



April 12, 2021

REVIEW

by Prof. Dr. Vesselina Vasileva Dimitrova

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of a dissertation for the award of the scientific degree "Doctor of Science"

in the field of Higher education 3. Social, economic and legal sciences

Professional field 3.8. Economics

Author: Prof. Dr. Virginia Ivanova Zhelyazkova

Topic: Management of banking risks in the transition to a circular economy

1. General description of the submitted documents

By order № 38 of 15/ 03/2021 of the Rector of the University of Finance, Business and Entrepreneurship (VUZF-Sofia) Assoc. Prof. Dr. Grigoriy Vazov, I have been appointed as a member of the Scientific jury for providing a procedure for the defense of a dissertation entitled " Management of banking risk in the transition to a circular economy" for obtaining a degree "Doctor of Science" in the field of Higher education 3. Social, economic, and legal sciences, Professional field 3.8. Economics. The author of the dissertation is Prof. Dr. Virginia Zhelyazkova. At the first reunion of the scientific jury on 19/03/2021 I have been appointed as an external reviewer.

The documents submitted by Prof. Dr. Virginia Zhelyazkova include CV, copy of the diploma for the acquired Ph.D. educational-qualification degree № 34 670 / 28/122010, copy of the diploma for higher education for the acquired educational-qualification degree “Master” in specialty International Economic Relations № 0045/ 20/06/2007, dissertation for the award of the Scientific degree "Doctor of Science", abstract of the dissertation

for the award of the scientific degree "Doctor of Science" from 2021, abstract of the dissertation for the award of Ph.D. educational and scientific degree from 2010, publications on the current procedure, summaries of scientific papers on the procedure for obtaining the scientific degree "Doctor of Science", citation level reference according to Bulgarian minimum national requirements (MNR), MNR reference for the scientific degree "Doctor of Science", three independent statements of the dissertation.

2. Brief biographical background of the candidate

Prof. Dr. Virginia Zhelyazkova is a Deputy Rector of the University of Finance, Business and Entrepreneurship (VUZF-Sofia) for educational activities and quality. She is the Director of VUZF-lab of program direction "Finance and Financial Management" and of the Working group on circular economy and sustainable finance in the same direction. Over the years, Prof. Zhelyazkova has been a coordinator at banking institutions for budget analysis and management, environmental and social issues. Her expertise and public activities are at a high professional level. She is a UN representative under the Environmental Protection Program - Financial Initiative UNEP-FI and to a Working group for the analysis of climate change on the activities of the banking sector. Her academic activity is also directly related to the problems of sustainable development. She leads the team of the first Bulgarian master's program in circular economics. Her teaching activities include newly introduced disciplines such as "Circular Economics" and "Environmental and Social Risks in the Investment Process". Prof. Dr. Zhelyazkova is a welcome national and international lecturer on the issues of the circular economy: she has several participations in Italy, Cyprus, Greece, and Bulgaria. He is a scientific editor of series of publications in the field of sustainable finance, a member of four international editorial boards, she leads and participates in more than ten international and national research projects.

3. Actual aspects of the topic and appropriate set of goals and research tasks

The dissertation brings out an important and undoubtedly up-to-date problem for the scientific community, business, and entrepreneurship. Prof. Dr. Zhelyazkova examines the financial dimensions related to the transition to a circular economy and the damaging climate changes. The dissertation pays attention to how environmental accounting needs to be adapted to harmonize adequately the information presented to companies on their environmental issues. The object of scientific interest includes five main reasons, which are studied in the dissertation body, namely: the need for an appropriate response to the preferences of bank clients; suitable change of the legislation, the influence of the clients' ecological risk in the general credit risk management, compatibility mode of the ecological reputation of the banks and other ethical issues.

4. Level of problem knowledge

My opinion is that Prof. Dr. Zhelyazkova knows in depth the theoretical and methodological issues of her research problem of bank risk management in the transition to a circular economy. She demonstrates the ability for in-depth critical analysis of Bulgarian and foreign authors and draws independent conclusions and recommendations in her dissertation.

5. Research methodology

The research methodology of the dissertation includes mainly quantitative and qualitative analysis. Quantitative analysis includes a study of different types of climate change and the role of international institutions, analysis of the evolution of countries' knowledge towards a circular economy; analysis of the participation of the banking system and capital markets in the transition to a circular economy, and other related tools. The qualitative analysis includes an approbation model for management of the ecological and social risks in the banking institutions in Bulgaria for the period 2016-2019, which upgrades and adapts the parameters of the EBRD.

Prof. Dr. Zhelyazkova logically sets up a restrictive framework of her research to analyze and assess only the environmental and social risks in banks as one of the goals for the transition from a linear to a circular economic model.

In my opinion, the chosen research methodology allows to achieve the scientific goal and to adequately respond to all research tasks of the dissertation.

6. Characteristics and general evaluation of the dissertation

The dissertation consists of 297 pages, of which 277 pages are body text and 18 pages are appendices. The main text contains 7 figures and 13 tables. The literature reference covers a total of 158 sources in Cyrillic, Latin and Internet sites.

The dissertation is divided into an introduction, five chapters, a conclusion and a bibliographical reference. The first chapter "Nature and manifestation of climate change" examines the consequences of climate change for business, entrepreneurship and households from the point of view of their adaptation approach and mitigation. Hence, an assessment is based on various risks in the field of finance: regulatory, legal, supply chain, physical and reputational. The second chapter "The Circular Economy: Addressing the Challenges of Climate and Environmental Problems" presents the advantages of the circular model for economic governance over the linear model with an emphasis on its application in business and entrepreneurship. A review of the achievements of Japan, China, and the EU-27 is also included. The third chapter "Resource procurement of the circular economy" analyzes the role of banks and the capital markets as providers of resources for the transition to a circular economy. The direct and indirect challenges for financial institutions in their environmental risk management are pointed out. In summary, five business models are systematized, which can be the basis for successful sustainable development. An answer to the question of what type of investments are sustainable and socially responsible was sought. The fourth chapter "Theory and practice in the field of environmental accounting and reporting and their relationship with the transition to a circular economy" presents the essence of the problem from the point of view of applicable tools and best practices in the EU-27. The information provided is needed to assess the need for a single reporting framework for investment firms. The fifth chapter "Adapted model for environmental and social risk assessment in credit and lending practice" presents the idea of a green bank through the bank management levels of environmental risk, the relationship of environmental risk with other risks. This chapter approves a model for assessing the

environmental and social risks in corporate credit and lending practice in Bulgarian systemic bank according to criteria set and by comparing it with existing EBRD parameters.

My opinion, based on the overall characteristics of the dissertation, is that it presents a fully completed research study with applied science issues, whose interrelationships, results, conclusions, and recommendations are reliable and allow further evaluation of the contributions of Prof. Dr. Zhelyazkova.

7. Contributions and significance for science and practice

In this dissertation, several scientific, scientific-applied, and applied contributions are presented. Scientific contributions include a knowledge achievement into the circular economy and its relationship to climate change. The study of the transformation process of the banks' philosophy to evaluate non-financial risks and in particular to environmental risk leads to significant scientific and applied contributions. The applied contributions include the author's model for a green bank through an analysis of international methodologies for environmental risk assessment in credit and lending practice and a proposal for an alternative eight-factor model based on data for the period 2016-2019 in a Bulgarian systemic bank.

The main achievements of the dissertation are related, on the one hand- with hypotheses for solving a major scientific problem and in particular on the application of the principles of circular economy in the financial sector and, on the other hand - with the proposal of a new model for implementing management mechanisms for environmental risk in Bulgarian banks.

My conclusion is that the contributions fully correspond to what is stated in the dissertation. All conclusions are significant for science and practice and represent an independent achievement of Prof. Dr. Zhelyazkova.

8. Evaluation of the publications on the dissertation

Prof. Dr. Zhelyazkova has attached in full-text content a total of 15 publications, incl. 1 study (written herself independently in a non-refereed journal with the scientific review, currently in print), 1 written herself independently chapter in a collective monograph in edited volume with the scientific review, 1 written herself independently article published in a scientific journal indexed in Scopus/WoS world databases, 10 written herself independently articles in unrefereed journals but with a scientific review and 2 written herself independently papers in edited proceedings. As mentioned, all publications are written independently: 10 of them are written in English, the remaining 5 are written in the Bulgarian language, which gives clear evidence to the international research community.

The range of issues addressed in the publications covers: (a) exploring the possibility of transforming banks into a circular economy path; (b) a comparative analysis of the concept of the circular economy and its application in the EU-27 and Japan; (c) study of the problem related to the lack of standard and generally accepted methodology for environmental risk assessment in the credit risk assessment system and study of different practices of international banks; (d) analysis of the challenges facing financial managers with the implementation of environmental accounting and innovative opportunities in environmental reporting, the role of eco-efficiency indicators; (e) a qualitative analysis study to assess the environmental risk management in commercial banks, their need for legislative changes; (f) review and evaluation of the strategies for

environmental and social responsibility in the financial sector.

For the reported period 2019-2021 Prof. Dr. Zhelyazkova has 3 citations in Scopus, 4 citations in WoS, and 11 citations in proceedings with the scientific review, which exceeds the required minimal national requirements (MNR).

The dissertation and the model tested in it are of valuable importance for Bulgarian banks, as evidenced by the attached three independent statements (one from the Bulgarian stock exchange and two from Bulgarian bank- Postbank).

We can summarize that all publications on the dissertation reflect its results and there is no data for overlap or coincidence with previous publications for other competitions with the participation of Prof. Dr. Zhelyazkova.

9. Compliance with the Bulgarian minimum national requirements (MNR)

Information on the fulfillment of the Bulgarian minimum national requirements for obtaining the scientific degree "Doctor of Science" in the professional field 3.8. Economics shows that the scientific research of Prof. Dr. Zhelyazkova not only covers, but also exceeds many times the set of Bulgarian minimum national requirements (MNR).

10. Personal participation of the candidate

The dissertation is an original author's work of Prof. Dr. Zhelyazkova and does not repeat her previous Ph.D. thesis for obtaining the Ph.D. educational and scientific degree from 2010. The reviewer notes the independent participation of Prof. Dr. Zhelyazkova in her research study, the formulated contributions, and the obtained results. The reviewer does not find any plagiarism in the evaluated dissertation.

11. Evaluation of the abstract

The abstract of the dissertation includes 65 pages and presents in a brief statement with all mandatory elements of the dissertation. My opinion is that it fully complies with all the requirements of the National Law for the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB) and the further Regulations of law implementation. The presented documents and dissertation results fully comply with the specific requirements of the national regulations for admission and training of Ph.D. students (Ph.D. degree and degree "Doctor of Science") at the University of Finance, Business, and Entrepreneurship (VUZF-Sofia).

12. Critical remarks and recommendations

I have no critical remarks on the dissertation. I recommend Prof. Dr. Zhelyazkova to continue her work in the chosen scientific field, periodically updating her studies with new and in-depth results, which she should publish in Scopus and WoS database journals.

13. Personal impressions

I know Prof. Dr. Zhelyazkova concerning a series of scientific and educational initiatives between the

University of Finance, Business, and Entrepreneurship (VUZF-Sofia), the VUZF-lab led by her and my Department of International Economic Relations at the University of Economics-Varna. My impression is that Prof. Dr. Zhelyazkova combines the rare ability to be at the same time a well-organized administrative officer, a successful top-level manager, a seriously responsible teacher and tutor, and a self-critical scientific researcher.

14. Recommendations for further contributions and results

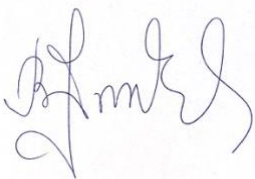
I recommend Prof. Dr. Zhelyazkova to focus her future research on applied changes in Bulgarian legislation in support of the circular economy implementation and in particular the harmonization between the regulatory framework of the banking sector and other sectors of the Bulgarian economy.

CONCLUSION

The dissertation Prof. Dr. Zhelyazkova contains scientific, scientific-applied, and applied results, which represent an original contribution to Bulgarian science and meet all the mandatory requirements of the National Law for development of the academic staff in the Republic of Bulgaria (ZRASRB) and the further Regulations of law implementation. The presented documents and dissertation results fully comply with the specific requirements of the national regulations for admission and training of Ph.D. students (Ph.D. degree and degree "Doctor of Science") at the University of Finance, Business, and Entrepreneurship (VUZF-Sofia). The dissertation shows that the candidate Prof. Dr. Virginia Zhelyazkova has in-depth theoretical knowledge and scientific professional skills in the Professional field 3. 8. Economics by demonstrating her ability and experience for independent research.

Due to the above-mentioned, I confidently give my *positive evaluation* of the research presented in the reviewed dissertation, abstract, results, and contributions, and I invite all members of the Honorable scientific jury to award the degree of "Doctor of Science" to Prof. Dr. Virginia. Ivanova Zhelyazkova in the field of higher education 3. Social, economic and legal sciences; Professional field 3. 8. Economics.

Reviewer:



Prof. Dr. Vesselina Dimitrova