.

The economic performance of the agrarian sector of Bulgaria for the period 2007-2016 shows contradictory results. The Farm Accountancy Data Network survey shows the following average for all holdings presented in Table 1. The number of observed holdings is decreasing, reflecting also the average figures for the financial development of farms. Gross farm output is increasing in 2016 compared to 2007 by 74.9%. The total fixed assets increase more than 2.1 times, due to the increased investment activity in the sector and the total amount of the assets on the farms increased more than 2 times.

Indicator	measure	2007	2008	2009	2010	2011
Farms represented	number	146770	146770	115490	115650	115650
Farm Net Income	BGN	11356	13203	10263	14348	15633
Total output	BGN	43475	52603	47837	58479	66599
Total Fixed Assets	BGN	50680	60514	69068	77532	76558
Total Assets	BGN	81973	94488	107428	111346	120720
Total Liabilities	BGN	14444	19189	21785	24669	36458
Total subsidies - excluding on investments	BGN	3378	6384	11788	12623	11003
Profitability of Total Output	%	26,1%	25,1%	21,5%	24,5%	23,5%
Profitability of Fixed Outputs	%	22,4%	21,8%	14,9%	18,5%	20,4%
Profitability of Total Assets	%	13,9%	14,0%	9,6%	12,9%	12,9%
Indicator	measure	2012	2013	2014	2015	2016
Farms represented	number	114420	113570	113750	114420	114400
Farm Net Income	BGN	16161	18193	18660	18341	13385
Total output	BGN	74015	81211	81519	76036	76038
Total Fixed Assets	BGN	73479	94179	110503	110237	106854
Total Assets	BGN	119709	151875	174454	169696	168105
Total Liabilities	BGN	27602	32993	43103	37369	39679
Total subsidies - excluding on investments	BGN	13581	19511	20057	20513	18440
Profitability of Total Output	%	21,8%	22,4%	22,9%	24,1%	17,6%
Profitability of Fixed Outputs	%	22,0%	19,3%	16,9%	16,6%	12,5%
Profitability of Total Assets	%	13,5%	12,0%	10,7%	10,8%	8,0%

Table 1: Economic performance of agricultural holdings in Bulgaria for the period 2007-2016. (average for all farms)

Source: Farm Accountancy Data Network, <http://ec.europa.eu/agriculture/rica/>

The rates of change in assets are higher than those of gross output, which leads to a reduction in the profitability of farms. Despite the large increase in assets and output, net farm income is growing at a slow pace. The average rate of change in net income on farms is only about 2%. This is also reflected in a reduction in the absolute amount of profitability. Profitability on a

gross basis in 2016 is 67.4% compared to 2007, the yield on fixed assets is 55.9%, and the return on total assets is 57.5%. The average profitability of revenue declines by about 4.3% per year and the average return on assets decreases by about 6% per year. The increase in assets is not due to improving production efficiency, but is due to increased indebtedness and production subsidies. The average indebtedness of farms over the period 2007-2016 increases by 2.75 times the subsidies increase 5.5 times. The increase in the level of indebtedness in the farm holdings is due to an increase in credit activity. The analysis of farm financial performance in the agricultural sector shows that reduced efficiency is offset by increased lending activity and increased subsidies under the Common Agricultural Policy.

Since 2007, lending has been an important source of financial resources for farm holdings. The number of loans granted annually to agricultural farms in Bulgaria has increased almost 2 times and the amount of loans extended more than 2.5 times. Sustained growth in lending to the agricultural sector is observed (Figure 2).

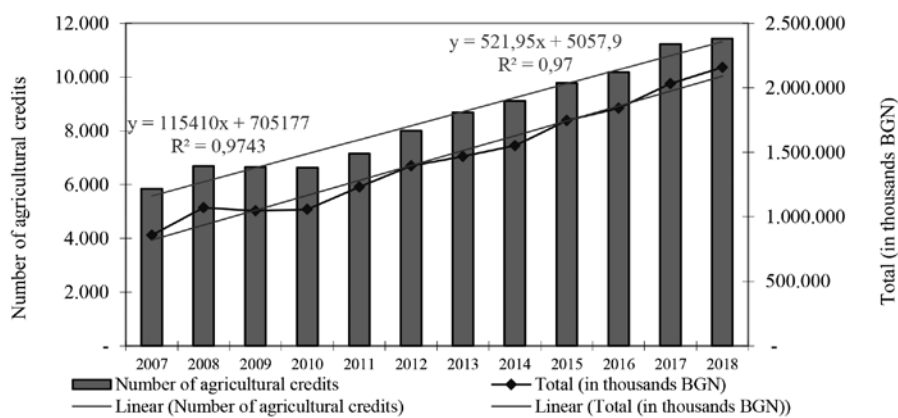


Figure 2: Dynamics of the number and amount of loans granted by commercial banks to the agrarian sector in the period 2007-2018.

Source: Bulgarian National Bank, <http://www.bnb.bg/>

According to BNB data, the relative share of agricultural credits in total lending for the period 2007-2018 is increasing. In 2018, the number of loans granted to agricultural holdings reached 7.7% of total loans to non-financial corporations (6.6% of total loans to non-financial corporations). In the total lending in the country, the share of agricultural loans is 0.4% of the total credit (3.9% of the total loans in the country). The data show sustainability in the development of agricultural credit after 2007 in Bulgaria.

The dependence between lending and the development of the agricultural sector in 2007-2018 is very strong. The correlation between the size of the agricultural credit and the GDP is strong. This is evidenced by the Pearson coefficient between the two - 0.8167, which determines a strong relationship between the categories. The analysis of the linear relationship between the amount of loans granted to agriculture and the share of gross value added of the sector in the economy shows a statistically significant relationship - the Pearson coefficient is 0.8687. The importance of agricultural credit for the development of the agrarian sector and the economy of Bulgaria as a whole is proven.

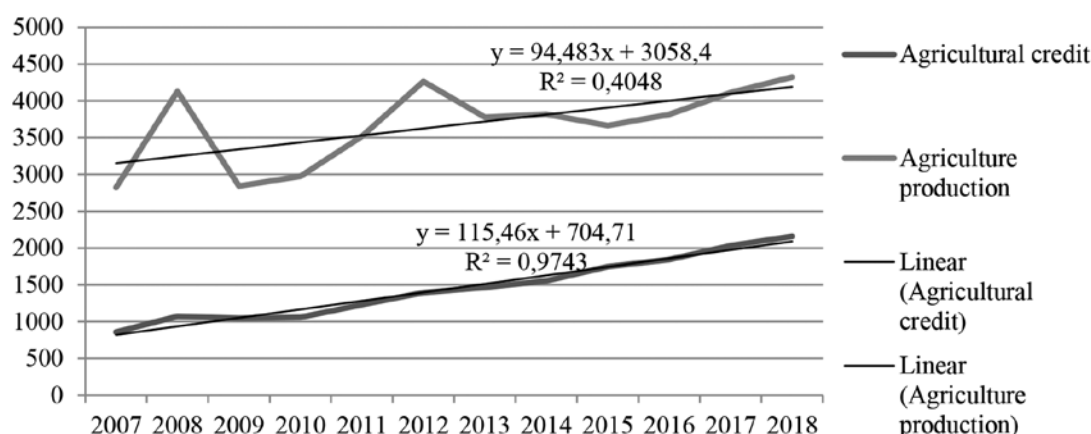


Figure 3: Relationship between agricultural credit and gross value added of the agrarian sector
 Source: National Statistical Institute; Bulgarian National Bank

A factor for raising the credit is the reduction in the price of the loan. Nominal interest rates in BGN decreased from 8.8% at the beginning of 2007 to 3.5% at the end of 2018 (2.5 times the decrease). Nominal interest rates in euro decreased from 8.6% at the beginning of 2007 to 3% at the end of 2018 (Figure 4). There is a strong correlation between the decline in the level of interest rates in the economy and the widening of credit activity for the agrarian sector.

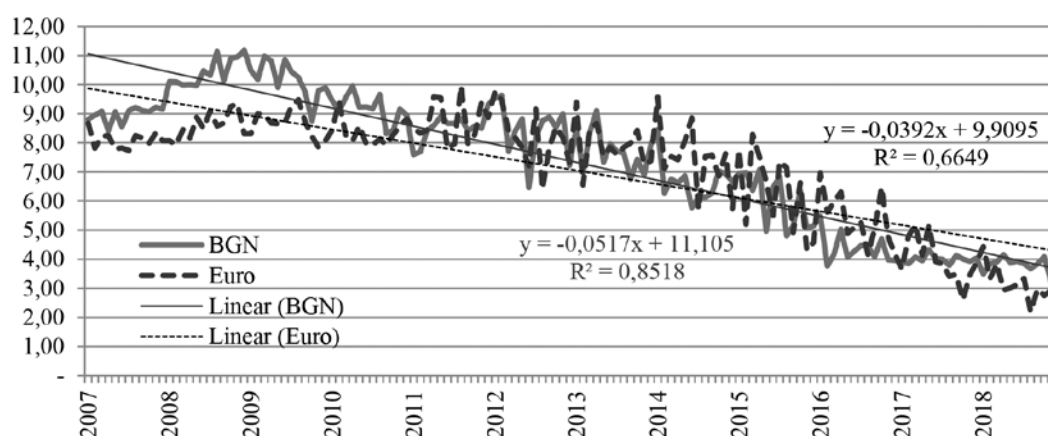


Figure 4: Nominal interest rates for business loans to non-financial corporations in BGN and EUR (in percent)

Source: Bulgarian National Bank, <http://www.bnb.bg/>

The analysis of the number of loans granted to the agrarian sector shows that in the period 2007-2018 the loans to BGN 25 thousand increased with the fastest rate, followed by loans between BGN 100-250 thousand and between BGN 50-100 thousand (Figure 5, left). The structure of credit by number is relatively constant. In 2018, 38.8% are loans up to BGN 25 thousand, 13.8% are loans 25-50 thousand BGN 15.5% are loans 50-100 thousand BGN 16.9% are loans 100 BGN -250 thousand, 8.2% loans BGN 250-500 thousand, 3.7% loans BGN 500-1000 thousand and 3% loans to BGN 1 million. Analysis of the structure of loans in 2007, shows that, in structural terms, loans exceeding BGN 100 thousand are increasing and the share of loans to BGN 100 thousand is decreasing. Small loans are traditionally demanded by small farms. The tendency to increase the number of loans above BGN 100,000 is in the direction of increasing the size of the farms in Bulgaria and with the increase of the investment activity in the sector mainly from the larger farms.

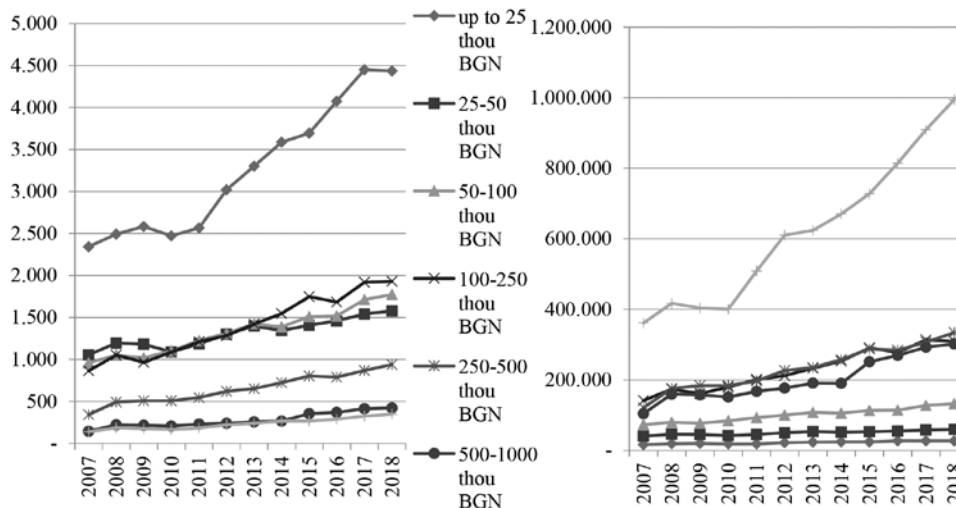


Figure 5: Loans granted to the agrarian sector for the period 2007-2018 by size, by number (left) and by value (right)

Source: Bulgarian National Bank, <http://www.bnb.bg/>

The analysis of the loans granted to the agricultural sector by value shows that the biggest increase was in the loans over BGN 250 thousand, the loans extended over BGN 1 million growing 2.8 times, loans between BGN 500-1000 thousand increased 2.9 times, and loans between BGN 250-500 thousand increase 2.7 times. Significantly less is the growth of loans below BGN 100 thousand - only 1.6 times for loans up to BGN 25 thousand, 1.5 times for loans between BGN 25-50 thousand and 1.8 times for loans between BGN 50-100 thousand (Figure 5, right). It can be summed up that the dynamics of lending to the agrarian sector is in the direction of increasing large loans, which are mostly of investment character for the companies and are subject to bigger farms. Structurally, in 2018 the main share in the credit mass has loans over BGN 1 million - 46.1%. Loans of BGN 500-1000 thousand form 14% of the credit value, credits of BGN 250-500 thousand are 15.5%, loans of BGN 100-250 thousand are 14.1%, loans of BGN 50-100 thousand are 6.1%, and loans of BGN 25-50 thousand are 2.8% and loans up to BGN 25 thousand forms only 1.2% of the total credit resources for agriculture. The dynamics in the structure of loans by size (in value) for the period 2007-2018 shows that for loans over BGN 250 thousand their share grows and for loans under BGN 250 thousand their relative share decreases. It is a fact that in 2018 38.8% of the numbers of loans granted are small in amount, up to 25 thousand, and they form only 1.2% of the credit weight in the sector. Conversely, if in 2018 the share of loans over 1 million leva is only 3% of the total, they form 46.1% of the total amount of loans granted.

The analysis of farm credit can be extended by type and terms of loan, according to its term. The dynamics of the number of loans granted to agricultural holdings by species for the period 2007-2018 is shown in Figure 6 (left). The number of current account loans (overdraft) has increased almost 2.5 times over the period (from 2363 to 5905). This credit supports the current activity of farms and ensures their current liquidity, mainly on smaller farms. The current account credit overcomes the temporary shortage of funds for farms by covering their costs up to the time of the sale of agricultural produce. Area subsidies are the main guarantees for this credit. At the same time, short-term credit up to one year marked a significant decrease in the number of loans granted. The index at the level of 2018 compared to 2007 is only 0.36. In practice, farms convert their short-term loans up to one year into current account loans (overdraft). The largest increase in the number of loans by type is over 5 years (from 735 to 2151), which is almost 3 times over

the analyzed period. The increase in long-term loans is due to the increased investment activity of farms that invest in the Rural Development Programs and the main recipients of these loans are mostly larger farms. Thus, long-term credit is a major factor in financing investments in agricultural holdings. The increase in the number of loans granted is also observed for loans with a term of 1-5 years, as their number in 2018 is 1.6 times higher than in 2007.

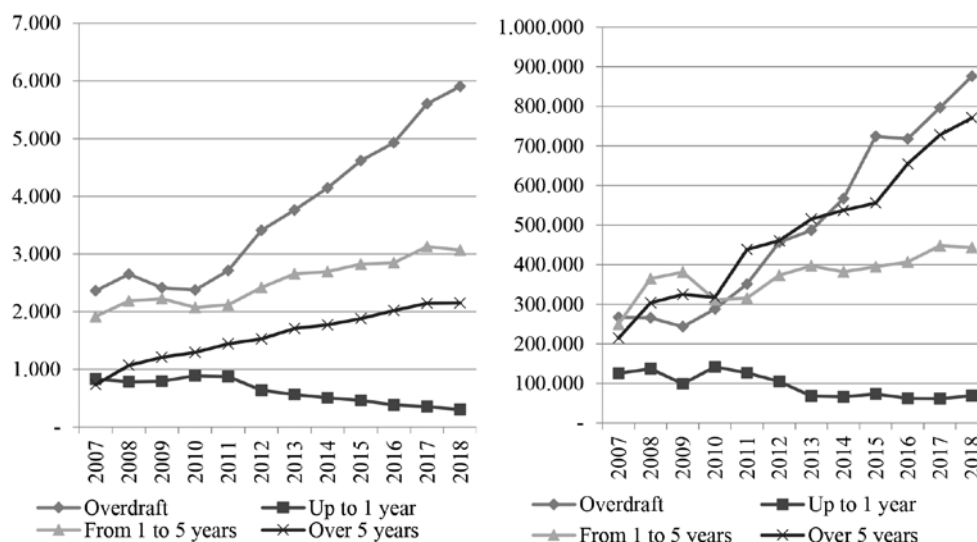


Figure 6: Loans granted to the agrarian sector for the period 2007-2018 by type and term, in numbers (left) and by value (right)

Source: Bulgarian National Bank, <http://www.bnb.bg/>

The dynamics in the structure of the number of loans granted shows that the overdraft credit growth (40.4% in 2007 to 51.7% in 2018), this increase being mainly at the expense of the decrease of the short-term credit to 1 year from 14.2% in 2007 to 2.7% in 2018. Structurally, long-term loans retained a relative share in loans of around 45%, reducing the share of loans by 1-5 years from 32.8% in 2007 to 26.8% in 2018, and the share of loans over 5 years rises from 12.6% in 2007 to 19.8% in 2018.

Changes in the number of loans granted by type and term are also reflected in their value amount. The dynamics of the credit for agricultural holdings by species in value for the period 2007-2018 is presented in Figure 6 (right). The current credit (overdraft) increased 3.3 times (from BGN 266 thousand in 2007 to BGN 876 thousand in 2018) over the analyzed period. The highest growth was in credits over 5 years, which increased from BGN 214 thousand in 2007 to BGN 730 thousand in 2018. Following the trend in the growth of the number of loans granted by type, the loan of 1-5 years grows 1.8 times, and short-term credit down to 1 year decreases more than 2 times. Changes in the structure of loans by term indicate an increase in the relative share of the current account loan (overdraft) from 31.1% in 2007 to 40.6% in 2018. If during the whole period 2007-2018 the short-term loan (overdraft and loans to 45%), the increase in overdraft credit is at the expense of the decrease in short-term credit to 1 year from 14.6% in 2007 to 3.2% in 2018. During the analyzed period the share of the loan over 5 years increase (from 25.2% in 2007 to 35.7% in 2018), while reducing the relative share of loans 1-5 years from 29.1% in 2007 to 20.5% in 2018.

The bank lending of agricultural holdings in Bulgaria in the period after 2007 shows steady growth and significantly determines the creation of production and expansion of assets in the sector. As a member of the European Union after 2007, Bulgaria benefits from the EU Common

Agricultural Policy. Farmers receive Pillar 1 payments for area and Pillar 2 payments to investment subsidies. Previous studies have shown the impact of subsidies on agricultural subsidies, but the effects of subsidies are indirect and non-linear [4]. Produced subsidies stimulate small farms to expand their lending by using subsidies as collateral. Improving lending conditions has an incentive for small farms to increase their long-term loans. Large farms receiving more subsidies and realizing economies of scale can expand their gross investment to a larger extent, which raises the demand for long-term and larger loans. Large holdings also have increasing working capital needs, which relocate short-term credit (especially overdraft) to them, especially until the time of receiving production subsidies. The length of the production process in agriculture has a significant impact on credit relations in the sector. At the same time, the reduction in the cost of credit (interest rates) acts to stimulate farms to expand their lending activity.

3. CONCLUSION

The financial situation of the agrarian sector is dynamic. Profitability of farm holdings earnings declined, despite net income growth and gross output, due to the fact that gross output is growing faster than net income. That reduces the ability of enterprises in the sector to self-financing. The profitability of fixed assets on farms holdings declined almost twice, despite almost double the increase in fixed assets.

Investment activity in the sector is increasing as a result of increasing the level of subsidization (5 times) and increasing the indebtedness of farms (3.5 times).

The credit has an important place in securing financial resources for agriculture (the number of loans is growing 2.5 times and the amount of loans granted 2 times). The fall in interest rates has a stimulating effect on the dynamics of lending to the agrarian sector.

Within the structure of the loans, the number of loans is up to BGN 25 thousand (increased 2 times). Large loans to over BGN 1 million predominate in value loans. Small farms are the main borrowers of small-sized loans, while large holdings are looking for mostly large loans.

The current account credit (overdraft) is growing at the highest rate - determined by the need for working capital. Given the reduced profitability, short-term credit has a growing role, especially for small farms. The significance of overdraft credit for large farms is growing due to the need to cover their growing production costs by the time they receive their production subsidies. More than 2 times the size of the large loans is growing, which proves increased investment activity mostly on big farms. But small farms have a growing need for long-term loans to support their investment in production.

The current account credit (overdraft) in value increased 4 times and the large loans over BGN 1 million almost 4 times, which shows a serious polarization in the structure of the farms in the agricultural sector by size.

The agricultural credit is strongly dependent on the creation of value added in the economy and determines output in the agrarian sector as a whole.

CAP subsidies (such as credit guarantees) have a stimulating effect on stimulating short-term credit, especially for larger farms to cover their current needs and smaller farms to invest. CAP support overtakes part of credit constraints on agricultural lending.

The importance of credit for improving the production capacity of farms in the agrarian sector is very high.

The financial market for agricultural loans in Bulgaria is well developed, commercial banks are stable, the agricultural sector is a dynamic sector in the portfolio of most banks in Bulgaria.

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