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REVIEW

of PhD thesis for acquiring the educational and scientific degree **"Doctor"** in: field of higher education 3. Social, economic and legal sciences, professional field 3.8 Economics, scientific specialty **"Economics and Management (Agriculture)"**

Author of the PhD thesis: **Hristo Vangelov Kostov**, full-time PhD student at the Department of Economics at the Agricultural University, Plovdiv

Topic of the PhD thesis: "The role of bank lending for the sustainable development of agriculture"

Reviewer: Assoc. Prof. Dr. Petya Dobrinova Atanasova, Trakia University - Stara Zagora, higher education area 3. Social, economic and legal sciences, professional field 3.8 Economics, scientific specialty "National economy (incl. regional economy and history of the national economy)", appointed as a member of the scientific jury by Order No. RD-16-737/08.06.2026 of the Rector of the Agricultural University, Plovdiv

1. Information about the PhD student.

PhD student Hristo Vangelov Kostov was born in 1979. He completed his secondary education in 1998 at the Technical School of Food Industry, Plovdiv. In 2002, he graduated with a Bachelor's degree from the Economic Academy D.A. Tsenov - Svishtov, majoring in Industrial Economics. In 2003, he graduated with a Master's degree from the Economic Academy D.A. Tsenov - Svishtov, majoring in Industrial Management.

From 2004 to 2022, he worked in the field of banking in various financial institutions, performing professional activities and commitments in corporate financing. This has contributed to the accumulated professional experience in lending to business organizations in the country. These specific competencies are directly related to the topic of the dissertation. Since 2022, he has been working at High school Dimitar Matevski in the position of "teacher of economic disciplines".

Hristo Kostov was enrolled as a full-time PhD student by Order RD-26-62/08.12.2021 of the Rector of the Agrarian University, Plovdiv in the scientific specialty "Economics and Management (Agriculture)", in the professional field 3.8 "Economics" at the Department of Economics, Faculty of Economics. By Order RD-26-92/20.12.2024 of the Rector of the Agrarian University, Plovdiv, the PhD student was enrolled with the right to defense.

2. Relevance of the problem.

Hristo Kostov's dissertation is dedicated to an important issue for the prosperity of the agricultural sector, namely the role of lending in achieving sustainable development. The large share of arable land and the established traditions in agriculture justify the strategic role and significance of the agricultural sector in the country's economy. It is also necessary to mention the serious challenges that currently exist and limit the competitiveness of production, respectively reduce the economic efficiency of Bulgarian agricultural holdings.

In this context, the attracted financing (in particular, bank credit) can be considered as a leading factor for organizing the modernization of the production base and the transition to sustainable development. An analysis of the scientific literature justifies the need for a more detailed and econometrically substantiated analysis of the influence of bank lending on sustainability indicators in the agricultural sector. The absence of an integrated empirical analysis of credit activity as a factor for sustainable development of the agricultural sector highlights the significance of the research conducted in the dissertation and justifies the importance and applicability of the achieved results.

3. Purpose, tasks, hypotheses and research methods.

The formulated goal of the dissertation is: "to study and evaluate the role of bank credit as a factor in the sustainable development of agriculture, by analyzing the crediting mechanisms, their impact on the agricultural sector and the possibilities for integrating the principles of sustainability into credit policy".

The object of research is bank lending in the agricultural sector for sustainable development of agriculture, through analyses in the economic, social and environmental aspects of sustainability.

The tasks set are fully consistent with the main goal and issues of the development. It should also be noted their multi-scope, which contributes to the high precision of the results obtained from the conducted research. They are reduced to: clarifying the theoretical formulation of bank lending; analyzing the concept of sustainable development in economic, social and environmental dimensions with a focus on the agricultural sector; studying the specifics of the agricultural sector as an object of lending; tracking the dynamics and structure of bank lending in the period 2009 - 2023 and assessing its impact on key sustainability indicators. An important element in the development are the guidelines and recommendations for improving the lending process to promote the sustainable development of the agricultural sector.

The main research thesis presents bank credit as a key instrument in stimulating sustainable development in the agricultural sector.

The methodology of the dissertation includes descriptive and structural analysis of lending, Pearson correlation analysis, as well as four regression models corresponding to different research hypotheses. The analyses were based on officially published data from the Bulgarian National Bank, the National Statistical Institute, Eurostat and FAO. The research period covers a time interval from 2009 (the period after the economic crisis and the country's accession to the European Union) to 2023, which gives grounds for a higher significance of the results obtained and the derived trends and recommendations in bank lending.

4. Visualization and presentation of the results obtained.

The dissertation submitted for review has a volume of 215 (two hundred and fifteen) pages. The sections include an introduction, an exposition in 3 (three) chapters, a conclusion and a list of used literature. For better visualization, 19 (nineteen) figures and 33 (thirty-three) tables are attached.

The introduction purposefully presents the relevance of the topic in the context of contemporary challenges facing the sustainable development of agriculture. The main elements of the work are correctly defined: object and subject of analysis, goal, logically stated tasks, research thesis, methodology, scientific novelty and practical applicability of the results obtained.

The first chapter examines the theoretical foundations of bank lending and the sustainable development of agriculture. The review of scientific literature concerning the linguistic and etymological analysis of the concept of credit very clearly emphasizes the initial socio-economic basis, following the evolution of commodity-monetary relations. The modern reading defines credit as a special relationship between the creditor and the debtor, binding both parties with specific obligations. The doctoral student very accurately distinguishes and presents in his work the concepts of credit, financing and loan in order to link the specifics of bank credit with the sustainable development of agriculture in subsequent research.

The proposed author's definition of the concept of bank credit: "economic relationship of temporary provision of financial capital by a credit institution to an economic entity under the conditions of return, term, remuneration and trust..." in an indisputable way proves the high scientific competence in the subject and enriches knowledge in the field of banking.

The detailed presentation of: characteristics of the different functions of credit; adaptation to the specific conditions in the agricultural sector; specialized credit products aimed at agricultural producers and the hierarchical structure of agrarian sustainability serve as a solid basis for the empirical analyses of the collected data.

The second chapter is devoted to the methodology and tools used in the dissertation work. The empirical part of the work is aimed at identifying statistically significant dependencies that reveal how the credit activity of commercial banks affects the individual pillars of agrarian sustainability.

The analytical components in the methodology are very precisely selected, which contributes to the accuracy and reliability of the results obtained and the established trends. First of all, the dynamics and structure of bank lending in the time interval 2009 - 2023 are examined. At the next stage, a correlation analysis is applied, conducted using the Pearson linear correlation coefficient. A wide range of studied variables (CRED, DMA, employees, waste, average wage and GVA) allows assessing the degree and direction of linear dependencies between lending and sustainability indicators.

The third component of the methodology is regression analysis, which is the culminating element in the scientific work. Through the application of four independent linear regression models, which correspond to four research hypotheses, covering the economic aspect, the social aspect (in two dimensions: labor participation in the sector and income received) and the environmental aspect of the impact of credit on sustainable development.

The third chapter represents the empirical part of the dissertation. The analyses conducted regarding the gross value added in the agricultural sector and loans provided within the European Union and Bulgaria outline an opposite trend in our country. The observed sector has a significant contribution to the national economy, while the volume of loans provided remains at unreasonably low levels. The need to introduce more flexible financing mechanisms that take into account the specific characteristics of the agricultural sector is deduced. Next, from the conducted complex analysis of the sustainability indicators, the statement is justified that bank credit does not act unidirectionally in the different dimensions of the category.

It is worth noting the precisely developed and presented regression models, which give reason to assume that in the economic aspect, lending functions as a significant factor for investment activity, while in the social dimension, lending does not affect employment, but is strongly linked to income growth. The result concerning the ecological aspect is also important, proving a statistically insignificant dependence. The working hypotheses are scientifically argued and empirically verified, proving the multidimensional and heterogeneous impact of bank lending on the sustainable development of the agricultural sector.

5. Discussion of the results and literature used.

In conclusion, from the comprehensive study conducted, the doctoral student formulated a main conclusion that "bank lending has a clearly expressed role in the economic dynamics of agriculture, but its contribution to sustainability is selective and limited". This provides grounds to support the main thesis of the dissertation work, regarding the importance of financing for growth in the agricultural sector of the economy. To achieve sustainability, an institutional and structural framework is also necessary.

The significance of the study conducted is justified by the following deduced trends:

A) Over the fifteen-year period, there has been an increase in lending to non-financial enterprises, but despite this, there is a lack of financial incentives for the agricultural sector, relative to its contribution to the country's economy.

B) Credit serves as a catalyst for economic efficiency, supporting investment activity and production growth.

C) By analyzing the impact of lending on the various dimensions of sustainability, an asymmetry has been highlighted. While in the economic aspect a positive effect has been observed (increased investment, modernization in the sector and an increase in productivity), in the social aspect the results are contradictory (income growth, but with relatively constant employment). Regarding the environmental aspect, there is no sustainable dependence, which emphasizes that financial instruments are "economically oriented" and not specifically aimed at environmental goals.

D) Demographic limitations in the agricultural sector follow the negative trends at the national level, which hinders sustainable development in the long term.

The literature used includes 142 (one hundred and forty-two) sources, which demonstrates the comprehensiveness and depth of the literature review on the issues of the dissertation work. Leading scientific publications, reports and sources of primary data for banking are cited, serving as the basis for the analytical work. All this gives reason to emphasize that the doctoral student knows the topic of lending very well and selects leading and current information for the needs of the study.

6. Contributions of the dissertation work.

I accept the presented contributions, which can be summarized in the following directions:

Scientific contributions

- The theory of the role of bank lending as a factor for sustainable development of the agricultural sector in the context of investment activity, income, employment and environmental requirements has been substantiated and strengthened;
- An author's definition of the concept of "bank credit" has been formulated, which emphasizes its redistributive function and points to the modern concept of sustainable development in the context of green finance and sustainable lending;
- An integrated analytical model has been developed, covering various groups of indicators directly affecting the category of sustainability.

Scientific and applied contributions

- A methodology has been developed for assessing the role of lending on the sustainable development of the agricultural sector, which is of high importance for its analysis;
- Important trends and specific features of bank lending have been identified, necessary and applicable for updating financial policies and strategies for sustainable development;
- Practical guidelines have been formulated and recommendations and measures have been put forward to improve the credit policies of banking institutions, aimed at investment activity and increasing the effectiveness of financial incentives for sustainable development in agriculture.

7. Critical notes and questions.

The dissertation is precisely formulated in accordance with the requirements of the Regulations for the Implementation of the Agricultural Sector Development Act and is of high scientific value. The doctoral student demonstrates significant competence in the field of lending and the methodology of analysis of sustainable development in the agricultural sector. The timely research conducted will undoubtedly attract interest from both scientific circles and financial institutions and business organizations.

I recommend that the doctoral student, as a result of the accumulated research and expert experience, continue and expand his research on this important issue for the agricultural sector and the economy of the country. It would be useful to disseminate the results more widely.

Question to the doctoral student: In the context of the research and analysis carried out, taking into account Bulgaria's accession to the Eurozone, is an increase in interest in bank loans expected from business organizations operating in the agricultural sector?

8. Published articles and citations.

3 (three) publications on the topic of the dissertation are listed, of which one is co-authored with the doctoral student's scientific supervisors and two are independent:

1. Kostov, H., Blagoeva, N., & Georgieva, V. (2025). Credit support for the agricultural sector in Bulgaria: Structural analysis and economic dimensions. Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, 25(1), 549–558. ISSN 2284-7995 (Print), ISSN 2285-3952. (Online).
2. Kostov, H. (2025). Impact of agricultural loans in Bulgaria on the sustainability of agribusiness companies. Scientific Works of the Agricultural University – Plovdiv, 67(4). ISSN 1312-6318 (Print), ISSN 2367-5845 (Online).
3. Kostov, H. (2026). Bank lending and the dynamics of human capital in Bulgarian agriculture: relationship with the level and structure of employment (2009-2023). E-Journal VFU, 25, 866-878. ISSN: 1313-7514.(bg)

The scientific articles have been published in prestigious journals: Scientific Works of the Agricultural University – Plovdiv and E-Journal VFU, included in the National Reference List of Contemporary Bulgarian Scientific Publications with Scientific Review, as well as Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, indexed in the world-famous database Web of Science Core Collection. All this testifies to the high degree of significance of the obtained results and formulated conclusions of the scientific work.

The presented abstract objectively reflects the structure and content of the dissertation work.

CONCLUSION:

Based on the various research methods learned and applied by the PhD student, the correctly conducted experiments, the generalizations and conclusions made, I believe that the presented dissertation meets the requirements of the Law on Agricultural Research and Development of the Republic of Bulgaria and the Regulations of the Agrarian University for its application, which gives me reason to evaluate it **POSITIVELY**.

I would like to propose to the esteemed Scientific Jury to also vote positively and award **Hristo Vangelov Kostov** the educational and scientific degree of "Doctor" in the scientific specialty **"Economics and Management (Agriculture)"**.

Date: 07.07.2026
Yambol

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