



SCIENTIFIC OPINION

by a member of a scientific jury

for the **acquisition of an educational and scientific degree "doctor"** according to the announced procedure from the University of Economics - Varna

1. General information

The opinion is from Prof. Dr. Stanislav Dimitrov Petkov, professor at the Higher School of Insurance and Finance - Sofia, on a dissertation work for awarding the educational and scientific degree "Doctor" in the Department of Higher Education 3. Social, Economic and Legal Sciences, Professional direction 3.8. Economics, PhD program "Finance".

The author of the dissertation is Milena Dimitrova Beneva. The topic of the dissertation work is "Green investments of private pension funds". The work is presented in Bulgarian. Scientific supervisor is Assoc. Professor Dr. Stoyan Kirov.

By order No. RD-06-55 dated 23.05.2023 of the vice-rector of the University of Economics - Varna under the NIDRC, I have been appointed as a member of the scientific jury to ensure a procedure for the defense of a dissertation on the topic "Green investments of private pension funds" for the acquisition of the educational and scientific degree "doctor" in the Higher Education Department 3. Social, economic and legal sciences, Professional direction 3.8. Economics, PhD program "Finance". The author of the dissertation is Milena Dimitrova Beneva.

With the decision of the scientific jury dated 13.06.2023, I have been appointed to prepare scientific opinion on the works of the doctoral student within the framework of the present procedure.

The materials provide by PhD student Milena Beneva include the following:

1. dissertation work;
2. abstract of the dissertation work;
3. reference on the fulfillment of the minimum national requirements for obtaining the educational and scientific degree "doctor" in the professional direction 3.8. Economics.



2. General presentation of the dissertation work

The dissertation is 284 pages long. Of these, 227 pages are main text. 57 pages are references and appendices. The work is structured in Table of Contents, Abbreviations Used, Introduction, Three Chapters, Conclusion, References and Appendices. The exhibition includes 83 illustrations - 39 tables, 39 figures and 5 graphs. The bibliography includes 418 sources, of which 57 in Cyrillic, 342 in Latin and 19 pages on the Internet.

The doctoral student has fully complied with the technical requirements for the preparation of a dissertation.

In the introduction of the dissertation, the author justified the topicality and importance of the topic.

On page 7, the doctoral student formulates the thesis of the work, namely *"...the ecological dimension of the investment policies of voluntary pension funds in Bulgaria contributes to a more comprehensive assessment of risks and a better performance of their portfolios"*. The author correctly justifies why the research focuses on voluntary pension funds in Bulgaria.

The first chapter is entitled «Modern interpretation of green investments». The volume of the First Chapter is 58 pages. This part of the study is structured in three points. The evolution of sustainable and responsible investing, the development of the understanding of green investments is examined. Financial instruments for green investing are analyzed. The place of ESG factors in the investment process is explored.

The second chapter is entitled "Green solutions of pension funds". The volume of the Second Chapter is 74 pages. This part of the study is structured in three points. Factors for the development of green investments among pension funds are examined. The portfolio allocation of pension funds in green assets is analyzed. The Bulgarian dimensions of green portfolios are investigated.

The third chapter is entitled "Portfolio optimization of pension funds in Bulgaria". The volume of the Third Chapter is 83 pages. This part of the study is structured in three points. An analysis of the basis of MV optimization solutions for pension funds in Bulgaria was carried out. A UPM/LPM portfolio selection model is applied. A comparative analysis was made and an optimal solution was sought based on the results of the UPM/LPM model and the MV approach. The possibilities for more successful greening of the portfolio of pension funds in Bulgaria have been analyzed.

The study ends with a Conclusion. The conclusion fully corresponds to the research carried out and the conclusions drawn by the doctoral student.

Based on the dissertation thus presented, I can definitely assume that the research represents a significant development of the chosen topic.

The dissertation thus presented gives me full reason to assume that the dissertation of the doctoral student Milena Beneva contains scientific and scientific-applied results that represent an original contribution to science.



The dissertation work shows that the doctoral student Milena Beneva has in-depth theoretical knowledge in the relevant scientific field and abilities for independent scientific research.

3. Publications and participation in scientific forums

Five publications on the present procedure are presented. The publications of PhD student Milena Beneva fully correspond to the topic of the dissertation work.

4. Assessment of the structure and content of the dissertation, opinion on the correctness of the dissertation abstract and the lexical and stylistic characteristics of the dissertation

The dissertation work and the abstract of the dissertation fully correspond to the accepted requirements for the structure and content of a similar type of scientific work. The author could avoid the use of foreign words, which could be correctly replaced with words from the Bulgarian language.

5. Identification and evaluation of the scientific and scientific-applied contributions in the dissertation work

On page 35 of the abstract, the doctoral student formulates five contributing points of the dissertation work. I fully accept as contributions formulated by the author.

6. Confirmed or unconfirmed plagiarism in the dissertation and the abstract

My opinion is that there is no plagiarism in the dissertation and the abstract. I can conclude that the research, the critical analysis, the conclusions, the contributing moments are entirely the work of the doctoral student Milena Beneva.

7. Critical notes and recommendations

I have no significant critical notes and recommendations.

I recommend PhD student Milena Beneva to publish her dissertation, as it will be useful for both practice and theory in the field of green investments and investment policies of supplementary pension funds.

I recommend the PhD student Milena Beneva to continue her research in the field of green investments and the activity of supplementary pension funds.

8. Questions for the dissertation student



I would ask the following questions to the dissertation student:

1. Do the investment results of Scandinavian pension funds, which are among the leaders in green investments in their portfolios, prove the thesis of the dissertation?
2. According to the PhD student, what accounts for Europe's dominant strategy of negative screening among global SRI investments vis-à-vis the US, Canada, Australia and Asia?

9. Conclusion

The dissertation *contains scientific, scientific-applied and applied results*, which represent an original contribution to science and meets all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB) and the Regulations for the Implementation of ZRASRB. The presented materials and dissertation results **fully comply** with the specific requirements of the Regulations for the Development of the Academic Staff at the University of Economics - Varna.

The dissertation shows that the doctoral student **Milena Beneva** possesses theoretical knowledge and professional skills in Professional direction 3. 8. Economics, demonstrating qualities and skills for independent conducting of scientific research.

Due to the above, I give a *categorically positive assessment* of the conducted research, presented by the above-reviewed dissertation work, abstract, achieved results and contributions, *and I strongly suggest to the honorable scientific jury to award the educational and scientific degree "Doctor"* to Milena Beneva in the Department of Higher Education education 3. Social, economic and legal sciences; Professional direction 3. 8. Economics, doctoral program "Finance".

17.07.2023

Reviewer:
(prof. PhD Stanislav Dimitrov)

Заличена информация съгласно
ЗЗЛД и регламент (ЕС) 2016/ 679



OPINION

Бх. № РД20-442 / 08.08.2023

From: Assoc. Prof. Dr. Jeko Nikolaev Milev
University of National and World Economy, Sofia

Regarding: dissertation for awarding the educational and scientific degree “doctor” in professional direction 3.8 “Economics”

Basis for presenting the opinion: participation in the composition of the scientific jury for the defense of the dissertation according to **Order No. RD - 06-55 / 23.05.2023** of the Deputy Rector of IU – Varna

Author of the dissertation: **Milena Dimitrova Beneva**

Topic of the dissertation “**Green Investments of Private Pension Funds**”

1. General presentation of the dissertation

The dissertation of Milena Beneva consists of an introduction, three chapters, a conclusion, a list of references and appendices with a total volume of 284 standard pages. Within the exposition there are 39 tables, 39 figures and 5 charts. The bibliography includes 418 sources (57 in Cyrillic, 342 in Latin and 19 web pages). The doctoral student examines the so-called “green” investments of private pension funds. The topic is undoubtedly relevant, given the ongoing trends in the global transformation of the traditional economy to a low-carbon and sustainable one. In recent years, there has been a clear trend towards the inclusion of environmental, social and governance factors in traditional financial analysis. Regulatory changes, even in Bulgaria, are in the direction of including these factors in investment decisions. **The object** of the study are voluntary pension funds in Bulgaria. **The subject** of the dissertation is the responsible and sustainable investing of these financial institutions. The doctoral student sets out **three main goals** that she strives to achieve with writing the dissertation:

1. Systematization and taxonomy of the variety of definitions and financial instruments for green investing.
2. Revealing the motivation and evaluation of good practices for environmental investing by pension funds.
3. Empirical study of the effects of including green assets in the investment portfolio of voluntary pension funds in Bulgaria.

The research thesis of the dissertation is that “the environmental dimension of the investment policies of voluntary pension funds in Bulgaria contributes to a more comprehensive assessment of risks and better performance of their portfolios”. The dissertation has correctly formulated object and subject of study. The goals are set in the context of the defended thesis.

In the first chapter of the dissertation, Milena Beneva presents the characteristics of “green” investments. She clearly shows how the idea of such investing was born and describes in detail the terminological diversity in this field. The doctoral student focuses mainly on the



environmental aspect, rather than on the different social and governance factors, which together form the so-called ESG risks, which have become increasingly popular in recent years. In this part of the dissertation, sufficient attention is paid to the different financial instruments used by institutional investors, in particular pension funds, to implement their “green” strategies. The chapter ends with an analysis of the place occupied by ESG factors in the modern investment process.

The second chapter is titled “Green Solutions for Pension Funds”. Within this part of the dissertation, the doctoral student consistently analyzes: first, the motivational factors for pension funds to undertake various types of environmentally oriented investments; second, the impact of “green” investments on realized returns and third, the extent to which pension funds in Bulgaria have an interest and invest in various instruments that are consistent in some way with climate resilient and low carbon economy.

In the third chapter of the dissertation, Milena Beneva presents optimization solutions for the portfolios of voluntary pension funds in Bulgaria with the inclusion of instruments falling into the category of “green” investments. The doctoral student tries to solve different optimization problems, making various assumptions and constraints when structuring specific portfolios of assets. The conclusion gives information about the results of the conducted research and the benefits that pension funds in our country would have with more serious attention to the different ESG risks. I believe that as a result of the conducted research and the methodology used, the doctoral student successfully defends the thesis set at the beginning.

2. Publications and participation in scientific forums

In connection with the development of the dissertation, the doctoral student has three participations in scientific conferences with published reports from them and two articles. There is compliance with the quantitative requirements for obtaining a PhD degree from IU - Varna.

3. Assessment of the structure and content of the dissertation

From the content of the dissertation, the following main conclusions can be drawn:

First. The dissertation has clearly formulated object, subject, goal and tasks, implying scientific research.

Second. I can confidently state that the doctoral student:

- knows the literature and scientific achievements in the scientific field, within which are the researched problems in the dissertation;
- well outlines the unresolved and partially solved problems related to green investments of voluntary pension funds in Bulgaria;
- undoubtedly demonstrates abilities for independent scientific research, critical understanding of existing scientific theses and defending her own positions;
- correctly interprets the results of her scientific research, as she formed and presented them understandably, logically and with the necessary precision.

Third. The presented empirical model with possible scenarios for optimizing the portfolios of voluntary pension funds by including in them assets related to green investing, demonstrates well the direction in which the investment activity of the funds for supplementary pension insurance could develop in the medium and long term.



Fourth. The presented abstract covers correctly all important results of the conducted research and meets the requirements for it.

Fifth. The vocabulary and writing style used are at a sufficiently high level for a dissertation for awarding a PhD degree.

4. Assessment of the scientific and scientific-applied contributions

The following important scientific-applied contributions can be identified in the dissertation:

1. A detailed classification of the types of green investments and the opportunities that exist for their inclusion in the portfolios of voluntary pension funds in Bulgaria is made.
2. An original model for optimizing the portfolios of voluntary pension funds in Bulgaria, by including in them assets for green investing, is presented.
3. A comprehensive assessment of the investment policy of VPFs in Bulgaria and the importance of green investments for the portfolios they manage is made.

I consider that within the framework of the dissertation, each of these scientific-applied contributions has received a sufficiently good and in-depth argumentation and deserves the corresponding high evaluation.

Plagiarism was not found.

5. Critical notes, recommendations and questions

Regarding the structure and content of the dissertation, I have no significant critical notes. My main recommendation to the doctoral student is to continue her research in this increasingly popular and important area, such as green investing, paying attention to the other risks from the group of ESG risks, namely social and governance ones. Based on her indisputable skills, she can contribute both to increasing the efficiency of the portfolios of pension funds in Bulgaria and to help increase the financial literacy and awareness of the general public in Bulgaria. I would ask the following questions to the doctoral student, which, if she wishes, she can pay attention to during the defence: by what criteria are included in Appendix 8 of the dissertation, the indicated "green" investments of VPFs in Bulgaria. To what extent are they really environmentally oriented? Does the doctoral student think that if pension funds are normatively forced to report separately all investments that are green-oriented and that meet certain criteria for such, this will increase their costs and have a negative impact on the achieved return?

Conclusion:

I consider that the dissertation presented to me for review entitled "**Green Investments of Private Pension Funds**" by **Milena Dimitrova Beneva** deserves a high evaluation and I undoubtedly support the awarding of a PhD degree to the author.

Date: 23.07.2023
Sofia

Prepared by:...

Заличена информация съгласно
ЗЗЛД и регламент (ЕС) 2016/ 679

/Assoc. prof. d-r Jeko Milev/

OPINION

concerning dissertation for awarding the educational and scientific degree "Doctor" according to an announced procedure from the University of Economics - Varna, in professional field 3.8 "Economics", doctoral program "Finance"

Opinion prepared by: Assoc.Prof. Hristina Wilhelm Blagoycheva, PhD, University of Economics - Varna, member of the scientific jury, approved by order of the Vice-Rector for RIPD of the University of Economics - Varna No. RD 06-55/23.05.2023.

Author of the dissertation: PhD student Milena Dimitrova Beneva

Dissertation topic: Green investments of private pension funds

1. General presentation of the dissertation

The presented dissertation is in full compliance with the requirements of Art. 27, para. 2 of the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria. Its total volume is 284 pages, including an introduction, an exposition in three chapters, a conclusion, a list of used literary sources and 18 appendices. The reference for cited and used literature covers 418 sources, of which: literary sources - 40 in Bulgarian and 340 in English; 19 normative documents and 19 websites.

Limitations and opportunities for future research are correctly indicated. A declaration of originality is provided.

2. Evaluation of publications on the dissertation

The doctoral student presents five independent scientific publications related to the dissertation work and reflecting essential aspects of its content. Three of them are papers presented at scientific forums. Two of the publications are articles, one of which was published in the journal Dialog, issue 4 of 2022, and the other in the journal Economic and Social Alternatives, issue 1 of 2023. This shows that the presented dissertation work is the result of a serious scientific -research activity, and some of the results in the dissertation are already available to the scientific community.

All requirements specified in Art. 35, para. 1 of the Regulations for the Development of the Academic Staff at University of Economics-Varna. The submitted certificate also proves compliance with the minimum national requirements for awarding the educational and scientific degree "doctor", according to Art. 2b, para. 2 and para. 3 of the Law on the development of the academic staff in the Republic of Bulgaria.

3. Assessment of the structure and the content of the dissertation

The topic is interdisciplinary and very appropriately combines the issues of sustainable development, social responsibility of business and the financial possibilities of private pension funds, as institutional investors, to support a sustainable and environmentally responsible investment. The relevance of the researched issues can be found in several directions: the need to counteract global environmental problems and climate changes in recent decades; the lack of sufficient investment for such countermeasures (annually the EU experiences a shortfall of 180 billion euros to meet its climate goals); the need to identify sustainable investment options. The lack of studies on the effect of the participation of green assets in the portfolios of pension funds and the lack of an adequate strategy for the incorporation of ESG factors in the investment process of the VPF in Bulgaria further determine the value of the present dissertation work.

The dissertation reading shows the deep penetration of the author into the problems of the researched area. The leading thesis of the study is that the environmental dimension of the investment policies of the voluntary pension funds in Bulgaria contributes to a more comprehensive assessment of risks and a better performance of their portfolios. The used toolkit, adapted by the author for the purposes of the research, leads her to the conclusion that even with the most conservative policy in terms of risk, green investments not only have a place in investment portfolios, but should form a significant part of them or even dominate. It can be said that the analytical reading of the literature and her own research allowed PhD student Beneva to outline the problem, draw correct conclusions and offer both adequate solutions and recommendations for further research.

The abstract (36 pages) adequately reflects the structure, content and main points in the dissertation. The contributions are correctly defined and comprehensively presented.

No plagiarism was found either in the dissertation or in the abstract.

4. Scientific and scientific-applied contributions of the dissertation

The dissertation itself is an original work containing valuable scientific and scientific-applied results. In general, the contributing moments can be systematized in two directions:

First. Theoretical – methodological contributions.

- After processing a significant amount of sources, the opinions of various authors available in the specialized literature and the terminologies used in the literature and regulations were studied and systematized.

- For the first time in Bulgaria, such a comprehensive study of the possibilities for including green investments in the investment portfolios of voluntary pension funds is being carried out.

- Taking into account the regulatory investment restrictions and the development of the capital markets, an in-depth assessment of the investment policy was carried out and the importance of green assets for the portfolios of VPF in Bulgaria was deduced.

- With the assumption that the voluntary pension funds in Bulgaria are risk-averse investors, the UMP/LPM algorithm is optimized according to the specifics of the optimization procedure. For adaptation purposes, author scripts have been developed for formulating the objective function, introducing constraints and setting additional options.

Second. Practical-applied contributions.

- The results and recommendations of the empirical research in the dissertation have a practical application for the formation of the portfolios and improvement of the investment policy of the VPF in Bulgaria.

- The proposed optimization of the UMP/LPM algorithm to the specifics of the optimization procedure is practically applicable to the investment portfolios of the voluntary pension funds operating in the country.

- A holistic approach is proposed for implementing the ecological dimension in the investment process of the VPF in Bulgaria, together with the possible channels of support from the Bulgarian Association of Supplementary Pension Security Companies.

5. Critical notes and recommendations.

Bearing in mind the indisputable scientific and practical-applied qualities of the dissertation I recommend the doctoral student to publish it as a book. In this way, it will be able to reach a much wider range of readers. And it can also provide valuable ideas and guidelines for the investment activities of private pension funds in Bulgaria.

6. Summary evaluation of the dissertation work and conclusion.

The dissertation contains scientific, scientific-applied and implementation results, which represent an original contribution to science and meet all the requirements of the Law for development of the academic staff in the Republic of Bulgaria (ZRASRB) and the Regulations for its application. The presented materials and dissertation results fully comply with the specific requirements of the Regulations for the Development of the Academic Staff at University of Economics-Varna.

The dissertation shows that the doctoral student Milena Beneva possesses in-depth theoretical knowledge and professional skills in Professional field 3. 8. Economics, demonstrating qualities and skills for independent research.

Due to the above, I confidently give my positive assessment of the conducted research, the achieved results and contributions, and I invite the esteemed scientific jury to award the

educational and scientific degree "Doctor" to Milena Dimitrova Beneva in the in the field of higher education 3. Social, economic and legal sciences; Professional field 3. 8. Economics; doctoral program "Finance".

Заличена информация съгласно
ЗЗЛД и регламент (ЕС) 2016/ 679

09.08.2023

Varna

Reviewer:

(Assoc. Prof. Hristina Blagoycheva, PhD)