To "D. A. Tsenov" Academy of Economics
Department of "Finance and Credit"

REVIEW

From reviewer (name, academic title and degree):
Prof. Dr. Andrey Zahariev from "D. A. Tsenov" Academy of Economics

Scientific specialty of the reviewer:
"Finance, money circulation, credit and insurance" (Finance)

Registration of the reviewer in NACID according to the procedure of ZRASRB and PPZRASRB (Register of academic staff and protected dissertation works in NACID): 01.12.2018

Peer-reviewed PhD author:
Doctoral student Emil Hristov Alexandrov, d010219215

Title of the dissertation:
" Financial and economic assessment of investments in the production of energy efficient building materials "

Unit where the doctoral student is enrolled:
Department of "Finance and Credit" at "D. A. Tsenov" Academy of Economics

Scientific specialty of the doctoral student and form of study:
Full-time doctoral student of training financed by the state under the doctoral program "Finance, monetary circulation, credit and insurance", Proffesional Field 3.8 Economics at the Department of "Finance and Credit" of SA "D. A. Tsenov"

Scientific supervisor of the doctoral student:
Professor Dr. Stoyan Prodanov, "Finance and Credit" Department at Faculty of Finance, "D. A. Tsenov" Academy of Economics

Reason for writing the review:
Order for composition of scientific jury No. 1127/22.11.2023 and Decisions, according to Protocol No. 1 / 24.11.2023 of a meeting of the scientific jury.

Regulations:
This review was developed in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria - ZRASRB, the Regulations for the Implementation of the ZRASRB - PPZRASRB and the Regulations for the Development of the Academic Staff in "D. A. Tsenov" AE.

1. Information about the dissertation student

Dosctoral student Emil Alexandrov was enrolled in the "Finance and Credit" department on December 1, 2019. During the doctoral studies, the topic was specified. The dissertation was successfully defended by Prof. Dr. Stoyan Prodanov. The doctoral student was dismissed by order 1124/22.11.2023.

2. General presentation of the dissertation work

This review has been prepared according to the sample structure of a review for the acquisition of the ONS "Doctor". It corresponds to the normative requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the applicable in CA "D. A. Tsenov" internal regulation.

The dissertation submitted for review examines insulating building materials that ensure energy efficiency. The dissertation is 250 pages long, incl. introduction, three chapters, conclusion, bibliography, list of author's publications, reference for compliance with the national requirements under the PP of ZRASRB, declaration of originality. Numerous tables and graphs are presented in the exhibition. The bibliography contains 107 sources. 4 publications, three articles, one co-authored and one report, were made on the subject of the dissertation work.

In the introduction, the actuality of the researched problem is justified, its dissertational basis is justified. The object of research in the dissertation work is the insulating building materials that ensure energy efficiency. The subject of research in the paper is the consumer attitude to search for insulating building materials for energy efficiency, which forms a positive financial and economic assessment for investments in their production.

The main thesis of the study is that "... the development of technologies for the production of insulating building materials forms a supply that ensures the demand from customers for financially and economically justified solutions for investments in energy efficiency projects of the building stock in an environment of high "green" goals deal" of the EU and dynamics of energy prices for end users.".

Doctoral student Aleksandrov sets the goal of the dissertation "... is to justify the demand for investments in the production of insulating building materials for the purposes of improving energy efficiency, by studying the theoretical-technological aspects of this process and the financial-economic impact of these investments on consumers. ".

In the dissertation, the solution of the following tasks is set:

□ First. To derive the theoretical statements of investments in energy efficiency.

□ Second. To justify the methodological framework and the management context in the process of implementation of projects in the field of energy efficiency.

□ Third. To conduct a survey of end-user attitudes towards investments in energy efficiency with scalable quality, production innovations in insulation materials and increasing demand for complex energy-efficient solutions with increased quality

and cost.

The methodology, on the basis of which the present work is carried out, is based on: literature review, historical research, analysis and synthesis, system analysis, retrospective data analysis, inductive-deductive method, verbal-graphic modelling, written research (survey). The survey results were processed using IBM SPSS Statistics with the application of descriptive statistics modules.

Chapter one covers a theoretical overview of the literature sources concerning the study of investments in energy efficiency. The main emphasis is placed on:

First. Theoretical and practical dimensions of energy efficiency investments and implementation.

Second. Nature and characteristics of energy efficiency and energy efficiency in buildings.

Third. European and national tools for short-term and long-term building performance.

Within the scope of chapter two, the methodological framework for carrying out a user study based on the assessment of energy efficiency investments is carried out. In addition to this, for the purposes of the optimal evaluation of investments, an overview of the possibilities of applying the methods and approaches for financial and economic evaluation of investments in energy efficiency was carried out. Structurally, the chapter focuses on:

First. Methodological framework for research and evaluation of investments in energy efficiency.

Second. Financial controlling in crisis conditions.

Third. Analysis of the state and trends of sector F "Construction" in Bulgaria

For the purposes of conducting a relevant scientific study, a survey questionnaire was prepared on the topic "Investments in energy efficiency". The survey is structured in nine sections and includes 70 questions. Almost half of the questions are subjective assessments using the Likert scale method. Each of the separate sections is logically structured for the purposes of conducting relevant research with the main object of energy efficiency. In addition to the survey, a comprehensive theoretical review of the possibilities for financial and economic evaluation of investments was carried out. On the basis of the built models, the output of results is achieved, on the basis of which the most suitable investment scheme and financing opportunities corresponding to the wishes of the investors can be chosen.

A detailed study of the main statistical indicators of sector F "Construction" was carried out, which helps to bring out more essential information about the state of the construction sector in Bulgaria, the need to build new options to improve the quality of construction in the country and the opportunities for investment in production of energy-efficient building materials, through which to improve the future condition of the building stock on the territory of the country, for the purposes of the efficient and comfortable residence of the users. showing the dynamism of individual industry segments. The considerable susceptibility of the sector to external influences, which positions it among the vulnerable economic sectors, is brought to the fore. The retrospective analysis of the dynamics and trends in the construction

sector show the need to strengthen the integration of energy efficiency in the Bulgarian construction sector. A possible option for this is the construction of an integrated installation for the production of high-quality energy-efficient building materials, through which to achieve accessibility on the Bulgarian market to a similar type of building materials, as well as a high degree of sustainability and adaptability to European energy standards. In this way, the transformation of the sector into a highly efficient, energy-saving and carbon-neutral oriented one could be achieved.

In the third chapter, the results of the conducted large-scale survey are mainly presented, and the information obtained from the survey is applied in a practical aspect for the financial evaluation of state investments to support the increase of energy efficiency in Bulgaria. Structurally, chapter three contains:

First. Description of respondents, motives for investments in energy efficiency and budgeting of energy needs.

Second. Environmental aspects, insulation technology and budget for energy efficiency.

Third. Grant programs and technology efficiency, impact of the COVID-19 pandemic and social attitudes towards energy efficiency.

Fourth. Financial evaluation of state investments to support the increase of energy efficiency in Bulgaria.

3. Evaluation of the obtained scientific and scientific-applied results

The tasks set in the dissertation can be assessed as correctly completed. For the purposes of the abstract, a minimum of five contributions, of a scientific and scientific-applied nature, can be presented. They are proof of a motivated doctoral student guided by the department and scientific supervisors. An authentic methodology with the highest degree of econometric analysis is applied, which is the basis for scientifically sound results and contributions.

4. Evaluation of the achieved theoretical, theoretical-applied and empirical contributions

The conclusions stated in the conclusion are evaluated as original and scientifically substantiated. As a result of the retrospective analysis of the dynamics and trends in the construction sector in Bulgaria, the need to strengthen the integration of energy efficiency in the Bulgarian construction sector is shown. A possible option for this is the construction of an integrated installation for the production of high-quality energy-efficient building materials, through which to achieve accessibility on the Bulgarian market to a similar type of building materials, as well as a high degree of sustainability and adaptability to European energy standards. The survey results are valuable, professionally processed and have a high degree of applicability in theory and practice.

Conclusion: The author uses a professional scientific approach for his research hypotheses. It applies a classic scheme for structuring the dissertation in three chapters, supported by modern methodology and up-to-date empirics. The rules of scientific ethics have been strictly followed, and a corresponding originality document has been signed. A broad awareness of the achievements of scientific

thought in the researched area and a rich practical-applied awareness are considered. The research methods used are at the highest scientific level. The assessment of established scientific contributions is positive. Through them doctoral student Emil Alexandrov demonstrated qualities and skills to systematize, research, model, problematize and prove. The professional scientific support from the scientific supervisor Prof. Dr. Stoyan Prodanov is visible at every stage of the research.

5. Evaluation of dissertation publications

Four publications are presented in support of the dissertation, incl. presented at authoritative scientific forums. I believe that they correctly reflect the scientific potential of the author and support the popularization among the scientific and professional community of the main contributions and achievements in the work of the doctoral student.

6. Criticisms, recommendations and questions

They are not placed.

7. Conclusion

There is a successful doctoral program leading to dissertation research with high econometric complexity, publications and scientific appearances. The support from the research supervisor is visible and positive in all sections and directions.

On the basis of all the above, I express a positive conclusion - "FOR" giving a defense move for the awarding of the educationa and scientific degree "doctor" in Economics to Dr. Emil Hristov Alexandrov from the "Finance and Credit" Department of the "D. A. Tsenov" AE.

11.12.2023
Svishtov

Reviewer: .....
/Prof. Dr. Andrey Zahariev/