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Habilitation Doctor Degree in **Economics**

Doctor Degree in **Economics**

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## **Review of the doctoral dissertation of**

**Mr. Mehran Najmaei, PhD**

entitled **„Sustainable product attributes and export performance of German manufacturing SMEs from the international entrepreneurship perspective “**

written under the scientific supervision of prof. dr hab. Krzysztof Wach

at the Krakow University of Economics

in the scientific discipline of economics and finance.

### **1. Legal basis for the review**

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The basis for the review of Mr. Mehran Najmaei's doctoral dissertation entitled **„Sustainable product attributes and export performance of German manufacturing SMEs from the international entrepreneurship perspective“**, prepared under the scientific supervision of prof. dr hab. Krzysztof Wach, is a letter marked with the reference number RDC.600.50P.1.2025 Krakow, signed by Prof. dr hab. Stanisław Popek, Director of the Doctoral School of the Krakow University of Economics, from 19 March 2025.

I was appointed as a reviewer of the doctoral dissertation by the resolution of the Council for Academic Discipline of Economics and Finance of 17 March 2025. The review was prepared based on the Act of July 20, 2018 on academic degrees and titles and on degrees and titles in the field of art (Journal of Laws of 2023, item 742) and the Law on Higher Education and Science (Journal of Laws of 2018, item 742). pos. 1669).

## **2. Evaluation of the relevance of the thesis**

This doctoral dissertation is an original and significant scientific study examining the impact of sustainable product attributes on the export performance of German small and medium-sized enterprises (SMEs) from the perspective of international entrepreneurship. Mr. Mehran Najmaei undertook an interdisciplinary study, integrating issues related to the internationalization process, innovation, and sustainable development. This work fits into the current research on sustainable management and the competitiveness of companies in foreign markets, which makes the topic particularly important in the context of contemporary research in the field of economics and finance.

The dissertation is characterized by a high substantive level and significant cognitive value. The author conducted a comprehensive literature review, covering theories of SME internationalization, international entrepreneurship, and the impact of sustainable development on export performance. Key concepts such as entrepreneurial orientation (EO), market orientation (MO), and the impact of product attributes on export performance have been discussed in detail and supported by extensive literature.

SMEs are the backbone of European economies, including Germany, contributing significantly to the growth of added value, exports, and employment. They also play a key role in the process of internationalization and economic development. In the context of the growing importance of sustainable development and social responsibility, the choice of the research topic by a PhD Candidate, focusing on sustainable product attributes, should be considered relevant and timely. The issues presented are not only innovative but also of great practical value, especially in the context of the German market, a leader in export and eco-innovation.

Based on the analysis of the literature on the subject, the author points to the insufficient number of studies, as well as the existing research gap regarding the relationship between sustainable development and export market orientation. Given the fact that SMEs are a key element of economic structures, especially in developed countries, their ability to internationalize their activities is of great importance for maintaining the pace of economic growth. Filling this gap is important to better understand the extent to which companies should allocate limited resources towards export market orientation and develop innovative capabilities in the field of creating products with sustainable features.

### **3. Evaluation of the research assumptions - aim of the work, research hypotheses, research method**

The aim of the PhD thesis is presented in the introduction, with research gaps, research questions, research objectives, and established hypotheses.

PhD Candidate identified 5 research gaps (page 14):

1. Lack of insights on the internal relations of export performance namely, financial performance strategic performance and satisfaction with export activities.
2. Although that many studies investigated the relationship between sustainable strategies and export performance, yet only few addresses the social aspects of sustainable product or services.
3. Lack of comprehensive models to investigate, operationalise both environmental and social aspects of sustainability.
4. Although researchers investigated the impact of EO on export performance, but less attention paid on the impact of EO on the financial and strategic performance.
5. Sustainability is a new trend and there are not enough studies on the link between sustainability and export market orientation.

The **main objective** of the doctoral dissertation is to identify key internal determinants within Entrepreneurship Orientations (EO), Sustainable Product Attributes (SPA), and Export Marketing Orientation (EMO) that contribute to the successful export performance of German SMEs in manufacturing through the application of empirical methods.

In order to fill in the mentioned research gaps in understanding the impact of SPA and EO on export performance, exploring the interrelationships among the export performance dimensions, and determining if EMO influences SPA, the PhD Candidate developed 5 Research Objectives (O) and set 4 main Research Questions (RQ). Relations between Research Gaps, Research Objectives, and Research Questions are described in Table 1 (page 16), as well as with the presentation of the main assumptions of the research in Table 8 (page 112).

Proposed research questions were:

**RQ1.** How does German manufacturing SMEs' financial and strategic performance influence managers' satisfaction?

**RQ2.** How does German manufacturing SMEs' sustainable product attributes influence its export's performance?

**RQ3.** How does German manufacturing SMEs' entrepreneurial orientation influence its export's performance?

**RQ4.** How does German manufacturing SMEs' export market orientation influence its sustainable product attributes?

Within the main objective, the PhD Candidate also presented a **detailed objectives** (presented and discussed in the indicated Chapters):

**O1:** to present and discuss of the firm-level internationalization and sustainability empirical research (Chapter 1).

**O2:** to prepare a review of prior knowledge on internal determinants export performance of SMEs and its academic discussion (Chapter 2).

**O3:** to develop the research framework for empirical studies linking SPA, EO & EMO to SME's export performance including the selection of the variables and data analysis approach arising from the results of the preceding analysis of research fields (Chapter 3).

**O4:** to present results of statistical analysis and to identify the main determinants among the researched variables that significantly enhance German SMEs' export performance in manufacturing industry (Chapter 4), in particular:

**O4.1:** to understand the interrelationship among the export performance different dimensions.

**O4.2:** to explore the impact of SPA on different dimensions of EP.

**O4.3:** to explore the impact of EO on EP

**O4.4:** to explore the relation between EMO and SPA

**O5:** to explore and discuss relevant research limitations of the study as well as making suggestions for further studies (Chapter 5).

In addition, the PhD Candidate formulated and tested the following 8 hypotheses:

**H1:** SMEs' financial performance impact on satisfaction with export operation in the German manufacturing industry.

**H2:** SMEs' strategic performance impact on satisfaction with export operation in the German manufacturing industry.

**H3:** Sustainable product attributes impact on financial performance in the German manufacturing industry.

**H4:** Sustainable product attributes impact on strategic performance in the German manufacturing industry.

**H5:** Sustainable product attributes impact on general satisfaction with export operation in the German manufacturing industry.

**H6:** Entrepreneurial orientation impacts on financial performance in the German manufacturing industry.

**H7:** Entrepreneurial orientation impacts on strategic performance in the German manufacturing industry.

**H8:** Export market orientation impacts on the SMEs' SPA in German manufacturing industry.

Both the main objective and the detailed objectives were not only correctly adopted, but after reading the entire dissertation, I can state that they were fully achieved by the PhD Candidate.

To achieve the above-mentioned goals PhD Candidate applied different research methods: desk research, designing a research model, empirical research, including pilot studies and extensive data collection via the Computer-Assisted Self-Interviewing (CASI) questionnaire and via Computer-Assisted Web-Interviewing (CAWI). An electronic questionnaire was used to collect data, which was attached to the doctoral dissertation (English and German version). A survey of 178 German manufacturing SMEs was used as the basis for this doctoral dissertation. The PhD Candidate used Structural Equation Modelling (SEM) via SmartPLS4. The summary of research methodology assumptions was presented in Table 1 and in Table 8. It is worth underlining the fact that the PhD Candidate presented the summary of hypotheses verification in a very clear way (see Table 65). In the study eight hypotheses were used to investigate the impact of EO, SPA and EMO on FP, SP, and SAT of German manufacturing SMEs. Based on the findings, manufacturing SMEs' FP and SP in

Germany will be influenced by their EO. As it is also revealed in the study, SAT significantly affects and is dependent on SMEs' FP and SP. Furthermore, SMEs' strategies toward SPA influence their FP positively, whereas such strategic approaches do not lead to SP or satisfaction of export managers. Therefore, two hypotheses were rejected in this study. Lastly, SMEs' EMO significantly influenced SMEs' SPA strategy. As Table 65 shows, 4 hypotheses (H1, H2, H7, and H8) were approved at the significant level of 0.001. Two other hypotheses (H3 and H6) were accepted at the significant level of 0.05, and two hypotheses (H4 & H5) were rejected.

The research approach used is well thought out and well justified. The author used both quantitative and qualitative approaches, combining the analysis of empirical data with an extensive literature review. The research model was carefully designed, and the hypotheses adopted are logically justified and empirically verified on the basis of data from German SME exporters.

The theoretical derivation, the derivation of the research objectives, the identification of the research questions, the setting of the hypotheses as well as the development of an appropriate methodological framework allow us to conclude that the PhD Candidate has a very deep knowledge and is very well versed in the literature and previous research related to international entrepreneurship, SME entrepreneurial orientation and theories of sustainable development (with particular emphasis on sustainable product attributes). This can be seen, among other things, in the theoretical approaches presented or in the development of the assumptions of the methodological framework. The methodological section explains in detail all the variables implemented in the model, including the theoretical underpinnings. In my opinion, the research methods have been selected adequately for the objectives set. It is noteworthy that the statistical analysis has been carried out with due care, and the results are well documented and supported by appropriate statistical tests.

In conclusion, I highly assess the methodological elements of the dissertation of Mr. Mehran Najmaei (research objectives, research questions, hypotheses, and research methodology).

#### 4. Evaluation of the structure of the PhD research

The PhD thesis of Mr. Mehran Najmaei is well presented. The structure is logical. The thesis consists of the introduction and 5 chapters. We can distinguish three main parts:

1. The theoretical part (Chapters 1-2) discusses the theoretical foundations of internationalization, export strategies, and sustainability in the context of SME activities.
2. The empirical part (Chapter 3) presents the research model, hypotheses, and a detailed description of the research methodology used.
3. The analytical part and conclusions (Chapters 4-5) contain the results of the empirical research and their interpretation in the context of business theory and practice.

Chapter 1 (*Internationalization from theoretical perspective, p. 19-58*) presents and discusses the main ideas and theoretical concepts of firm-level internationalization and sustainability in empirical research. In addition to covering the definition and history of related theoretical frameworks, it also explores the behaviour of SMEs in international markets.

Chapter 2 (*Determinants of Small and medium-sized enterprises' export performance, p. 59-102*) presents and discusses the concepts of export performance, sustainable product attributes, entrepreneurial orientation, and export market orientation in the literature. Through levels of analysis, dimensions, and measurement models, export performance is contextualized. Following this, it analyses the literature in depth on three internal determinants: entrepreneurial orientation, sustainable product attributes, and export marketing orientation. It explores their emergence, definition, and overview of their related dimensions, as well as how to measure them.

Chapter 3 (*Research methodology linking sustainability and export performance of SMEs, p. 103-125*) discusses how empirical research frameworks are developed by linking sustainable product attributes, entrepreneurial orientation and export marketing orientation (independent variables) to different dimensions of export performance including financial, strategic and managers' satisfaction (dependent variables), through the conceptual model.

Furthermore, this chapter outlines the objectives, detailed hypotheses, research methods, and variables to be collected for empirical analysis.

Chapter 4 (*Empirical findings linking sustainability and export performance of German SMEs, p. 126-160*) provides the results of statistical analysis to determine the relationship between sustainable product attributes, entrepreneurial orientation, and export marketing orientation and the dependent variables such as SMEs' financial, strategic performance and managerial general satisfaction. Analyses are presented based on descriptive statistics, reliability tests, bivariate correlation analysis, and linear regression analysis.

Chapter 5 (*Discussion of empirical results, p. 160-185*) makes a deep dive into the findings and provides discussion around the empirical findings. The chapter explores the implications of the results, verifies them with existing literature, and highlights any discrepancies. Conclusions include a discussion of empirical findings, limitations, recommendations for future research.

The whole study ends with the final conclusions, as well as the list of literature, figures, tables, and annexes with questionnaires. The dissertation is of a theoretical and empirical nature, and the internal structure of particular chapters is correct and logical.

## **5. Formal comments and editing of the work**

The PhD dissertation by Mr. Mehran Najmaei has been prepared with great editorial care, taking into consideration the figures, tables, and text editing. Figures and tables are correctly titled, numbered, and sourced. The thesis is well-structured. The internal structure of particular chapters is correct and logical.

## 6. Final conclusion

Summing up, I evaluate the reviewed doctoral dissertation very positively, and the undoubted advantages of this dissertation include:

- The author correctly identified the key variables influencing export performance,
- The research methods were selected adequately to meet the set goals.
- The statistical analysis was performed with due care, and the results are well documented and supported by appropriate statistical tests.
- The author took into account the results of qualitative interviews, which allowed for a better understanding of the mechanisms shaping the export performance of SMEs.
- The dissertation makes a significant contribution to both the theory of international entrepreneurship and business practice.
- The PhD thesis makes a significant contribution to the development of scientific knowledge by proposing a comprehensive research model combining three key variables: entrepreneurial orientation, export market orientation, and sustainable product attributes.
- The topics addressed are current and important, especially in the context of the growing emphasis on sustainable development and eco-innovation in the SME sector.
- The research results can serve as a basis for formulating business strategies and recommendations for exporting companies.

The subject of the doctoral thesis concerns the analysis of the impact of sustainable product attributes on the export performance of German small and medium-sized enterprises (SMEs) from the perspective of international entrepreneurship. This topic is extremely relevant in light of global trends regarding sustainable development, the growing importance of corporate social responsibility (CSR), and the growing pressure on companies to reduce their environmental footprint. The presented issues are not only innovative but also of high practical value, especially in the context of the German market, a leader in exports and ecological innovations.

Mr. Mehran Najmaei has demonstrated a profound and comprehensive command of contemporary theories in management and international entrepreneurship. His deep engagement with the relevant literature and ability to critically assess and integrate modern theoretical perspectives confirm his academic maturity and subject-matter expertise.

Through a rigorous critical literature review, the PhD candidate successfully identified a significant research gap and precisely formulated research questions and hypotheses aligned with contemporary academic and practical challenges. His work is methodologically sound and well-structured: he developed a valid and theoretically grounded research model, executed a robust and well-managed primary data collection process, applied advanced analytical techniques to test hypotheses, and offered a thoughtful and coherent interpretation of the results. The author has demonstrated great proficiency in using modern research methods. The choice of Structural Equation Modeling (SEM) using SmartPLS4 is fully justified, considering the multidimensionality of the variables studied. Correctly formulated research hypotheses, well-thought-out operationalization of variables, and an accurate selection of the research sample (178 German SMEs) confirm the high methodological level of the work. The author also carried out a proper verification of the measurement model and the structural model, analyzing the reliability, validity, and fit of the model to the empirical data. These achievements reflect not only solid methodological competence but also independent and strategic thinking.

The dissertation stands out in terms of scientific merit and offers high cognitive value. It contributes meaningfully to the discourse on sustainable international entrepreneurship and the role of SMEs in global markets.

In light of the above, I conclude that Mr. Mehran Najmaei's doctoral dissertation fully meets the formal and substantive criteria required for the conferral of a doctoral degree in the field of social sciences, within the discipline of economics and finance. I therefore recommend that the dissertation be accepted and that Mr. Najmaei be permitted to proceed to the subsequent stages of the doctoral defense process.

Furthermore, due to the scientific significance of the research problem, the innovative character of the study, its contribution to international business development, and the overall high quality of the dissertation, I strongly support the awarding of the **doctoral degree with distinction**.



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Written in Poznań on 29 April 2025