

SCIENTIFIC RECENSIA

by Prof. D.Ec.Sc. Rositsa Rangelova Pavlova,
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member of a scientific jury in a competition for the academic position of "professor" in professional direction 3.8 Economics (Risk management, e-governance and digital economy in Bulgarian and English), Sofia University (SU) "St. Kliment Ohridski", Faculty of Economics, announced in the State Gazette, no. 24 of 17.03.2023, approved by decision of the Faculty Council, Protocol No. 10/09.05.2023 and Order of the Rector No. RD-38-238/11.05.2023

Only candidate: Associate Professor, Doctor of Economic Sciences Anton Antonov Gerunov

I. Brief biographical data

Anton Gerunov received a diverse education in subjects and countries: Bachelor of Integrated Social Sciences, Jacobs University in Bremen (Germany) - 2006-2009; Master of Economics with a focus on data analysis at SU "St. Kliment Ohridski" (2009-2011); receiving the ONS "doctor" with a dissertation on the topic: "Dynamics of the main macroeconomic variables in the conditions of heterogeneous expectations" at SU (2012-2015), master of computer and system sciences with a focus on open e-governance at Stockholm University, Sweden (2017 -2019). Since 2017, he is an associate professor in PN 3.8 Economics (Risk Management and Methods for Public Policy Analysis in Bulgarian and English). In 2020, he defended his dissertation at the Faculty of Economics of the University of St. Kliment Ohridski" for awarding the scientific degree "Doctor of Sciences" on the topic "Automated approaches to operational risk management".

D.Ec.Sc. Anton Gerunov is currently employed as Associate Professor of risk management and quantitative methods for public policy analysis at the Faculty of Economics of the Sofia University of St. Kliment Ohridski". He has been employed there since 2011 as a part-time employee, and since 2013 until now - on a main employment contract, initially as an assistant, since 2015 - chief assistant, and since 2017 - associate professor. He lectures on digital business models and processes, economics of artificial intelligence, IT service management, finance, research methods, etc.

He has specialized, attended seminars or participated in workshops and other forums in a number of authoritative organizations in the country and abroad: Washington (USA), Zagreb (Croatia), France, BNB, etc.

Anton Gerunov carries out active and diverse activities in business organizations and other institutions with the aim of increasing qualifications, obtaining new knowledge and realization. He is a business analysis and modeling consultant (2009-2011), an IT and innovation advisor to the Council of Ministers of the Republic of Bulgaria (2011-2012). He participated in a working group for the construction

of an Architectural Framework of e-Government in Bulgaria as a leader of the New Technologies subgroup (2017-2018), in a working group at the Ministry of Education and Culture as a consultant for the strategy for using artificial intelligence in education (May-July 2019) etc.

This is far from a complete list of his professional employment, but these biographical data show correctness in the request of Anton Gerunov and speak of a life saturated with active activity and expert work on his part as a candidate for the academic position of "professor".

II. General characteristics of scientific and scientific-applied works

With a declared total number of publications of 52, Associate Professor Anton Gerunov declares 20 of them for participation in the competition for the occupation of the academic position "professor" in PN 3.8 Economics (Risk management, e-governance and digital economy - in Bulgarian and English). It is noteworthy that only 4 of them are in Bulgarian. His habilitation thesis on the topic of risk analysis in the digital age, published by the authoritative Springer publishing house, is also in English.

Of the remaining 19 publications, according to his classification, there are: 2 studies published in scientific publications, referenced and indexed in world-famous databases with scientific information; 5 articles and reports published in scientific publications, referenced and indexed in world-famous databases with scientific information; 7 articles and reports published in non-refereed peer-reviewed journals or published in edited collective volumes; 3 articles and reports published in non-refereed peer-reviewed journals or published in edited collective volumes and 2 are published university textbooks or textbooks that are used in the school network. Of these 20 publications, 18 are independent and only two are co-authored with colleagues from the Faculty of Economics (No. 3 and No. 5). His works find a place in Bulgaria - the editions of SU, including the yearbook of Sofia University "St. Kliment Ohridski", journals such as "Economic Studies" of the Economic Research Institute at the BAS and also in internationally known journals such as: Economics and management, Journal of Behavioral and Experimental Economics, Journal of Economic Boundaries and Transformation, etc.

Regarding participation in projects such as scientific and scientific-applied activity, Anton Gerunov participates in a number of scientific research projects and scientific conferences. In recent years, he has been managing 3 scientific research projects for the "Scientific Research" fund of the SU: "Assessment of the risk of an increase in inflation after the introduction of the euro in the Republic of Bulgaria through an experimental study of the expectations of economic agents", contract No. 80-10- 42/25/04/2023; "Information overload when making economic decisions", contract No. 80-10-105/25.03.2021; "Identification of anomalous user behavior in the online environment", contract No. 80-10-204/28.04.2020.

Within the past five years, Anton Gerunov carried out active teaching activities on a permanent employment contract in 8 academic disciplines corresponding to the topic of the competition for the academic position "professor" (3.8 Economics (Risk management, e-governance and digital economy in Bulgarian and English). In the candidate documents is given the following indicators related to the courses taught: for Bachelor programs: Money, Banks and Financial Markets (Faculty of Economics and Philosophy) and Economic Aspects of the Information Society (Faculty of Philosophy); for Master: programs: Online Marketing Studies, Digital Business Models and Processes (in English), Economics of Artificial Intelligence, IT Service Management (ITIL Foundation), Risk Management (in English) in the Faculty of Economics. The

lectures are between 60 and 90 teaching hours. The total employment of the candidate - classroom and extra-auditory - during the period 2018-2022, with some fluctuations, increases strongly (almost twice), both in the winter and in the summer semester.

From 2017 until now (mainly in 2021) he was the supervisor of 8 master's theses. In addition, he is the supervisor of one PhD student who successfully defended his thesis (2021), and two others are yet to do so.

The subject matter of the scientific production and activity described so far totally covers thematically and exceeds that set for the competition.

III. Quantitative characteristics of scientific works

The fulfillment of the minimum national requirements of the Ministry of Education is a condition for admission to participation in the procedures under the ZRASRB. The most general comparison of the quantitative characteristics of Anton Gerunov with the minimum scientometric national requirements for area 3. Social, economic and legal sciences, professional direction 3.8. Economics directs to the following conclusions. Logically, for some of the indicators, equal, satisfying points are declared, respectively A - dissertation work for ONS "doctor" - 50, B for "doctor of economic science" - 100 and C - habilitation work, monograph - 100. For all other groups of indicators, the applicant's points significantly exceed the minimum requirements, for example, for indicators of group D (sum of indicators from 4 to 10), that is, scientific publications, the sum of indicators is 215, and the candidate presents 317.5. The same is the case with groups of indicators D (sum of indicators from 11 to 13), that is, citations where the author has many times higher than the minimum requirements, and by group of indicators E (sum of indicators from 14 to 21), that is, training of PhD students, participating in projects and writing teaching aids the author's achievements are significant but more modest. As a result, with a total number of minimum required points of 820 (according to some sources), the author reports about 901.5 points. This gives me full reason to assume that the candidate Anton Gerunov meets the set of quantitative criteria and indicators for the occupation of the academic position of "professor" according to ZRASRB.

A very strong point of Assoc. Anton Gerunov is the great interest in his scientific production reflected by the indicator D for citations. He offers a list of 106 citations of his scientific publications in the period 2015-2023, making a strong impression on the large share of citations by foreign authors, mainly in English (77 out of a total of 106), incl. famous authors from different countries not only in Europe, but also and from institutions such as the National Statistics of Colombia, etc. During this period, the peak of citations is in 2019-2022. Here the point is that there is no overlap of the claimed citations with those given in the defense of his dissertation for "doctor of economic sciences" in 2020. This represents him excellently as an author, which carries out successful research that arouses interest among the scientific community and influential governing institutions, and thus contributes through international scientific transfer to the dissemination of economic ideas and solutions.

IV. Evaluation of results and scientific contributions

I accept the claims made by Anton Gerunov for original scientific contributions. He successfully separates them into three groups, which are in the field of macroeconomic analyzes and policies, risk management (mainly in publications No. 1, 2, 4, 7, 10 and 11), e-governance (publications No. 6, 12, 13, 14, 17 and 18), digital economy (publications no. 3, 5, 8, 9, 15 and 16) and the teaching of economic theory. This topic is fully covered with the one announced for the current competition.

The contributions have a theoretical, scientific-applied nature and those related to the educational process. They are described clearly, fully and according to established criteria. I would briefly summarize them like this:

As noted, the habilitation thesis "Risk Analysis for the Digital Age", 2023, 256 pages is in English, published by the authoritative publisher Springer. It contains original contributions that can be both scientific and predominantly scientific-applied in nature. Specifically, the contributions consist of the following:

Contributions of a theoretical (scientific) nature: a network risk model was created for the digital sectors of the European economy; a new approach to risk assessment in cryptocurrency trading is proposed, using the standardized trading volume as an indicator of liquidity risk; the need to use non-Gaussian distributions to model digital risks is shown and quantitatively illustrated by the calculation and comparative analysis of four alternative Monte Carlo models; it is proposed to use a Markov model to determine the optimal number of alternative modes in the study of digital phenomena; it is outlined an optimal model for predicting economic decisions under uncertainty among a set of models based on 55 leading machine learning algorithms and others.

Contributions of a scientific and applied nature: the long-term risk premiums for 26 European financial markets over a period of one and a half decades have been calculated; different approaches for calculating Value at Risk (VaR) and Expected Tail Loss (ETL) measures are compared and the use of non-parametric methods as the optimal approach is justified; the application of a new approach to risk management in crypto-currency trading is demonstrated by moving from the classical two-dimensional optimization space (expected return and risk) to a three-dimensional one that includes the trading volume; ; an economic-psychological experiment conducted (in collaboration with other scientists) and analysed is described, which shows the significant impact of the online environment on decision-making and risk perception among economic agents; based on the results of prognostic models, it is shown that when economic agents act in virtual social network conditions, their decisions are more inconsistent and more unpredictable, etc.

Further on I will make my own commentary on the author's scientific and scientific-applied contributions, dividing the 20 publications presented by him into several groups with the proviso that there may be some overlap in topics. Publication No. 2 (2023) of the list submitted by the candidate deepens the research in the monographic work, i.e. Publication No. 1 (2023), having the following contributions of its own: computes an optimal hidden Markov model for a set of European stock markets and shows that such a model is confirmed by the empirical data. Such a model could help investors in European financial markets to diversify their risk. Publication No. 4 (2022) expands on the approach presented in Publication No. 1, Chapter 3 and further contributes, by defining new adjusted risk measures.

Several publications address theoretical and applied (experimental) issues on decision-making by economic agents as under conditions of finite uncertainty (Collective Publication No. 3, 2022). In the latter, from a methodological point of view, a new experimental condition is justified - participation in virtual social networks, which will facilitate a better understanding of human behavior in an online environment. Another collective publication (No. 5, 2021) proposes and applies an approach to measuring informational complexity within the framework of an economic-psychological experiment, where it is proven that reducing the complexity of the context when making an economic decision does not necessarily lead to improve its quality. Two of the publications are devoted to the topic of risk. Publication No. 11 (2021) examines quantitative approaches to operational risk management in the financial sector.

Several articles are devoted to e-governance issues. The main contribution of publication No. 6 (2019) is that, through a survey of attitudes towards the implementation of e-government solutions, it is shown that in the Bulgarian context the main success factors are the development of human resources and the appropriate organizational context. Another similar paper (No. 12, 2020) presents further evidence to support the hypothesis that e-government helps create public good by supporting democratic rights and freedoms. Publications No. 9 (2022) and No. 13 (2020) are similar in meaning. Publication No. 14 of 2022 proposes a new methodology for applying Privacy by Design (PbD) principles and practices in the development of information systems for e-government needs. The proposed methodology has been tested by applying it to a real e-government project in Bulgaria and taking into account the evaluations of a set of stakeholders in the project and external experts.

A considerable part of the publications is devoted to the issues of modeling (models) and forecasting of the studied processes. Publication No. 16 (2023) proposes an approach to modeling an AI-driven economy, assuming that all decisions of this system follow the principles of perfect rationality. In Publication No. 7 (2023), the contribution is mainly methodological, by analyzing the forecasting accuracy of a set of forecasting algorithms, the optimal algorithm for modeling the probability of bankruptcy is outlined. It is shown that the considered algorithms are only suitable for short-term forecasts. Also claiming to contribute to the methodology is Publication No. 10 (2021), which, through a comparison of alternative approaches to calculating value at risk under conditions of significant market dynamics, argues that parametric approaches based on a normal distribution lead to more accurate estimates relative to nonparametric approaches. Scientific and applied contributions on this topic could be found in publications No. 8 and No. 15 of 2022.

Two of the 2020 publications (No. 17 and No. 18) explore data protection principles and strategies for their implementation in IT systems, with contributions of a scientific-applied nature. The two mentioned 2023 study aids (No. 19 and No. 20) present traditional topics in finance, banking and business analysis.

In summary, I will note several highly positive points regarding the scientific contributions of Anton Gerunov. The publications requested for participation in the competition are strictly on the topic, they are saturated with current content and prospective research approaches and were made in the last two or three years, that is, after the defense of his doctoral dissertation for the scientific degree "Doctor of Economic Sciences".

V. Evaluation of the originality of the presented works and the reliability of the presented scientific data

Anton Gerunov has a certain innate and/or developed sense for innovative topics - an ability to see the emergence of new important phenomena and trends in the financial and economic reality on a national and international level. The combination of scientific and teaching work with that in business, together with his personal qualities of showing scientific interest and skills to empirically analyze and test, and also to summarize the observed processes, have given him the opportunity to develop his scientific qualification and qualities of an expert. Related to this is the originality of the research he has done and published on current and prospective issues such as risk management, e-governance and the digital economy. The positive thing is that the author stands on a solid foundation of classical economic theory.

VI. Critical notes and recommendations

I have no substantive critical remarks towards Anton Gerunov. On the contrary, I can only congratulate him for his active scientific, scientific-applied and pedagogical activity, along with his attitude to correctly navigate the upcoming trends in the development of science and teaching and apply them. Another feature I would like to point out is respecting the opinion of colleagues when criticizing and considering the notes made. I also have personal impressions of this in my capacity as an anonymous reviewer of his articles in the publications of the Institute for Economic Research at the BAS. I personally know him recently and my impression is confirmed.

VII. Conclusion

Anton Antonov Gerunov is an established researcher and expert, as well as a teacher with his presence in the scientific circles in the country, active participation in national and international scientific and scientific-applied projects, participation in scientific forums and seminars in the country and abroad, successful university teaching activity. This is proven by the attached documents according to Art. 29, para. 3 of Law on the Development of the Academic Staff of the Republic of Bulgaria. Associate Professor, Doctor of Economic Sciences Anton Antonov Gerunov meets the requirements to occupy the academic position of "professor" in professional direction 3.8 Economics (Risk management, e-governance and digital economy in Bulgarian and English). The requirements and procedure are also observed according to the Regulations for the terms and conditions for acquiring scientific degrees and occupying academic positions at SU "St. Kliment Ohridski" (Section V, Article 115).

All this gives me reason to express with full conviction my positive attitude towards the election of Associate Professor, D.Ec.Sc. Anton Antonov Gerunov for the academic position of "Professor" in professional direction 3.8 Economics (Financial Crises and Markets in Bulgarian and English) at the Faculty of Economics of SU "St. Kliment Ohridski".

27 July 2023

Reviewer:

(Prof. Rositsa Rangelova, D.Ec.Sc.)