

SCIENTIFIC OPINION

Opinion by **Assoc. Prof. Lyudmil Vasilev Naydenov, Ph.D.**, University of Economics - Varna (scientific specialty "Finance, monetary circulation, credit and insurance"), **member of the Academic Jury** in the procedure for awarding the educational and scientific degree Ph.D. at D. A. Tsenov Academy of Economics - Svishtov for doctoral candidate **Martin Yavorov Bakardzhiev** under the doctoral program "Finance, monetary circulation, credit and insurance (Finance)"

Prepared by: Assoc. Prof. Lyudmil V. Naydenov, Ph.D.

Author of the dissertation: Martin Yavorov Bakardzhiev

Dissertation title: Sustainability and Entrepreneurship in Corporate Governance

This opinion has been prepared in accordance with the requirements of the current Law on the Development of the Academic Staff, the Rules for its application and the Rules for the Development of the Academic Staff at D. A. Tsenov Academy of Economics - Svishtov.

I. General presentation of the dissertation

1. Object, subject and volume of the research

The object of the research is *"the impact of sustainable practices on firm value in the context of modern corporate governance"* (p. 8). The subject of the study are the specific mechanisms through which the integration of environmental, social and governance initiatives (including the production of polylactic acid from corn) affects corporate value, profitability and the long-term competitiveness of companies. *The object and subject of the research are formulated appropriately and are consistent with the analysis in the main text.*

The total volume of the dissertation is 224 pages, of which 173 are main text, 22 are introduction and conclusion, and 29 cover title page, contents, bibliography, and indices of figures and tables. The main text includes 14 tables and 7 figures.

The volume of the work is commensurate with the stated aims and tasks and is sufficient for their convincing achievement.

2. Structure

Examination of the dissertation shows that structurally it contains four main parts, an introduction, a conclusion, a bibliography and indices of figures and tables. The structure is logical, aligned with the aims and tasks of the research and represents a very good basis for their achievement. The formulated research thesis is expressed in the statement that *“the integration of sustainable practices in corporate governance contributes both to the reduction of environmental harm and to the increase of the long-term economic value of companies”* (p. 6). The research thesis is sufficiently ambitious (appropriate for a doctoral dissertation) and correctly reflects the content and contributory elements of the work.

Chapter summaries:

- *Chapter One* builds the theoretical framework of sustainability as a unity of economic, social and environmental dimensions, tracing its evolution from the report *Our Common Future* to contemporary interpretations. Applications of economic, social and environmental sustainability are examined in key sectors such as energy, circular economy, financial markets, education and agriculture. The main challenges are identified and the interdependence between the three dimensions is emphasized through the Triple Bottom Line concept.
- *Chapter Two* emphasizes corporate governance, tracing the development from the classical financial approach to the integration of ESG factors. Financial and non-financial elements of corporate value are systematized, including profitability, liquidity, reputation, CSR and environmental engagement. It is shown (with data and examples) how sustainability affects firm value by reducing risk, increasing efficiency and expanding market opportunities.
- *Chapter Three* presents PLA, examining the technological process, environmental advantages and market applications. The economic, social and environmental effects of using corn as feedstock are analyzed, including added value for farmers and reduction of the carbon footprint. A comparative analysis between PLA and traditional plastics is performed, showing PLA's potential but also its dependence on technologies, policies and infrastructure.
- *Chapter Four* constructs the overall empirical and methodological framework through which (using financial modelling, scenario analysis and investment appraisal) it is investigated to what extent PLA can generate corporate value. The analysis shows that the project is economically viable, and the inclusion of carbon pricing significantly

strengthens its profitability. It is demonstrated how sustainable technologies can be converted into concrete financial results and strategic advantages for business.

3. Literature and appendices

The dissertation uses a *wide base of foreign literature sources* (a total of 364). Therefore, the doctoral candidate builds on a rich set of theoretical developments, documents and data. The work lacks appendices directly related to the main exposition. A Declaration of originality and authenticity and a Statement of compliance with national requirements under the Rules for the application of the Law on the Development of the Academic Staff in the Republic of Bulgaria are present.

II. Assessment of the form and content of the dissertation

1. Assessment of the relevance and development of the researched scientific problem

In conditions of increasing environmental and social challenges, corporate governance becomes a key mechanism for achieving economic sustainability. Contemporary management models increasingly include ESG principles, which reflect the ability of enterprises to create value while complying with environmental and social standards. Sustainability is established as a strategic factor for competitiveness, access to capital and corporate reputation. Given the above, the relevance of the dissertation is indisputable. The case analyzed in the work concerning the production of bioplastics (in particular polylactic acid — PLA) is an additional argument illustrating the innovative character of the research. The case demonstrates how managerial decisions based on sustainable innovations can combine economic efficiency with responsibility towards the environment and society.

The dissertation is very well developed, meets the main prerequisites for a quality scientific study and the minimum national requirements related to the procedure for obtaining the educational and scientific degree Ph.D. In the main exposition both theoretical and methodological and practical and applied aspects are covered.

2. Opinion on language and toolkit of the dissertation

The doctoral candidate is well acquainted with the degree of development of the problems he addresses in the specialized economic literature, as well as with contemporary achievements in the field of corporate governance. In this regard it should be emphasized that *the language (style) used in the work is scientific, ambiguous statements are absent*, and the

arguments on which the doctoral candidate Martin Bakardzhiev bases his conclusions are derived after analysis. The research findings are clearly formulated and presented.

The methodological toolkit is based on a mixed research approach. The quantitative component includes: financial modelling through NPV, IRR, payback period and ROI; the econometric method Difference-in-Differences (DiD) with Tobin's Q; sensitivity analyses under three scenarios; Life Cycle Assessment (LCA) according to ReCiPe 2016, integrated with DCF valuation through carbon pricing (€80–120/ton CO₂). The qualitative component covers a systematic literature review, thematic analysis and case studies. The research approach is conceptually and methodologically justified by integrating interdisciplinary strategies that correspond to the specifics of sustainable development and to the requirements for empirical validity. The analyzed data are systematized based on official statistical information (Bloomberg, Thomson Reuters, Eurostat, FAO, reports of European Bioplastics, the European Commission and the UN, as well as corporate ESG reports) and represent a reliable basis for the conclusions and proposals made.

3. Opinion on how accurately the abstract reflects the work

The abstract follows the structure and content of the dissertation, reflects its merits and meets the standards for preparing an abstract. A declaration of originality is attached on the last page.

4. Publications on the dissertation topic

The list of the doctoral candidate's publications includes two studies and two articles (one pending print). The studies are published in the Annual Almanac "Scientific Research of Doctoral Students of D. A. Tsenov Academy of Economics - Svishtov" and in "Scientific Atlas". The publications are on the dissertation topic, which satisfies the requirement to ensure publicity of the doctoral candidate's research results, and in quantity *meet the minimum national requirements for obtaining the educational and scientific degree Ph.D. in professional field 3.8 "Economics"*.

5. Originality of the scientific product and regulatory compliance

The dissertation is distinguished by a pronounced authorial presence. No plagiarism was found or established (in accordance with the result presented by D. A. Tsenov Academy of Economics from a check with specialized software - StrikePlagiarism), which gives grounds to conclude that it is the original work of the doctoral candidate.

The doctoral candidate *fulfils the national minimum requirements* under the Development of Academic Staff in the Republic of Bulgaria Act (Article 2b (2) and (3)) and

the Regulations for the Application of the Development of Academic Staff in the Republic of Bulgaria Act (Article 24 (1)).

III. Scientific and applied contributions of the dissertation

1. Presence of new scientific ideas and results with an opinion on their significance

I accept the scientific and applied contributions indicated by the doctoral candidate. Results have been achieved both in the general theoretical and in the practical and applied aspect. These are of unquestionable significance. The main contributory points can be summarized as follows:

First, an integrated theoretical and analytical framework has been developed for studying the relationship between sustainability and corporate value. The framework unites concepts such as Triple Bottom Line, stakeholder theory, shared value, corporate social responsibility and ESG standards. In this way sustainability is considered as a managerial and financially significant factor affecting risk, costs, reputation and access to capital.

Second, a quantitatively substantiated three-channel model has been formulated for the impact of sustainable practices on corporate value. The model demonstrates that sustainability creates value by reducing the cost of capital (ESG-adjusted WACC), increasing operational efficiency and realizing a premium in market valuation, integrating LCA and DCF through carbon pricing. This is a key methodological contribution that turns abstract ESG arguments into measurable financial parameters.

Third, an in-depth analysis of polylactic acid (PLA) has been carried out as a sustainable industrial innovation and an economic case with managerial significance. PLA is investigated not only as a technological alternative to traditional plastics, but also as a material that transforms business models, market reputation and investment attractiveness of companies. In this context the strategic role of corn as a feedstock is substantiated, creating added value for agricultural communities.

Fourth, a practical investment and financial model has been developed for the evaluation of sustainable industrial projects, demonstrated through a production facility for PLA with a capacity of 20,000 tonnes per year. The model includes NPV, IRR, MIRR, PI, breakeven analysis, modelling and sensitivity assessment. Carbon pricing is integrated, which converts environmental benefits into a financially measurable effect. The proposed analytical

framework can be adapted and used for the evaluation of other green technologies and biomaterials, which gives it significant practical value.

IV. Critical remarks, recommendations and question

I would like to put forward two recommendations. The dissertation includes references to regulatory and financial measures for integrating sustainability into corporate strategies. It is advisable that these be more tightly linked to the empirical results and prioritized. Second, in the introduction there is a certain terminological inconsistency in presenting the relationship between CSR and financial results, the removal of which would contribute to the precision of the text.

I would also like to formulate *one question* to the doctoral candidate. Which of the elements of the proposed three-channel model solution (ESG-adjusted WACC; increase in operating margin; valuation premium) can be implemented in other industries and which are specific to biopolymers?

V. Overall evaluation of the dissertation and conclusion

The dissertation submitted for review meets the established scientific and technical requirements for preparing such a study and is in accordance with the criteria for awarding the educational and scientific degree Ph.D. in the field of social, economic and legal sciences.

The author demonstrates the ability to adequately clarify theoretical positions related to corporate governance and economic sustainability, to make reasoned conclusions and substantiated proposals. The structure of the dissertation, aligned with the main research thesis, the precise analysis, the reasoned conclusions and summaries give me grounds to propose to the members of the respected **Academic Jury to give their positive vote for awarding the educational and scientific degree Ph.D. to Martin Yavorov Bakardzhiev** in the field of higher education 3 — Social, economic and legal sciences, professional field 3.8 Economics, scientific specialty “Finance, monetary circulation, credit and insurance (Finance)”.

Varna, 20 May 2026

Prepared by:

(Assoc. Prof. Lyudmil Naydenov, Ph.D.)