

REVIEW

of a dissertation for the award of the educational and scientific degree "Doctor" in Economics in the doctoral program "Finance, Money Circulation, Credit and Insurance" (Finance) on the topic:

„SUSTAINABILITY AND ENTREPRENEURSHIP IN CORPORATE GOVERNANCE”

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Department leading the training: *Department of Finance and Credit at the Faculty of Finance, D. A. Tsenov University of Applied Sciences*

Form of doctoral studies: *part-time*

Reviewer: Prof. Dr. Stefan Simeonov

appointed as a member of the scientific jury by order No. 308 of 9.04.2026 of the rector of the Academy of Economics, Assoc. Prof. Dr. M. Marinov

1. Relevance and importance of the topic

The relevance of the topic is well justified by “Climate change, depletion of natural resources and social inequalities are problems that require coordinated action at a global level. Corporate social responsibility (CSR) and the principles of sustainable development are established as leading concepts for overcoming these challenges.”

Interest is focused on “the significant environmental, economic and social challenges that require a rethinking of conventional corporate practices.” “The plastics sector is particularly relevant in this context, as it is a significant source of pollution and carbon emissions.”

2. Fulfillment of the formal requirements for the dissertation and main components of the dissertation research

The dissertation submitted for review has all the necessary components for a doctoral dissertation. The introduction presents the object, subject, research thesis, goal, objectives and methodology used.

The object of the study is the impact of sustainable practices on the value of the company in the context of modern corporate governance. The study covers both the theoretical concepts of sustainability and corporate value, as well as the practical mechanisms for their integration into specific business models, with a focus on the biopolymer industry.

The subject covers the specific mechanisms through which the integration of environmental, social and governance (ESG) initiatives – with a particular focus on the production of polylactic acid (PLA) from corn – impacts the corporate value, profitability and long-term competitiveness of companies. Special attention is paid to the three-channel impact model: reducing the cost of capital through ESG-adjusted WACC, increasing operating margins and premium valuation of sustainable companies in financial markets.

The research is based on **the thesis** that “the integration of sustainable practices in corporate governance not only contributes to reducing environmental damage, but also increases the long-term economic value of companies. The thesis challenges the linear interpretation of the relationship between ESG and financial performance and proposes an alternative three-channel model: (1) reducing the cost of capital through ESG-adjusted WACC with a proven reduction of 0.8–1.2 percentage points (Sharfman & Fernando, 2008; El Ghouli et al., 2011); (2) increasing the operating margin (EBITDA margin expansion +3.2%) through resource efficiency (Eccles et al., 2014); and (3) a valuation premium (EV/EBITDA multiple expansion +1.3x) due to reduced risk (Fombrun et al., 2000; Servaes & Tamayo, 2013). The specific validation is carried out through the case study of corn PLA.”

The main research thesis thus defined lay the foundation for a serious study.

Four main tasks have been set:

- 1) *"To analyze the concept of sustainability and its importance for modern business.*

- 2) *To investigate the impact of sustainability on corporate value through qualitative and quantitative methods.*
- 3) *To assess the economic, social and environmental viability of maize PLA production.*
- 4) *To propose recommendations for the integration of sustainable practices into corporate strategies.*

3. Volume and structuring

The dissertation is in a total volume of 224 pages.

The overall numbering and structuring differ from the accepted standard, which to some extent damages the presentation and perception of the study.

The actual part of the study is structured in 4 chapters. The exhibition contains 14 tables and 7 figures.

The **first chapter** examines *"Sustainability as an integrated concept for environmental, social and economic development"* and a standard for responsible modern development of companies, in the context of environmental and social responsibility.

Chapter **Two** analyses *"Corporate Value and Sustainability in Modern Corporate Governance"*.

Chapter Three, presents *"Polylactic Acid (PLA) as a Sustainable Alternative to Traditional Plastics: Technological, Economic and Environmental Dimensions"* – as a real-world example of a circular model.

Chapter Four is entitled *"An empirical and methodological framework for the analysis of polylactic acid as a factor of sustainability and corporate value"*, which develops a practical example by performing a detailed analysis of the *"relationship between sustainable innovation and corporate value"*. Here, the analytical performance criterion from the corporate governance standpoint of SGS has been added to the sustainable model for PLA plastics.

4. Methodology and analytics

The methodology of the study is based on an interdisciplinary approach that brings together various qualitative and quantitative models. The analytical and research *toolkit includes: a systematic literature review; financial modeling (NPV, IRR, payback period) and scenario analyses in three variants*

(optimistic, baseline, pessimistic); econometric method "Difference-in-Differences" for assessing the causal relationship between sustainable practices and corporate value; as well as an empirical case study with the production of PLA from maize.

5. Empiricism

The empirical part of the dissertation is developed in the fourth chapter with a practical example of the development of ecological plastics, in particular PLA (polylactic acid) from maize. This approach is justified given the innovative nature of this technology and its conceptual level of distribution. A detailed analysis of *the "interactions between PLA-based corporate innovation and market competitiveness" is carried out.* Admiration deserves a comprehensive analysis of the factors – regulatory, environmental, technological, social, economic.

The study is mainly focused on developed markets in Europe and North America. *"The data was collected from both primary and secondary sources." "The primary data includes surveys and structured interviews with key stakeholders – managers from companies in the biopolymer sector, etc..." "Secondary data is derived from an extensive review of academic literature, market reports, organic databases – including the European Commission, Eurostat, Bloomberg and the OECD – and regulatory documents, etc."*

6. Citation and References

The citation is correct in the accepted APA-standard.

The list of references includes 364 sources. This significant number is an indication of the serious research approach, and the fact that all of them are in a foreign language is indicative of the innovation of the topic, especially for Bulgarian practice.

7. Style

The style is very good and corresponds to the scientific level of the dissertation. There are foreigners (such as "valuation") who do not contribute to the scientific level.

8. Layout

The layout from a technical point of view is very good.

9. Results achieved

The tasks set have been completed successfully. There are significant results, among which are:

- 1) *The study empirically proves that the production of PLA from corn generates approximately 75% lower carbon emissions compared to conventional plastics, provided that the investment in a plant with a capacity of 50.000 tons per year can be recouped within 5–7 years. Scenario analyses confirm a positive internal rate of return even under pessimistic market conditions.*
- 2) *The paper theoretically substantiates and empirically illustrates the three-channel model of sustainability's impact on corporate value by demonstrating concrete mechanisms to reduce the cost of capital, increase operating margin, and achieve valuation premium through ESG leadership.*
- 3) *The study offers a practical analytical toolkit combining LCA analysis with DCF valuation and a carbon pricing mechanism that can be used by corporations to assess the value potential of sustainable investments.*
- 4) *The paper contributes to the academic literature by systematically linking stakeholder theory, the concept of the Triple Bottom Line, and the Shared Value Creation model to a specific industry case study, providing new empirical insights into the positive correlation between sustainable practices and financial performance.*

10. Contributions

PhD student M. Bakardzhiev has formulated 5 contributions that actually stem from the results realized:

- 1) A comprehensive interdisciplinary theoretical model has been developed for the analysis of the impact of sustainability on corporate value, integrating the Triple Bottom Line, shared value theory and ESG standards. The model systematizes the financial and non-financial mechanisms through which sustainable practices generate corporate value.
- 2) A three-channel model has been formulated: (1) reduction of cost of capital through ESG-adjusted WACC (reduction of 0.8–1.2 p.p.); (2) an increase in operating margin (EBITDA +3.2%); (3) valuation premium

(EV/EBITDA +1.3x). The model integrates LCA with DCF valuation through carbon pricing – a methodological contribution.

- 3) A detailed comparative financial analysis of PLA against conventional plastics was carried out through three scenarios, demonstrating the economic viability of PLA. PLA generates ~75% less CO₂ at 65% lower energy intensity, and the IRR is 15–25%.
- 4) The strategic importance of corn for bio-polymer production is substantiated. The transition from traditional applications to PLA significantly increases added value and creates new economic opportunities for farming communities.
- 5) A system of practical recommendations for integrating sustainability into corporate strategies is presented: ESG goals, optimization with renewable materials, composting infrastructure and cooperation between business governments and academia.

The theoretical model provides an analytical toolkit for assessing the impact of sustainable innovation on corporate value and is applicable in various industries. The scientific and applied contributions of the dissertation have significance for both the academic community and practice. The financial analysis of PLA production provides a quantitative basis for investment decisions in the biopolymer industry.

11. Strengths

In addition to the above results, this study is characterized by a number of positive aspects, including:

- The dissertation is distinguished by its expressed originality and relevance.
- The in-depth tracking of the development of the concept of sustainability and its practical application in its various varieties.
- Applications "a systematic and holistic approach to understanding and analyzing sustainability and innovation in the corporate world through the implementation of biopolymers such as PLA (polylactic acid)."
- "The focus of the quantitative analysis is the comparison between traditional plastics and PLA - both in terms of environmental footprint and in relation to economic results in the medium and long term."

12. Notes and recommendations

Critical notes are not indicated.

13. Related publications

Doctoral student Martin Bakardzhiev has indicated 4 independent publications on the topic of the dissertation. The minimum requirements are met with the two published studies. Two articles that are in press are also indicated.

14. Abstract

The abstract is 25 pages long and presents an objective synthesis of the entire dissertation work.

15. Questions

The concept of sustainability has many directions and increasing possibilities for technological implementation. In the dissertation you trace the development of the concept to the application of PLA (polylactic acid) technology from corn as a substitute for traditional plastics and prove its financial and economic efficiency. But this is not enough for the natural spread of such sustainable technologies if they affect the competitiveness of the business. Is it possible and if not yet, is the time near when ecological technologies will lead to a competitive advantage?

16. Conclusion

The presented dissertation work for the educational and scientific degree "Doctor" possesses the quantitative and qualitative characteristics required by the state and academic regulations. The dissertation contains original scientific and applied scientific results. On this basis, I strongly propose that the ONS "Doctor" in the field 3.8 Economics be awarded to Martin Y. Bakardzhiev.

28.05.2026 г.

Reviewer:

Prof. Dr. Stefan Simeonov