

**BUCHAREST UNIVERSITY OF ECONOMIC STUDIES**

**DOCTORAL THESIS**

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Title of the doctoral thesis:

**The Perspectives of Offshore Financial Centers and Shadow  
Banking Systems**

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Key words:

**offshore financial centers, tax haven, PCA, unsupervised  
classification, cluster analysis, financial analysis, tax avoidance,  
shadow banking, panel model**

## **English Summary:**

The structure of the thesis is organized in five chapters, each addressing essential aspects of the research topic, providing a detailed and well-founded analysis of the central topic, which is the recognition of forms in the context of phenomena specific to financial markets, with a special focus on offshore financial centers (OFCs) and phantom banking systems. Each chapter contributes to the development of an in-depth understanding of the subject, combining both theory and practical applications.

**Chapter I: The Necessity and Purposes of Identifying Activities in Offshore Financial Centers and Through Shadow Banking**

The first chapter explores the fundamentals and motivations for the emergence of offshore financial centers and shadow banking systems, highlighting the crucial role that economic expansion and globalization have played in the development of these entities. A brief history of these structures is provided, highlighting the close links between OFCs and shadow banking and analyzing their impact on the Romanian economic environment. The chapter thus lays the theoretical and contextual foundations necessary for a comprehensive understanding of the phenomena discussed in the doctoral thesis.

**Chapter II: The state of research and international concerns in the field of OFC and Shadow Banking**

This chapter provides an extensive review of the literature, looking at key contributions and gaps in previous research. International perspectives on OFCs and shadow banking are discussed in detail, with a focus on concerns related to regulation, transparency and global financial stability. This chapter establishes the theoretical foundation for further research, placing the discussion in an international context and highlighting the global relevance of the topic.

**Chapter III: Methods and techniques of statistical and econometric analysis used in the present study**

In the third chapter, statistical and econometric methods applied in research are presented and explained, such as exploratory data analysis (EDA), principal component analysis (PCA), clustering techniques (including hierarchical clustering and k-means), as well as panel analysis.

The use of innovative clustering techniques, such as DBSCAN, is also introduced, highlighting their contribution to a more nuanced analysis of complex financial data. The chapter is essential for understanding how data is processed and interpreted, preparing the reader for the case studies presented later.

#### Chapter IV: Case study. Dimensionality Reduction and Segmentation through Clustering: Prediction of Non-Repatriated Revenues for S&P500 Companies

This chapter applies the methods discussed above to segment and analyze the tax behaviors of S&P 500 companies. The main purpose of this case study is to predict non-repatriated income by identifying groups of companies with similar tax practices. The results highlight not only common patterns, but also certain unusual tax behaviours that may indicate the aggressive use of offshore financial structures. In conclusion, this chapter demonstrates the importance of using clustering techniques and PCA to capture the complexity of the tax strategies of large multinational companies, thus highlighting the relevance of these methods in the analysis of international corporate finance. Contributing with a concrete example of the application of econometric theories, the chapter provides relevant conclusions for practitioners and academics alike.

#### Chapter V: Case study. Evolution of assets in the restricted measure. A panel analysis

In this chapter, the panel analysis is used to explore the evolution of financial assets under the restricted measure, examining how these assets have been influenced by the activities in the shadow banking sector. The study aims to provide a detailed assessment of the composition and dynamics of these assets, analysing the long-term risks and benefits associated with non-bank financial intermediation. The conclusions reached underline the significant role that shadow banking systems play in global financial stability, demonstrating that these structures, while effective in the short term, can contribute to increasing systemic risk in financial markets. The overall conclusions indicate the need for a rigorous and innovative approach in the analysis of corporate finance and global financial markets, underlining the importance of proper monitoring and regulation of these complex structures.

The thesis concludes with a generous bibliography, which reflects both the academic sources of reference and the most recent research in the field, all contributing to the theoretical and practical substantiation of the analyses carried out. Also, the annexes of the thesis include additional materials meant to support the understanding of the analyses presented, providing additional details and concrete examples that facilitate the deepening of the results obtained in the case studies. These additional resources are essential for readers who wish to deepen the technical and methodological aspects discussed in the doctoral thesis.

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